DOCTORAL THESIS

Children at risk of an eating disorder: early identification and assessment of children and intervention strategies for children and their carers

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Award date:
2016

Children at risk of an eating disorder: Early identification and assessment of children and intervention strategies for children and their carers

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Submitted in fulfilment of the requirements of the degree of

Doctor of Philosophy

July, 2015

Abstract

This thesis project involved the development and validation over three major projects of a unique, needed, measure of pre-cursers to eating disorder practices. The first project identified potentially destructive eating practices via the development and validation of a scale on maladaptive eating practices - the Maladaptive Eating Practices Questionnaire (MEPQ) . The second project examined the efficacy of a preventative intervention for children at risk of an eating disorder, providing them with a set of skills to support healthy eating practices. The third project had as its focus the parental carers of children at risk of an eating disorder. Parental carers who participated in a cognitive-behavioural intervention developed skills to assist them and their children in eating management.

Current childhood assessment methods are unable to detect maladaptive eating practices or the formative stages of eating disorders in children. Poor detection poses life-threatening complications for both underweight and overweight children (Abraham, Boyd, Lal, Luscombe, & Taylor, 2009; AED, 2011). Mortality rates for eating disorders is the highest of any mental illness in Australia (Birmingham, Su, Hlynsky, Goldner, & Gao, 2005; Sullivan, 1995). Stage 1 of this PhD research developed a scale to identify early maladaptive eating practices and thus assist children at risk, their carers and their clinicians, through the ability to identify potentially maladaptive eating practices. In stage 2 the MEPQ was used to examine changes in eating behaviours in children aged 8 to 12, who were undergoing Cognitive Behavioural Therapy (CBT). In stage 3 CBT based treatment interventions were given to their parental carers (Alexander & Treasure, 2012). The efficacy of CBT based treatment interventions in providing support to affected children and to their carers was evaluated. This showed support for the interventions and demonstrated the usefulness of the developed scale.

The three major projects of the thesis were conducted from 2011 to 2013. The focus of study 1 was to develop a psychometrically sound screening tool for detection of the *risk* of eating disorders in children aged 8 to 12, when maladaptive eating practices first occur (Herrin & Larkin, 2013). The preliminary stages of development of the MEPQ included an expert panel (n= 15) and a parent panel (n= 25) to review the initial 74 items drafted. A provisional 43-item version of the MEPQ was administered to a sample of 329 participants (256 females and 73 males) aged 16 to 25 (*M*= 20.08 years, *SD*= 2.487) to finalise the items. Five reliable factors reflective of the five dimensions of the Integrative Cognitive-Behavioural Model of eating disorders (Williamson, White, York-Crowe, & Stewart, 2004) were obtained from an exploratory factor extraction resulting in a 25-item instrument. To evaluate the psychometric properties of the MEPQ, the 25-itemed version was administered to two additional samples of 224 participants (67 males and 157 females) over the age of 17 years (*M* = 30.96, *SD* = 13.92) and a sample of 90 child participants (70 girls and 30 boys), aged 8 and 12 (*M*= 9.92 years, *SD* =1.45). Results suggest that the MEPQ has good psychometric properties, where internal reliability coefficients for the subscales were found to be strong, as was test-retest reliability. The MEPQ-25 demonstrated significant positive correlations with a convergent measure of eating and body concerns and weaker but significant correlations with divergent measures of personality, confirming convergent and discriminant validity.

The primary objective of Study 2 was to evaluate the efficacy of a modified CBT prevention program for children *at risk* of an eating disorder, (known as the FRIENDS for Life program; Barrett, 2010), and provide these children with a set of skills that would be expected to support healthy eating practices. This study involved 90 participants (70 girls and 30 boys), aged between 8 and 12 years of age (*M*= 9.92 years, *SD* =1.45), recruited from eating disorder clinics and organisations Australia wide. This

eight-session intervention was selected to provide at risk children with a set of skills that would support healthy eating practices. All participants completed a package of child self-report measures assessing maladaptive eating, anxiety, depression, and coping skills and behavioural difficulties, prior to commencing the intervention. Outcomes were recorded post-treatment, and at a three-months follow-up.

The results of statistical analyses indicated that children who received the intervention program showed significant reductions in maladaptive eating practices and associated risk factors of anxiety, depression, and behavioural difficulties between pre-test and post-test, in comparison with the active waitlist. Furthermore, the statistically significant differences between the waitlist and intervention groups were evident at three-month follow-up.

Study 2 also examined whether there was a greater benefit for children, when their parental carers were actively involved in the intervention, compared with children where no parental carer was present. A sample of 30 female parental carers aged between 23 and 45 years of age (M= 30.57 years, SD = 5.96), were recruited with their children as part of study 2. Significant differences between the two intervention groups became evident at three-month follow-up. Children who attended their intervention alone showed deterioration of scores between post-test and follow-up; though there was significant improvement. Children with a parental carer in attendance maintained their post-test improvements at follow-up.

The primary objective of Study 3 was to evaluate the efficacy of a CBT prevention program for parental carers of children displaying early warning signs of maladaptive eating using the adult version of the CBT FRIENDS for Life program (Barrett, 2011). The CBT based adult FRIENDS program, a three-session intervention, was selected to provide effective prevention intervention strategies that would improve

the effectiveness of parental carers as moderators of treatment outcomes and to also ease the stress on these carers. A sample of 60 female parental carers aged between 22 and 46 years of age (*M*= 32.83 years, *SD* =5.96), was recruited from eating disorder organisations Australia wide. All participants completed a package of self-report measures assessing depression, anxiety and stress, and resiliency at four points: prior to commencing the intervention, at post-intervention, and at three-month and six-month follow-ups.

The results indicated that parental carers who participated in the intervention showed significantly greater decreases in symptoms of depression, anxiety, and stress between pre-test and post-test, while the waitlist control group of parental carers showed no changes. In the intervention group, resiliency also increased, while there was no change in the waitlist control group. Differences from pre-test to six-month follow up also indicated greater reductions in symptoms for the intervention group compared with the control group. These results suggest that CBT FRIENDS for Life program (Barrett, 2011) supported the parental carers directly by increasing their sense of resiliency and psychological well-being in comparison with the waitlist control group of carers.

A secondary focus of study 3 was to examine whether there was improved maladaptive eating disorder outcomes for children whose parental carers participated in the adult CBT prevention program, when compared with children whose parental carers did not participate. A parent-rated report measure of childhood mealtime eating behaviours was used to evaluate short and long-term changes in their children's eating. The results indicated that there were no significant differences in children's eating behaviours at post-test for the intervention group compared with the control group. However, there was a significantly greater improvement between pre-test and the six-month follow-up for the intervention group compared with the waitlist control. The results suggest that

the intervention did not have an immediate effect in improving parental carer competency. However, the positive improvements in behavioural eating difficulties at the six-month mark may indicate a possible impact of the FRIENDS program on carer competency.

In the final section of this thesis, clinical implications of the results of the studies are discussed, along with implications and directions for future research.

Declaration of Originality

This thesis is submitted to Bond University in fulfilment of the requirements of the degree of Doctor of Philosophy. This thesis represents my own original work towards this research degree and contains no material which has been previously submitted for a degree or diploma at this University or any other institution, expect where due acknowledgement is made.

I have clearly stated the contribution of others to my thesis as a whole, including statistical assistance, help with technical procedures, and any other original research work used or reported in my thesis.

Published works by the author incorporated into this thesis:

Ebenreuter, J. L., & Hicks, R. E. (2012). Maladaptive eating practices as precursors to eating disorders: A method of assessment. In L. Ricciardelli & M. Caltabiono (Eds), *The Wiley-Blackwell handbook of applied topics in health psychology* (pp. 278-287). West Sussex, UK: John Wiley & Sons, Ltd.

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Justine Ebenreuter

July, 2015

Acknowledgements

The author wishes to offer her thanks and appreciation to thesis supervisors Dr Richard Hicks and Dr Aileen Pidgeon for their continuing assistance and dedication in the development of this thesis. Dr Hicks and Dr Pidgeon were always available for assistance throughout this work and were willing to debate issues and encourage the development of ideas. Without this dedicated level of professionalism and unswerving patience this work would never have been completed.

I would also like to recognise the support of the members of the Bond University School of Psychology where help was generously given. In particular, I would like to thank Dr Stapleton, who helped me obtain a clinical sample, and Dr Bahr and external colleagues Dr Alexander and Dr Fischer with their invaluable assistance with statistical data analysis and technical procedures of my research for study 2 and 3.

I also wish to acknowledge the assistance of the following people and organisations for their assistance with the clinical samples. These include Ms Rhydderch of the Eating Disorder Foundation and the Butterfly Institute, Dr Barrett at the Pathways Health and Research Centre, Bond University for permission to use their counselling rooms, and once again Dr Stapleton at Psychology Central. Without their assistance the work could have not been completed.

I would also like to thank my partner GB who has been by my side throughout this process, thank-you for always supporting me in this endeavour. I truly enjoyed our Saturday morning debates about new treatments for childhood eating disorders.

Lastly, I need to recognise the influence of my twin sister Dr Lehoux and my mother Dr Ramshaw who both provided ongoing encouragement and ensured I remained focused on my goal. Mum you are the one who inspired me to do this. Your ongoing guidance and support will never be forgotten.

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List of Abbreviations

For ease of readability and clarity of understanding the use of acronyms has been restricted (see Table 1).

Table 1

Acronyms Used in this Work

ANOVA	A one-way analysis of variance	168
BED	Binge Eating Disorder	16
BET	Branched Eating Disorders Test	63
BITE	Bulimic Investigatory Test Edinburgh	63
BULIT-R	Bulimia Test–Revised	63
CBT	Cognitive behavioural therapy	ii
CEBI	Children's Eating Behaviour Inventory	158
ChEAT	Children Eating Attitudes Test	63
DASS	Depression, Anxiety and Stress Scale-Short Form	122
DSM	Diagnostic and Statistical Manual of Mental Disorders	1
DSRS-C	Depression Self-rating Scale for Children	129
DVs	Dependent Variables	177
EAT-26	Eating Attitudes Test-26	65
EDE	Eating Disorder Examination	67
FCBT	Family-based Cognitive Behavioural Therapy	84
ITEQ	Thoughts on Eating Questionnaire	129
MANOVA	Multivariate Analysis of Variance	177
MBSRQ-AS	Multidimensional Body-Self Relations Questionnaire-Appearance Scales	129
MEPQ	Maladaptive Eating Practices Questionnaire	ii

Mini IPIP	International Personality Item Pool	129
MMS	Modified Mini Screen	158
NSVS	Non-Specific Vulnerability-Stressor	26
OSFED	Other Specified Feeding or Eating Disorders	16
RS-14	Resilience Scale	122
SCOFF	Sick, Control, One, Fat, Food	63
SDQ	Strengths and Difficulties Questionnaire	162
SED	Survey for eating disorders	63
UFED	Unspecified Feeding and Eating Disorder	16

Chapter 1: Introduction – Childhood Eating Disorders

Thesis Overview

Eating disorders occur at all ages, and are a significant mental health problem in Australia. The most dramatic increases in eating disorders are in young children (Herrin & Larkin, 2013; Holt & Ricciardelli, 2008; National Eating Disorders Collaboration (NEDC, 2010a). Until recently a substantial number of effected children were under-represented in the published research and clinical arena. Even with the magnitude of this problem, the majority of affected individuals will not receive treatment (Madden et al., 2009).

Early detection of maladaptive eating practices and prevention of eating disorders would impact positively upon the individual, their carers, their family, clinicians and the community, where detection leads to intervention. This is because eating disorders account for a significant proportion of ill health and have the highest mortality rate for any mental illness in Australia (Birmingham et al., 2005). Despite this the current Diagnostic and Statistical Manual of Mental Disorders (DSM-5, 2013) does not offer clinical practitioners appropriate psychometric criteria to identify those at risk of developing an eating disorder. Children are especially vulnerable (Holt & Ricciardelli, 2008). It is estimated that only 32 per cent of children meet diagnostic criteria for an eating disorder, despite 75 per cent presenting with psychological symptoms and maladaptive behaviours typical of these disorders (DSM-IV-TR, 2000; Madden, Morris, Zurynski, Kohn, & Eliot, 2009; Peebles, Wilson, & Lock, 2006). The long duration of treatment to produce results for eating disorders is also problematic due to the costs, which can marginalise those unable to fund treatment programs. Untreated the probability of suicide is 32 times higher in individuals with eating disorders when compared with non-eating disorder related suicides (Madden et al., 2009). Even with treatment the probability of death remains high (Bulik & Thornton, 2008; Engel, Adair, Hayas, & Abraham, 2009; Forcano et al., 2011).

Arguments have been presented for targeting young children who engage in maladaptive eating practices (Le Grange & Loeb 2007; Levine & Smolak, 2006) because these practices are often indicative of eating disorders in evolution which may progress to the full clinical level (Alexander & Treasure, 2012; Berkman, Lohr, & Bulik, 2007). Individuals who appear to be at a higher risk for developing an eating disorder exhibit more pre-diagnostic psychopathology than their more chronic and stable sub-syndromal counterparts. In practice this makes early detection easier for the clinician (Stice, 2002; Stice, Ng, & Shaw, 2010). The rationale for this research is to pay attention to pre-diagnostic indicators of eating disorders.

Currently detection in young children is difficult due to the mismatch between clinical diagnostic criteria and eating disorder presentations (DSM-5, 2013). Traditional eating disorder assessments do not give attention to the pre-diagnostic aspects of eating disorders and rely on outdated DSM-IV-TR (2000) diagnostic outcomes. These lack sufficient domain coverage representative of maladaptive eating behaviours. Although individuals with milder cases may fail to meet all of the criteria for a diagnosable eating disorder (Matton, Goossens, Vervaet, & Braet, 2015; NEDC, 2012) 50 per cent are estimated go on to develop a full eating disorder (Budd, 2007; Fisher, Schneider, Burns, Symons, & Mandel, 2001). As a result, this poor detection poses life-threatening complications for underweight children (Abraham et al., 2009; AED, 2011; Katzman, 2005; Mehler, & Brown, 2015) who on average lose up to 25 per cent of their weight before a diagnosis is made (Madden et al., 2009). On the other hand, children who report difficulties with overeating are more susceptible to medical complications associated with being overweight (Marcus & Wildes, 2014). Overweight children are more likely to develop sleep apnoea, breathlessness, reduced exercise tolerance, some orthopaedic and gastrointestinal problems and early signs of metabolic and clinical consequences such as hypertension, hypertriglyceridemia and type 2

diabetes (Criego, Crow, Goebel-Fabbri, Kendall, & Parkin, 2009; Denney-Wilson, Hardy, Dobbins, Okely, & Baur, 2008; Schwimmer, Burwinkle, & Varni, 2003).

Up to 79 per cent of children who are diagnosed with an eating disorder require hospitalisation and more than half have life-threatening medical complications because of their illness (Crisp, 2006; Fox & Leung, 2008; Katzman, 2005; Mehler & Brown, 2015). Treatment for diagnosed eating disorders is also problematic due to the cost, which can marginalise those unable to fund treatment programs. Only 10 per cent of affected individuals receive treatment in Australia, and recovery in specialist centres is achieved in only half of the patients (Slane, Burt, & Klump, 2009). Despite these problems little work has been done to develop a valid instrument for children that is capable of identifying precursors to their eating disorders (Lundgren, Danoff-Burg, & Anderson, 2004), including more accurate and early assessment of behaviours, traits, and circumstances that pose risk factors. Further research was therefore required, particularly research into methods of early detection including a broadening of current diagnostic criteria to better detect eating disorders in young children.

The current thesis therefore seeks to identify through a valid instrument pre-cursors for children at risk of an eating disorder. But there are problems beyond the child. Parents of children who engage in maladaptive eating practices often report experiencing high emotional strain, similar to the strain experienced by the children with a diagnosable eating disorder (Le Grange & Lock, 2011). Existing research has shown that parental distress and lack of strategies to manage effectively their child's eating behaviour may contribute to the maintenance of maladaptive eating (Academy of Eating Disorders [AED], 2011). However, less distress is experienced by parents who develop effective coping strategies for managing their child's maladaptive eating behaviours (AED, 2011). As parents play an essential role in their child's adoption of healthy eating behaviours, there is a need to investigate more

formally CBT and family based interventions that may also reduce parental carer burden (Alexander & Treasure, 2012; Treasure et al., 2001; Treasure, Gavan, Todd, & Schmidt, 2002). The purpose of such an investigation would be to not only help protect the mental health of parents, but also potentially assist with treatment gains as parents become more empowered to assist their child to enact change. Therefore another aspect of the current research was to provide parental carers of children *at risk* with the skills to assist their competency in managing behavioural changes in their children's eating. Therefore, this thesis aimed to highlight the useful strategies offered by CBT and family based interventions when accessing the three levels of prevention; universal, selective, and indicated for childhood eating disorders and develop an assessment tool for the delivery of selective intervention programs.

In summary, the literature clearly shows that children with an eating disorder face ongoing barriers to being identified and treated early in the course of their illness (Engel et al., 2009; Slane et al., 2009; Yeo & Hughes, 2011) and those who care for them are often left out of the treatment and recovery process (Alexander & Treasure, 2012). Thus, this thesis arose from the premise that there was a need for assessment and enhanced treatment tools that would not only assist clinicians in identifying children *at risk* of an eating disorder but would provide affected children and their carers with a set of skills that support healthy eating practices.

For a conceptual model of this thesis refer Figure 1 below.

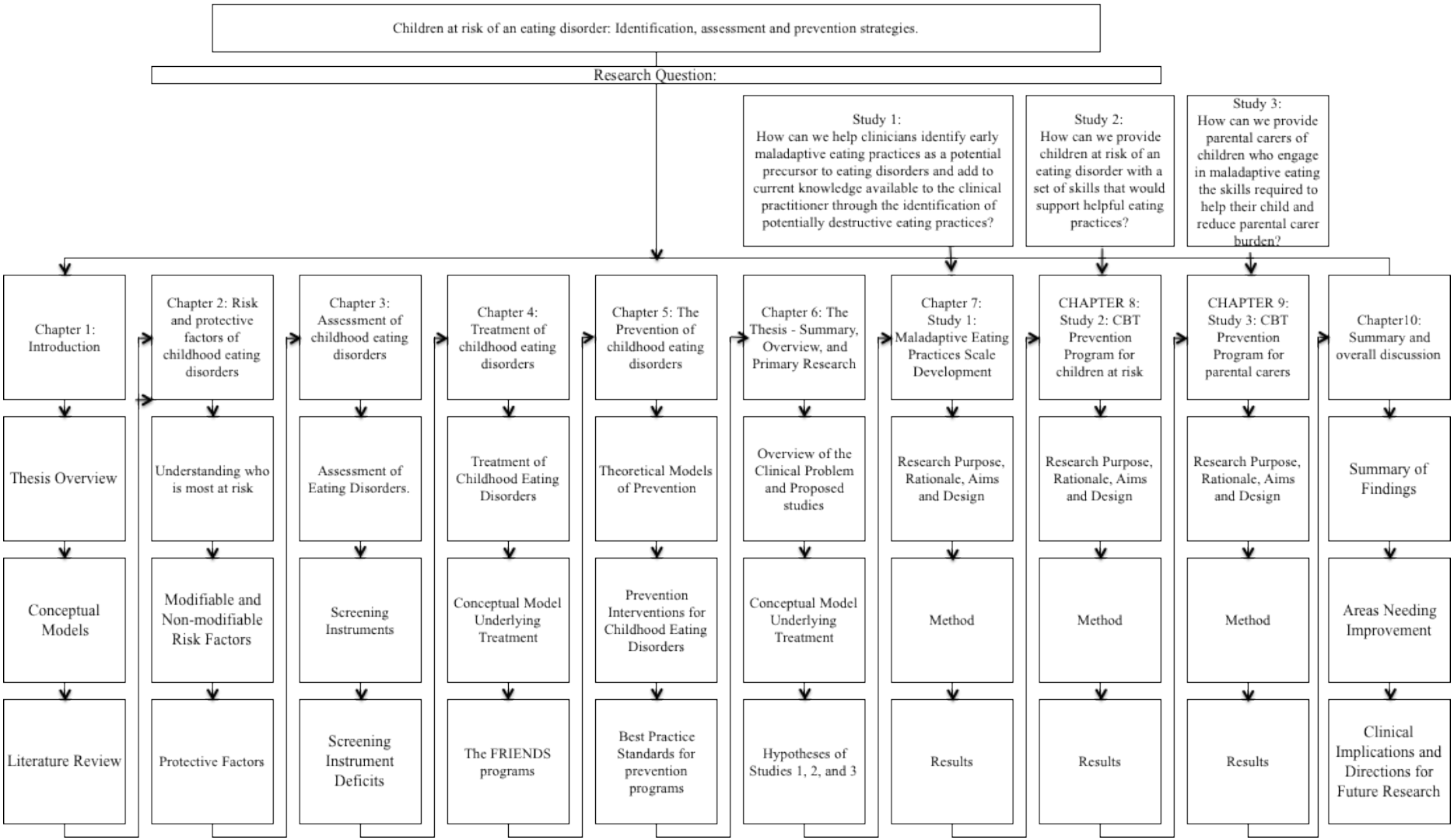

Figure 1. Conceptual model of current PhD thesis

The PhD thesis consists of three separate studies. They are outlined in the table attached (see figure 1). Current literature is reviewed in chapters two to five. Chapter six provides an overview of the research, while chapters seven, eight and nine present the findings from studies 1, 2 and 3 respectively. Chapter ten provides a summary and discussion of this thesis.

The objective of the first study (see chapter seven) was to help clinicians identify the existence of early maladaptive eating practices as a potential precursor to eating disorders and provide a broader definition and perspective of maladaptive eating practices. A new maladaptive eating practices questionnaire was developed to capture maladaptive eating practices and eating disorders in the formative stages, and to identify gaps in the sub-diagnostic literature and existing eating disorder frameworks (APA, 2000; Chamay-Weber, Narring, and Michaud, 2005; Fox & Leung, 2008). This maladaptive eating practices questionnaire, the MEPQ was developed as a part of the thesis and sought to advance preventative approaches as a preferred treatment model.

The objective of the second study (see chapter eight) was to provide children at risk of an eating disorder with a set of skills that would support healthy eating practices. CBT based programs were identified as being appropriate for this work, and while considerable evidence points to the effectiveness of CBT based programs in reducing diagnosable eating disorders in children (Le Grange & Lock, 2011), existing research conducted with children *at risk* of an eating disorder is slim (Alexander & Treasure, 2012). In this study changes in children's maladaptive eating practices were assessed at four stages in the program using the newly developed MEPQ a tool that provided clinicians with the ability to assess these changes.

The objective of the third study (see chapter nine) was to provide parental carers of children displaying early warning signs of maladaptive eating with the skills required to help

their children and to reduce their own parental carer burden (Dohnt & Tiggemann, 2008). To meet the above objective parental carers were invited to take part in one of two CBT based FRIENDS programs (Barrett, 2010). Further research with validated CBT interventions, aimed at treating children at risk of an eating disorder and their carers, is urgently required. This is because parental carers face many physical, emotional and financial difficulties when trying to deal with their child's maladaptive eating behaviours. The unintended consequence is that the resulting parental distress and lack of strategies to effectively manage their child's eating difficulties may be a factor in the development of maladaptive eating (AED, 2011). Parents who develop effective coping strategies to manage their child's maladaptive eating behaviours experience less distress (AED, 2011). Thus, helping to increase coping strategies and reduce carer burden for these carers is a positive first step in addressing the treatment of their children (AED, 2011).

The contribution of this thesis is to identify children with an eating disorder who face ongoing barriers to being identified and treated early in the course of their illness (Yeo & Hughes, 2011) and include parental carers as participants in the treatment process (Alexander & Treasure, 2012). This will be achieved by providing assessment and enhanced treatment tools that will assist clinicians in identifying children *at risk* and provide affected children and their carers with a set of skills that support healthy eating practices.

PhD Chapter Outlines

The first chapter provides a general overview of childhood eating disorders. This includes a review of phenomenology, prevalence, age of onset, stability of eating disorders over time, and comorbidity issues. It will also provide a synopsis of both the immediate and longitudinal impact on childhood maladaptive eating, in terms of psychological wellbeing and psychosocial functioning. Chapter two reviews major etiological models and risk factors identified in the development and maintenance of eating disorders as well as protective

factors that help guard against the development of a range of maladaptive eating practices. In addition the sub-diagnostic literature is reviewed to offer a broader perspective than that offered by the current eating disorder frameworks. In Chapter three the literature on treatment for childhood eating disorders, focusing primarily on early detection, pre-diagnostic indicators, assessments using validated and standardized screening instruments is reviewed. A comprehensive review of the shift from treatment to prevention of childhood eating disorders and the development of CBT as an individual therapy for a range of maladaptive eating practices, to the progression towards group-based CBT for childhood maladaptive eating is provided in Chapters four and five. Three different levels of prevention and reviews of the effectiveness of a childhood prevention strategies for maladaptive eating practices are examined. A summary and overview of studies 1, 2 and 3 are presented in Chapter six, and the results and discussion are covered in Chapters seven, eight and nine. Chapter ten summarises and integrates the findings with previous research, outlining research directions, implications and areas for future clinical research.

Literature Review

Definitions, diagnostic criteria, assessment, prevention and the treatment of childhood maladaptive eating practices have been the subject of many reviews and approaches. Major theories have included the Williamson et al. (2004) Integrated Cognitive-Behavioural theory of eating disorders, the Non-Specific Vulnerability-Stressor Model of Eating disorder prevention and Le Grange and Loeb's (2007) spectrum model.

Childhood eating disorders constitute an array of problems that create a substantial amount of distress and dysfunction for effected individuals, their carers, their families and the community (Dohnt & Tiggemann, 2008). Eating disorders are challenging to understand and not easy to treat (Alexander & Treasure, 2012). Children with eating disorders are more likely to have difficulties with school and social functioning (Le Grange & Lock, 2011),

academic achievement (Brooks & Goldstein, 2001; Buckner, Mezzacappa, & Beardslee, 2003) and low self-esteem (Madden et al., 2009) are among other indicators of poor psychosocial adjustment (Keel & Forney, 2013; Obradović, Bush, Stamperdahl, Adler, & Boyce, 2010). Children who are struggling with an eating disorder are frequently secretive about their illness, so parents and health care providers often do not recognize it until there are serious medical complications, social isolation, disability and an increased risk of death (Darby et al., 2009; Holm-Denoma, Hankin, & Young, 2014).

Impact of eating disorders in Australia. Eating disorders are becoming more prevalent in Australian society (Holm-Denoma et al., 2014**;** Hay, Mond, Buttner, & Darby, 2008). Eating disorders represent the third most common chronic illness for young females and 1 in 10 individuals with an eating disorder are male (Mond, Hay, Rodgers, & Owen, 2009). They are the second leading cause of mental disorder disability (Abraham et al., 2009). Estimates of the incidence of eating disorders vary across countries and studies but eating disorders are extensive and costly to communities (Alexander & Treasure, 2012). Maladaptive eating practices and body image issues have increased worldwide over the last 30 years (Engel et al., 2009). Altogether 15 per cent of children and adolescents display significant levels of subclinical symptomatology but not a diagnosable eating disorder (Chamay-Weber et al., 2005; Fox & Leung, 2008). Of these 50 per cent will go on to develop a diagnosable eating disorder (Budd, 2007; Fisher et al., 2001). Until recently a substantial number of these individuals were under represented in the literature, research and clinical arena.

Eating disorders (as indicated above) have the highest mortality rate of any mental illness (Birmingham et al., 2005; Sullivan, 1995). The risk of premature death for women with anorexia nervosa is between 6 to 12 times higher than that of the general population (Enge et al., 2009). A study by the National Association of Anorexia Nervosa reported that

approximately 5 to 10 per cent of anorexics die within 10 years after contracting the disease; 18 to 20 per cent will die after 20 years; and 30 per cent will recover (Darby et al., 2009). Up to 62 per cent of individuals suffering from an eating disorder have comorbid psychiatric illnesses including depression, anxiety and obsessive-compulsive disorder (Rodgers, Paxton, & Chabrol, 2009a; Swinbourne & Touyz 2007). Risk of successful suicide is 32 times higher than what is expected for the same aged population (Madden et al., 2009).

Young children are increasingly at risk of developing an eating disorder through the early adoption of a range of maladaptive eating practices (Madden et al., 2009). Practices may include food restriction, excessive exercise, diet pills and steroidal weight control (Wade, Treloar, Heath, & Martin, 2009). Maladaptive eating practices mirror eating disorder definitions as provided by DSM-5 (APA, 2013); the difference lies in severity of presentation.

Maladaptive eating practices have become a societal norm in Australia, with reports of these practices doubling in the last decade (Madden et al., 2009). In a recent Australian study, 90 per cent of 12 to 17 year old girls and 68 per cent of 12 to 17 year old boys reported being on some form of diet (Wilksch & Wade, 2009a). This is of concern as children and adolescents are 18 times more likely to develop an eating disorder within six months of dieting; this risk increases to a 1 in 5 chance over 12 months (Wilksch & Wade). The age of onset for developing a serious eating disorder has also significantly decreased. Of individuals aged between 12 and 25, 90 per cent who have an eating disorder are female and 10 per cent are male, with 10 per cent reporting the onset at 10 years or younger (Rodgers, Paxton, & Chabrol, 2009b). In a related study, 50 per cent of girls and 33 per cent of boys aged between 8 to 13 years were already found to be unhappy with their size (Allen, Byrne, La Puma, McLean, & Davis, 2008).

A mismatch exists between current diagnostic criteria for eating disorders and actual eating disorders or maladaptive eating presentations in children, making detection difficult

(see Chapter three). This poor detection poses life-threatening complications for children who on average, lose up to 25 per cent of their weight before a diagnosis is made (Madden et al., 2009). Furthermore, up to 79 per cent of children who are diagnosed with an eating disorder require hospitalisation, and 51 per cent have life-threatening medical complications because of their illness (Madden et al., 2009). This calls for further research into methods of early detection including a broadening of current diagnostic criteria to better detect eating disorders in young children.

Once an eating disorder has developed treatment is difficult and expensive, and recovery in specialist centres is only achieved in approximately half of the patients (Slane et al., 2009). In Australia, only 10 per cent of individuals with diagnosed eating disorders obtain specialist treatment, and the majority of these do not receive the intensity of treatment they need to stay in recovery (Crisp, 2006; Engel et al., 2009). This may be because treatment of an eating disorder in Westernised countries range from $500 per day to $2,000 per day (Darby et al., 2009). The average cost for a month of inpatient treatment is $30,000. It is estimated that individuals with eating disorders will require between 3 to 6 months of inpatient care. The cost of outpatient treatment, including therapy and medical monitoring, can extend to $100,000 or more.

Because of this, initiatives to prevent eating disorders could potentially translate to significant human and economic cost savings. Successful prevention initiatives and evaluated prevention programs exist that help reduce eating disorder risk (Dohnt & Tiggemann, 2008; O'Brien & LeBow, 2007), with 51 per cent of eating disorder prevention programs reducing eating disorder risk factors and 29 per cent reducing current or future eating pathology (Fox & Leung, 2008). Cognitive-behavioural interventions for children and adolescents aged between 7 and 14 years have also be seen to be successful in such treatment, promoting emotional wellbeing as well as resilience and preventing the onset of a range of social-

emotional problems, when implemented as early intervention or a prevention program (Barrett, 2010; Barrett & Turner, 2004; Currin & Schmidt, 2005; Shortt, Barrett, & Fox, 2001). Evidence shows that early intervention for children with indicators of maladaptive eating prevent the disorders from moving along a trajectory path from mild to severe (Alexander & Treasure, 2012; Currin & Schmidt, 2005). However effective, easily used assessment techniques do not capture these early presentation of eating disorders in children. The current thesis aims to rectify this creating an instrument which identifies maladaptive eating practices of children when presentations first occur.

Therefore this thesis first identifies gaps in the pre-diagnostic literature and existing eating disorder frameworks, and provides a broader definition and perspective of maladaptive eating practices for clients and professionals. This identification will lead to the development and validation of such an instrument, the MEPQ. In addition this thesis will add to current knowledge for the clinical practitioner through the validation of selected prevention programs for children and adolescents *at risk* of and eating disorder, and for their carers (as discussed next).

Impact of eating disorders on parents as carers. Previous research has found that the parents of children with an eating disorder experience high levels of distress (Haigh & Treasure, 2003), and find the treatment process and ongoing caring role burdensome (Alexander & Treasure, 2012; Perkins, Winn, Murray, Murphy, & Schmidt, 2004; Treasure et al., 2002). Common themes in the experience of caring for someone with an eating disorder highlight the effect on family, particularly the family members as the carer. This includes the carers' illness perceptions together with their emotional, cognitive and behavioural responses toward their child's illness (Alexander & Treasure, 2012; Dancyger, Fornari, Scionti, Wisotsky, & Sunday, 2005; Treasure et al., 2001; Whitney et al., 2005). Current literature assists us to better understand these themes.

Effect on family. A family unit can find the physical and emotional effort required to manage an eating disorder overwhelming (Alexander & Treasure, 2012; Treasure et al., 2002). Parents' and siblings often report that the needs of the ill child tends to dominate shared family time and makes unreasonable demands on the family unit (Treasure et al., 2001). Parental caring responsibilities also take precedence over wider family responsibilities, as the ill child requires more care and attention, marginalising other siblings from the process.

Attending social and recreational activities, and making future plans, often becomes too difficult. Stigma, or fear of stigma, about eating disorders increases the likelihood that parents' will isolated themselves from others (Schmidt & Treasure, 2006). As a result the family become increasingly isolated and experience reduced social support. Families further report the illness can lead to friction within family relationships, such as arguments between family members and a stressful atmosphere within the household; problems that previously didn't exist (Humphrey, 1988; Perkins et al., 2004).

Carers' illness perceptions. There is often great misunderstanding about the nature of eating disorders of children, among parents (Treasure et al., 2001; Treasure et al., 2002). Most parents as carers are perplexed about the cause of contributing factors of their child's illness (Haigh & Treasure, 2003). Repeated themes of non-acceptance of the child's illness and intimations that eating disorder symptoms are attempts to manipulate and control others are often found in qualitative and quantitative studies of caregivers' burden in regard to these disorders (Treasure et al., 2001; Whitney et al., 2005).

Whitney et al.'s (2005) qualitative study of caregivers' burden and eating disorders, found that mothers and fathers equally placed blame on themselves, questioning aspects of their child's upbringing. Furthermore, the majority of these parents perceived the illness to be chronic, expressing pessimism about their child's ability to overcome the illness and readjust to their previously normal life. One of the most predominant themes in Whitney et al.'s study

concerned the consequences of the illness. Parental carers perceived negative impacts on their child's physical, mental and social well-being. Both mothers and fathers believed that the illness had resulted in their child becoming more dependent and demanding, with a lower sense of self-worth. Fathers expressed greater concern regarding the detrimental effects on their child's physical health, whereas mothers expressed greater regret over lost opportunities. These expressions of concern, Treasure (2012) noted, indicated a failure of the research and clinical community to better educate the public about the nature of eating disorders. This highlights the domains of education needed for the child, the parents and other family members involved, as well as the professionals.

Carers' emotional and cognitive processes. Parents of a child with an eating disorder often have difficulty maintaining their own equilibrium and mental health (Alexander & Treasure, 2012; Nishizono-Maher et al., 2010; Treasure et al., 2001; Wearden, Tarrier, Barrowclough, Zastowny, & Armstrong-Rahill, 2000). Effected parents report experiencing negative emotions, varying from sadness and distress to fear, anger and hostility. Many expressed self-blaming, indicating feelings of guilt, failure and inadequacy. Emotional responses reported primarily by mothers, included sleep difficulties, preoccupation with their child's illness and feelings of hopelessness. Contrasting with this, studies on Fathers' responses to their child's illness showed more cognitive and detached accounts, with more unhelpful thoughts and assumptions about their child's disorder, as well as greater use of avoidant coping strategies, such as withdrawing from the family unit (Whitney et al., 2005). But this is not always the case. Positive themes within eating disorder literature on carer burden also exist. For example, mothers and fathers have been known to express affection towards their child, support and protect them, and see their admirable qualities in spite of their illness (Damiano et al., 2015; Haigh & Treasure, 2003; Perkins et al., 2004; Whitney et al., 2005).

The themes in the literature are predominantly concerned with illness perceptions, impact on the family, and carers' emotional, cognitive and behavioural responses towards the illness (Alexander & Treasure, 2012; Galloway, Fiorito, Lee, & Birch, 2005; Treasure et al., 2001). Parents perceive eating disorders to be chronic and disabling. Carers blame themselves as contributing to the illness and perceive themselves as helpless in promoting recovery. Mothers produced an intense emotional response, whereas fathers produced a more cognitive and detached account (Damiano et al., 2015). Part of the distress in living with an eating disorder may be explained by these unhelpful assumptions and maladaptive responses to the illness (Haigh & Treasure, 2003). Training parents in skills and coping strategies to manage their child's eating disorder may improve outcomes by reducing interpersonal maintaining factors (Whitney et al., 2005).

The literature stated that children and their parental carers face barriers to early identification and treatment options, yet this knowledge has not been transferred to the test and treatment arena. This thesis aims to rectify this through the early identification of maladaptive eating practices and through the validation of a selected prevention program to assist carers of children at risk of an eating disorder.

Definition of Terms

This section presents a description of the DSM-5 Eating Disorders (APA, 2013) and definitions of *maladaptive eating* as discussed in this thesis. Following this, a description of the conceptual models and theoretical frameworks of eating disorders that support this work are presented.

Description of DSM-5 eating disorders. Clinicians rely on diagnostic criteria when seeking to identify an existing eating disorder. As the incidence of underreported eating disorders is, in part, due to the exclusion of pre-diagnostic indicators of eating disorders in the current DMS-5 (2013), it is essential to this work to understand these definitions and

criteria (Call, Walsh, & Attia, 2013). A reading of the DSM-5 clearly explains that eating disorders are defined as being distinguished by disturbances in eating behaviour, weight regulation, and attitudes towards body shape. Wider reading informs us that these distinguishing features differ in presentation, symptom and severity (Smink, van Hoeken, & Hoek, 2013). Eating disorders also have many features in common and individuals frequently move between them (Fairburn, 2003; Knoll, Bulik, & Heabebrand, 2011). Because of this a specific diagnosis can be challenging as diagnostic symptoms and associated behaviours substantially overlap across all eating disorders. Also the subjective interpretation and justification behind diagnostic behaviours is often not clear or is limited by developmental constraints, which further complicate diagnosis, such as in the case of childhood eating disorders (APA, 2000; 2013; Alexander & Treasure 2012).

The DSM-5 (2013) lists all the *Feeding and Eating disorders* that are diagnosed by clinicians. Of these there are four specified eating disorders, which include Anorexia Nervosa, Bulimia Nervosa, Binge Eating Disorder (BED) and Other Specified Feeding and Eating disorder (OSFED; NEDC, 2014), and one unspecified Feeding and Eating disorder (UFED). Although Feeding Disorders are not the focus of this thesis a brief description of Feeding Disorders is given below.

Feeding disorders. Previously feeding disorders were considered part of a category of disorders usually first diagnosed in infancy, childhood, and adolescence in the DSM-IV-TR (DSM-IV-TR, 2000). Yet because feeding disorders are seen in individuals of all ages they were made part of a larger Feeding and Eating disorder category in the DSM-5 (Bryant-Waugh, 2013). The three major feeding disorders are Pica, Rumination Disorder and avoidant/restrictive food intake disorder (Call et al., 2013; Ray, 2014).

Pica is a feeding disorder in which the person must eat something that would not be considered food. Some common substances include clay, paste, newspaper and paint chips

(Ray, 2014). Eating of these substances may lead to health problems including vitamin deficiency and visits to hospital (Call et al., 2013).

Rumination Disorder is a feeding disorder in which the person regurgitates his or her food. This swallowed food is then re-chewed, re-swallowed, or spat out. A person may not receive a diagnosis of Rumination Disorder until the condition has occurred for at least one month (Ray, 2014).

Avoidant/restrictive food intake disorder is diagnosed when an individual does not eat certain foods, which leads to such conditions as weight loss or nutritional deficiency. A person may avoid certain foods because of the sensory characteristics of the food. Although most people have particular food preferences, their avoidance of certain foods does typically not lead to problems with significant weight loss or nutritional deficiencies (Call et al., 2013; Ray, 2014).

Eating disorders. The first two eating disorders described in the DSM-5 are anorexia nervosa and bulimia nervosa. They share the distinctive core psychopathology of weight overvaluation, which is essentially the same in female and male individuals (APA, 2013). In both cases self-worth is based on individuals' ability to control their shape and weight. Low weight is viewed as an accomplishment rather than an affliction, thus reducing motivation to change one's behaviour (Call et al., 2013; Chamay-Weber et al., 2005). The primary distinction between anorexia nervosa and bulimia nervosa diagnostic criteria is reflected in the anorectic's refusal to maintain normal body weight (Alexander & Treasure, 2012). Restrictive eating and dieting are primary indicators of maladaptive eating. This thesis seeks to identify early presentation of these eating disorder indicators by way of a new test, the MEPQ, which also aims to capture eating disorder presentations in children, when they first occur (NEDCb).

There are two subtypes of anorexia nervosa, a restricting type and a binge-eating/purging type (DSM-5, 2013). Anorexia nervosa is a heavily gendered disorder, with about 90 per cent of cases involving females (Levine & Smolak, 2006). Anorexia nervosa most commonly onsets during adolescence, with peaks reported at ages 14 and 18 (APA, 2013). However, evidence suggests anorexia nervosa can begin pre-pubertally (Holt & Ricciardelli, 2008; Herrin & Larkin, 2013; Maguire et al., 2008; NEDC, 2010a). This makes the applicability of the DSM-5 diagnostic criteria for children an important issue requiring further clarification and modification (Bryant-Waugh, 2013).

With anorexia nervosa food restriction is motivated by psychological processes, including asceticism, competitiveness, or a wish for some individuals to punish themselves (Call et al., 2013; Fairburn, 2003). Symptoms of depression and anxiety, irritability, lability of mood, impaired concentration and obsessional features are also frequently associated with anorexia nervosa; features that worsen, as weight is lost and improve with weight regain (Malson et al., 2008). Reports of self-injury, including substance misuse may also present but are less commonly reported.

Anorexia nervosa has proven to be fatal for individuals diagnosed with the disorder (Slane et al., 2009). Most deaths are either a direct result of medical complications or suicide (Abraham et al., 2009; AED, 2011; Birmingham et al., 2005; Tozzi, Thornton, & Klump, 2005). Individuals who experience an early onset and a short history with anorexia nervosa tend to fair more favourably than those who have a longer history, severe weight loss, and have engaged in binge eating and vomiting (Castro, Lazaro, Pons, Halperin, & Toro, 2000; Engel et al., 2009; Forcano et al., 2011; Lask & Bryant-Waugh, 1992; Madden et al., 2009), therefore early identification is essential for individuals with anorexia nervosa to have a better outcome. This is what the MEPQ seeks to achieve.

Previously, diagnostic error when assessing children for symptoms of anorexia nervosa existed because diagnostic criteria were based on adult males or females (Knoll et al., 2011). For example, the diagnostic feature of amenorrhea was recently removed from the diagnostic criteria because it did not apply to young girls who had yet to menstruate and to young boys, who would need comparable criteria of reduced fertility, to qualify (Bryant-Waugh; DSM-5, 2013). When examining the fear of weight gain or body fat, researchers remain unsure what a positive valuation of both weight loss and low body weight might look like in young children. Debate also exists as to whether young children are cognitively capable of the type of fear of fat and disturbances in bodily experiences that adults commonly report (Levine & Smolak, 2006; van Elburg & Treasure, 2013).

Bulimia nervosa when compared with anorexia nervosa is a relatively new disorder; research suggests has developed in response to Western society's beauty ideal (Carey, Donaghue, & Broderick, 2014). The illness was first documented in 1979 and was formally recognised as a distinct disorder in the third edition of the DSM-III in 1980. Bulimia nervosa is characterised by a binge-purge cycle. This cycle must be reported to occur at least once weekly over a three-month period, to satisfy DMS-5 criteria (DSM-5, 2013). Symptoms of depression and anxiety disorders are also often prominent and, as with anorexia nervosa, there is a subgroup that engages in substance misuse and self-injury (Rodgers et al., 2009a). Binging behaviours are often concealed by affected individuals who will go to great lengths to keep their eating habits concealed. These individuals experience weight fluctuations rather than severe weight loss, which results in many individuals going undetected for a long period of time (Darby et al., 2009; Hay, Darby, & Mond, 2007; Holm-Denoma et al., 2014).

Like anorexia nervosa, bulimia nervosa is heavily gendered with up to 90 per cent of diagnoses assigned to females (Allen et al., 2008). Bulimia nervosa has a slightly later age of onset than anorexia nervosa, 17–25 years, however it is now diagnosed more extensively in

pre-pubertal children (Hay et al., 2007; Hepworth & Paxton, 2007; Tozzi et al., 2005). No consistent predictors of bulimia nervosa have been identified in the literature, although there is evidence that childhood obesity, low self-esteem, and personality disturbances may place individuals at higher risk of developing bulimia nervosa (Ghaderi & Scott, 2001a; Graber, Brooks-Gunn, Paikoff, & Warren, 1994; Hay el al.; Jacobi et al., 2011).

Added to these diagnostic issues is the evidence given by the children themselves. Young children are said to be unreliable reporters of purging behaviours, with more boys than girls reporting purging activities when surveyed, than what would be typically plausible (Levine & Smolak, 2006). Secondly, during periods of growth spurts, children, especially young boys, typically require and consume more calories than most adults normally do. In this instance parents tend to over report binging cycles (Alexander & Treasure, 2012). This raises the question; can researches accurately identify the early warning signs of bulimia nervosa in order to conduct targeted interventions. This is important if prevention specialists are to help parents to identify signs of binge eating and purging that meet the DSM-5 diagnostic criteria. As part of this thesis, the newly developed MEPQ sought to rectify these issues.

The third category of eating disorders defined by the DSM-5 is BED (DSM-5, 2013). It was first recognized in the early 1990's (DMS-IV-TR, 2000) yet BED was only approved for inclusion in the current DSM-5 in 2013 as its own category of eating disorder. BED is defined as recurring episodes of eating significantly more food in a short period of time than most people would eat under similar circumstances. Episodes are marked by feelings of guilt, embarrassment or disgust over the amount consumed and over the inability to stop eating when uncomfortably full (Wade, Treloar, & Martin, 2008; Patton, Coffey, Carlin, Sanci, & Sawyer, 2008). Individuals diagnosed with this disorder report engaging in binging activities on average at least once a week over three months (DSM-5, 2013). This new change to eating

disorder categories is intended to increase the awareness of the substantial difference between BED and over eating, the latter of which is less severe, occurs less often, and is not associated with the same significant physical and psychological problems (Smink et al., 2013).

Other specified feeding or eating disorders. The DSM-IV-TR (2000) residual category of Eating Disorder Otherwise Not Specified has been renamed to Other Specified Feeding or Eating Disorders (OSFED) in the new DSM-5. OSFED includes a wider spectrum of disordered eating practices and is frequently used for individuals who fulfil some, but not all of the diagnostic criteria of any of the Feeding or eating disorders (DSM-5, 2013).

Unspecified feeding and eating disorder. Unspecified Feeding and eating disorder (UFED) also includes a wider spectrum of disordered eating practices that cause clinically significant distress and impairment of functioning for individuals who fulfil some, but not all of the diagnostic criteria of any of the Feeding or eating disorders (DSM-5, 2013). This category may be utilised by clinicians who choose not to specify why criteria are not met or in situations where insufficient information results in an inability to make a more specific diagnosis (Smink et al., 2013).

Maladaptive eating practices. Ebenreuter and Hicks (2013) argue that maladaptive eating practices mirror eating disorder definitions as provided by DSM-5 (APA, 2013); the difference lies in severity of presentation. Maladaptive eating practices are represented by a group of eating disorders in which there are significant disturbances in eating habits or weight-control behaviour, with either disturbances, or associated core eating disorder features, which may result in either a clinically significant impairment of physical health or psychosocial functioning or both (Fox & Leung, 2008; Keel & Forney, 2013; Pott, Ozgur, Hebebrand, & Pauli-Pott, 2009). This definition excludes behavioural disturbances secondary to any general medical disorder or to any other psychiatric condition (Fairburn & Harrison, 2003). In the DSM-5 (APA, 2013), OSFED and UFED include a wider spectrum of

disordered eating practices similar to that of maladaptive eating as defined by Ebenreuter and Hicks (2013).

Contemporary theorists argue that eating disorders run on a continuum ranging from concerns about body weight at one end, to extreme weight control at the other (Alexander & Treasure, 2012; NEDC, 2010a, 2012; Stice et al., 2007). Included along this continuum are partial syndrome eating disorders, which have also been referred to as subclinical levels of disordered or maladaptive eating, atypical eating disorders, and eating disorders not otherwise specified (APA, 2000; Chamay-Weber et al., 2005; Shisslak, Cargo, & Estes, 1995). Children who display sub-clinical levels of maladaptive eating usually experience considerable psychological disturbance and often engage in the same disturbed eating behaviours as those with full syndrome eating disorders, at a somewhat lower level of frequency and severity (Austin, 2000; Stice, Shaw, & Marti, 2007; Mustapic, Marcinko, & Vargek, 2015; Watkins & Lask, 2002). Maladaptive eating practices are the single most important proximal indicator of the onset of eating disorders (Nicholls, Christie, Randall, & Lask, 2001; Steinhausen, Jakobsen, Helenius, Munk-Jørgensen, & Strober, 2014).

Maladaptive eating practises also encompass a wide range of eating difficulties and are generally organised around three components, which were originally described within the Biopsychosocial model (Ricciardelli & McCabe 2004); that is, a biological response, a psychological response and social response. The biological factors that have been studied extensively in young girls and to lesser extent in young boys include BMI, pubertal status, and pubertal timing (Rodriguez-Tome, 1993; Stice, 2002). A higher BMI for both girls and boys results in increased social pressure to be thin and body dissatisfaction, which is believed to lead to dieting, negative affect, and a consequent increased risk for eating pathology (Stice & Shaw, 2002). However, boys attach a different meaning to weight loss than girls (McCabe, Ricciardelli & Holt, 2010; Mishkind, Rodin, Silberstein, & Striegel-Moore, 1986). Boys tend

to associate weight loss with decreasing body fat and increasing muscle leanness while girls focus on slimness. With pubertal growth, girls experience a normative increase in body fat and their hips broaden, moving away from their perception of society's ideal adolescent body shape for a girl that result in body dissatisfaction and poorer self-image, both of which are pre-cursers of maladaptive eating (Holt & Ricciardelli, 2008; Ricciardelli & McCabe, 2001). Alternatively, pubertal development in boys that adds muscle and bulk is usually viewed as a positive experience as they move closer to the societal ideal shape for a man (Petersen & Taylor, 1980; Wilksch & Wade, 2009a). Other biological factors that have been found to be associated with eating disorders include endocrine abnormalities and disturbances in neurotransmitters (Muñoz, & Argente, 2002; Polivy & Herman, 2002).

The Components of Maladaptive Eating

Eating disorder literature until the early 2000's contained many inconsistencies concerning the conceptualisation, definition, and operationalisation of *maladaptive eating.* Maladaptive eating was considered to be a secondary variable that complicated the development of a precise definition for eating disorders (Fisher et al., 2001). At present the designation of maladaptive eating practices include the psychological components of cognitive and affective/emotional responses (Malson et al., 2008) as well as physical and behavioural responses (Blodgett, Gondoli, Corning, McEnery, & Grundy, 2007). These components reflect more closely current eating disorder theory on the antecedents, aetiology and symptomatology of maladaptive eating (Alexander & Treasure, 2012; Le Grange & Loeb, 2007; Stice et al., 2007).

The cognitive component is typified by dysfunctional thoughts about food and one's poor sense of identity relative to others, body dissatisfaction and other body image concerns (Eshkevari et al., 2013; Malson et al., 2008; Turner & Cooper, 2002). The affective-emotional component includes negative affect and encompasses mood states such as

depression, stress, shame, inadequacy, guilt, and helplessness tied to body image (Polivy & Herman, 2002; Stice, 2002). Body dissatisfaction is primarily linked with maladaptive cognitions that dieting will produce one's ideal weight loss and thinness (Stice, 2003) and while predictive of maladaptive eating in adolescent girls (Dohnt & Tiggemann, 2008) has a weak to moderate relationship with maladaptive eating in adolescent boys (McCabe & Ricciardelli, 2005). Similarly, the overall level of importance placed on body image appears to be much greater for girls than boys (Gadalla, 2008). Body image importance among boys has been found to be weakly associated with weight loss strategies and episodes of binge eating (McCabe, Ricciardelli, & Finemore, 2002; Ricciardelli & McCabe, 2001). Negative affect is one of the main individual variables that researchers have found to be associated with both body dissatisfaction and disordered eating in adolescent girls (Rodgers et al., 2009a) and a weak to moderate relationship between negative affect and disordered eating among adolescent boys (McCade & Ricciardelli, 2003). A number of theorists and researchers have argued that both dieting and over eating are used to regulate and alleviate negative affect (Rodgers et al., 2009a; Wade et al., 2009).

The physical/behavioural component is characterised by rituals. For girls and boys, these rituals may include daily weigh-ins, heavy exercise and observance of strict food rules, obsessive calorie counting and episodic, unrestrained, eating behaviours (Blodgett et al., 2007; Mustapic et al., 2015). However, unlike girls, boys are equally divided between those who want to lose weight and those who want to gain weight via muscle building. Boys who consider themselves overweight report wanting to lose weight, while those who think they are too thin report a desire to gain weight via muscle building (Andersen, 2002).

The tripartite influence model is based on socio-cultural factors that posit three additional factors that are said to impact upon the development and maintenance of eating disturbances; these include peers, parents, and media (Harrison & Cantor, 1997; van den Berg,

Thompson, Obremski-Brandon, & Coovert, 2002). For example, researchers have suggested that positive family and peer relationships may serve as a protective factor against developing an eating disorder (Stice, Telch, & Rizvi, 2000). This is because high levels of social support from family and friends tends to counteract the effects of stress on maladaptive eating behaviours, as feeling accepted and appreciated by others is believed to help people feel more positively about themselves and their bodies. Conversely, a number of studies have shown an association between weight concerns and poor parent relations (Martin et al., 2000). Steiner and colleagues (2003) found that binge eating and purging were moderately associated with family problems, while Neumark-Sztainer, Sherwood, Coller, and Hannan (2000) found that disordered eating was associated with perceived low family communication, low parental caring, and low peer support. Martin et al. (2002) studied specific parental influences, finding that mothers were more influential than fathers in fostering weight loss strategies in both daughters and sons. Mothers were found to be more accepting of dieting as a weight loss strategy, whereas fathers were reported as being more accepting of alternative strategies such as weight training and general sports. Researchers have also examined the role of the media on adolescent boys' weight loss strategies. They found that perceived media pressure to lose weight was weakly associated with weight loss strategies in adolescent boys (McCabe & Ricciardelli, 2001, 2005).

More similarities than differences exist among biopsychosocial factors associated with disordered eating between boys and girls. The main differences are that body dissatisfaction and media messages appear to be less important for adolescent boys. Another variable shown to be consistently associated with disordered eating among adolescent girls, which has yet to be examined with regards to adolescent boys, is the internalization of the thin ideal (Stice, 2002; Stice et al., 2007; Thompson & Stice, 2001). Although biopsychosocial framework has received support for weight loss among adolescent girls there

has been limited empirical investigation of the utility of this framework among adolescent boys (McCabe & Ricciardelli, 2003, 2005; McCabe, Ricciardelli, & Karantzas, 2010).

Conceptual Models - Theoretical Frameworks of Eating Disorders

A number of conceptual models and frameworks have been designed in an effort to offer a common definition of what constitutes *maladaptive eating*. These include Williamson et al., (2004) Integrated Cognitive-Behavioural theory of eating disorders, the Non-Specific Vulnerability-Stressor (NSVS) Model of Eating disorder prevention and Le Grange & Loeb's (2007) spectrum model. These theoretical models underpin and explain each stage of this research.

The Integrated Cognitive-Behavioural theory of eating disorders. In an attempt to standardise the definition of *maladaptive eating* Williamson et al. (2004) integrated multiple perspectives of the leading cognitive and behavioural theorists' recorded over the past 40 years. They successfully incorporated these theories into an integrative cognitive-behavioural theory of eating disorders. From this, one model was developed which gave attention to the internal and external expressions of eating dysfunction or maladaptive eating. Figure 2 illustrates the Williamson et al. (2004) model.

The model posits that the internalising of problems is associated with poorly perceived self-image, with mental health symptoms, and problems in social relationships (Adambegan et al., 2011; Williamson et al., 2004). Externalising problems is associated with health-damaging behaviours such as compulsive exercise, body checking and restrictive eating. Problems arising from externalisation may also include delinquent and aggressive behaviour (Adambegan et al.; Fairburn et al., 2009; Fairburn, Cooper, Doll, & Davies, 2005; NEDC, 2010a; Vitousek & Orimoto, 1993). The internalising and externalising of problems is common before the onset of an eating disorder and is also predictive of anorexia nervosa and bulimia nervosa in children (Adambegan et al., 2011).

Central to the Williamson et al. (2004) model are the five symptom patterns, or domains common to eating disorders and dysfunctional or maladaptive eating. These include a cognitive, emotional and social domain and a physical and behavioural domain (Fairburn, 1997; Fairburn et al, 2009; Fairburn & Cooper, 2011; NEDC, 2010a; Vitousek & Orimoto, 1993). This thesis sought to include these five domains via the development of the MEPQ that would realise domain coverage sufficient for identifying existing maladaptive eating behaviours in children and those at *risk*.

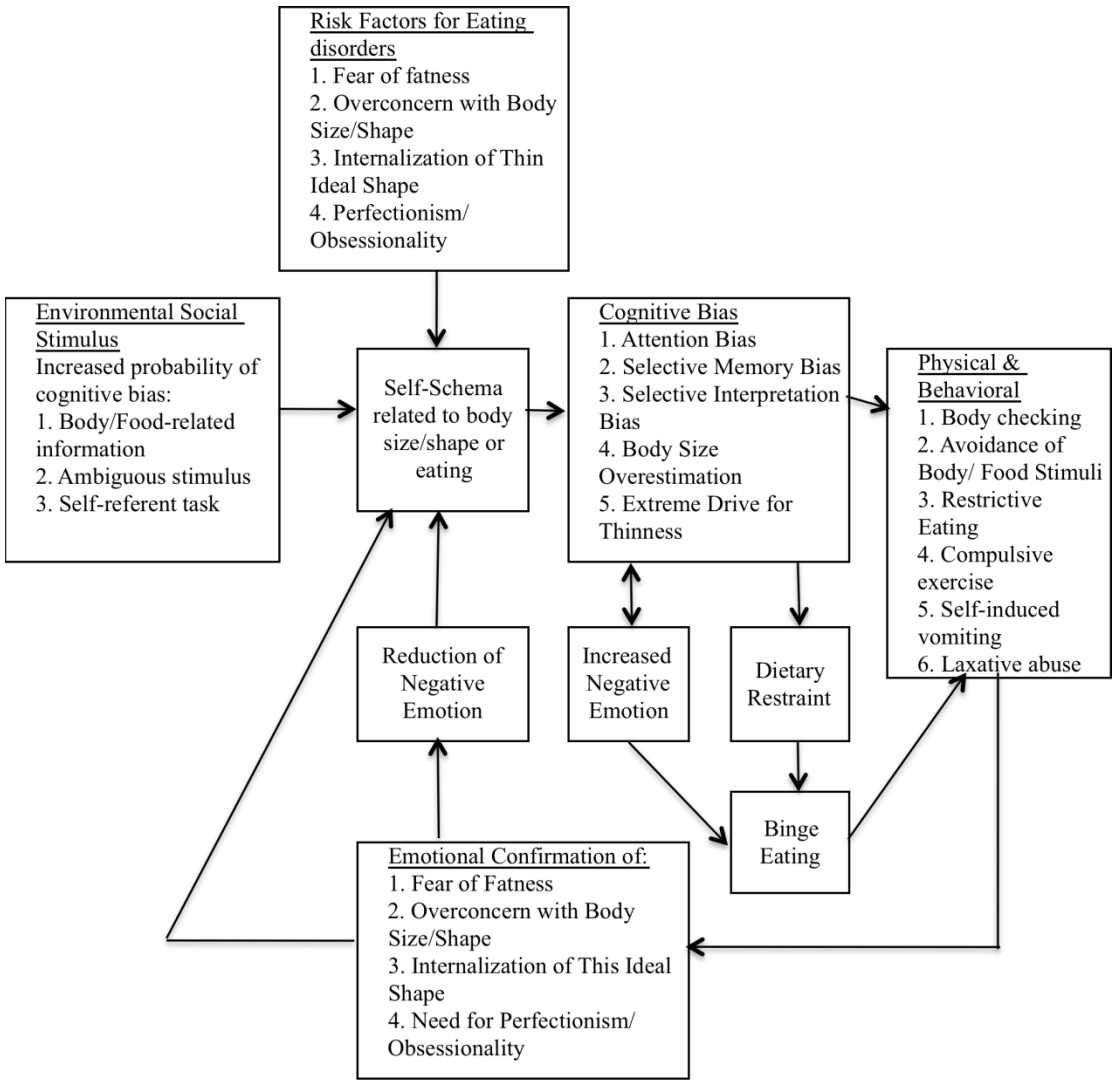

Figure 2. Adapted from Williamson et al. (2004) Integrated Cognitive-Behavioural theory of eating disorders.

The cognitive, emotional and social domains of the Williamson et al. (2004) model correspond to the *internalising* problems of maladaptive eating. The cognitive domain represents key stimulus characteristics found to activate cognitive biases such as body or food related information, ambiguous stimuli and situations that require a person to reflect on themselves, especially their body and eating practices in a maladaptive way (Fairburn et al., 2009; Griffiths, Parsons, & Hill, 2010; Jacobi et al., 2004; Malson et al., 2008; Smolak, 2004). The Williamson et al. (2004) model also assumes that cognitive biases occur without

conscious awareness and that the person experiences the cognitions as being real (Fairburn et al.; Williamson et al., 2004).

The emotional domain encompasses mood states tied to maladaptive eating. This includes depression, stress, shame, inadequacy, guilt, and helplessness (Polivy & Herman, 2002; Stice, 2002). This model hypothesises that dieting and over eating are used to regulate and alleviate negative affect (Dohnt & Tiggemann, 2008; Rodgers et al., 2009a; Stice, 2003; Wade et al., 2009), as negative emotion interacts with self-schema to activate cognitive biases. In turn, the activation of cognitive bias elicits negative emotion. This feedback loop between the cognitive and emotional domains often results in overwhelming anxiety for the individual (Fairburn et al., 2009; Williamson et al., 2004).

The social domain relates to social perspectives and environmental cues that negatively reinforce maladaptive eating practices (Andersen, 2002; Carey et al., 2014; Fernández-Aranda et al., 2007; Taylor, Wilson, Slater, & Mohr, 2012). According to Williamson et al. (2004) social perspectives are a major contributing factor to one's weight and shape dissatisfaction, related self-disgust and fear of fatness, which leads to the development of an extreme drive for thinness.

The physical and behavioural domains of the Williamson et al. (2004) model represent the *externalising* problems of eating dysfunction. They hypothesised that rigid control over eating and adherence to strict food rules, strict weight control, and excessive exercise are common components of the physical domain (Blodgett et al., 2007). For example, individuals who are dissatisfied with the way they look, tend to employ a number of destructive physical and compensatory behaviours as a means to change their appearance such as excessive exercising, eating in rigid and ritualistic ways, refusing to eat around others and episodic, and unrestrained eating behaviours (Herpertz-Dahlmann, 2009; Jacobi et al., 2004; Mustapic et al., 2015; NEDC, 2010a; Wilksch & Wade, 2009a).

The behavioural domain denotes over sensitivity to references about food weight or appearance, which results in compensatory behaviours such as food refusal or binge eating, self-inducted vomiting and laxative abuse (Andersen, 2002). Compensatory behaviours serve as a form of escapism from feelings of anxiety, dissatisfaction and feelings of fatness (Fairburn et al., 2009; Murphy, Straebler, Cooper, & Fairburn, 2010; Wilson, Fairburn, Agras, Walsh & Kraemer, 2007). As a result, compensatory behaviours are negatively reinforced and serve to confirm the belief that one should fear fatness and worry about body size (Williamson et al., 2004). Therefore training programs based on a CBT model (as described below) are ideal for targeting these behavioural symptoms patterns of eating disorders (Barrett, 2010).

Cognitive behavioural therapy (CBT). CBT is a validated prevention intervention targeting eating disorders (NEDC, 2010b). CBT aims to reduce modifiable risk factors and increase protective factors. CBT promotes emotional well-being and resilience linked with the onset of a range of social-emotional problems. CBT achieves this by addressing cognitive, physiological, learning processes and attachment styles thought to interact in the development, maintenance, and experience of a range of mental health conditions (Barrett, Lowry-Webster, & Holmes, 2010). Treatment studies have demonstrated that CBT interventions for children and adolescents aged between 7 to 14 years can be very successful (Barrett, 2010). Although, CBT interventions have been validated on individuals with acute eating disorders, limited research is available on those who display early warning signs. The current study aimed to rectify this through the application of a CBT prevention and resilience program, focusing on young children aged 8 to12, who report early signs of maladaptive eating behaviour. Changes in their eating practices will be measured via the MEPQ.

The Non-Specific Vulnerability-Stressor Model of eating disorder prevention. The NSVS integrates key aspects of developmental psychology, social cognitive and

cognitive models of prevention, which support best practice prevention efforts to reduce maladaptive eating concerns (Levine & Smolak, 2006). The NSVS model works on the premise that prevention efforts are facilitated when stress, anxiety, depression, powerlessness, social exploitation and alienation is reduced and coping skills, self-esteem and opportunities for competence are increased. The NSVS model moves away from the traditional disorder-targeted or disease-specific perspective, to include a much broader definition of what constitutes maladaptive eating. This model also looks to more generic sources of stress, vulnerability and risk, placing a greater emphasis on positive development and non-specific sources of resilience, to prevent the onset of an eating disorder (Levine & Smolak). The FRIENDS programs (Barrett, 2010), utilised in the current thesis are support by this model, which places positive development coping skills and self-esteem to assist children at risk to be resilient.

Le Grange and Loeb's (2007) spectrum working model. In contrast, Le Grange and Loeb's (2007) spectrum working model supports the early identification of maladaptive eating or eating disorders in their formative stages. This is important because evidence shows that early intervention for children with indicators of maladaptive eating prevents the disorders from moving along a trajectory path from mild to severe (Alexander & Treasure, 2012; Currin & Schmidt, 2005). Underpinning the spectrum working model is continuum or spectrum theory, which conceptualises eating disorders as being the endpoint of a pathway from relatively healthy eating behaviours, to emerging problems, and finally to a clinical eating disorder (Le Grange & Loeb, 2007). Theoretically, this pathway or spectrum of maladaptive eating supports prevention efforts as the existence of a spectrum or linear progression of maladaptive eating suggests that an intervention, strategically placed along the path, could change the outcome.

Chapter Summary

The impact of eating disorders in Australia is significant. Eating disorders account for the highest mortality rate for any mental illness in the country (Birmingham et al., 2005; Sullivan, 1995), and financial and personal costs associated with eating disorders are high, including strain on carers and government health related costs. Both the DSM-IV-TR (APA, 2000) and current DSM-5 (APA, 2013) do not offer clinical practitioners appropriate diagnostic criteria to identify those at risk. Children are especially vulnerable (Holt & Ricciardelli, 2008; Ricciardelli & McCabe, 2001). It is estimated that 75 per cent of children present with psychological symptoms and maladaptive behaviours typical of diagnosed eating disorders but only 32 per cent of these children actually meet diagnostic criteria for an eating disorder (DSM-IV-TR, 2000; Madden et al., 2009; Peebles et al., 2006), and therefore less than half of the children who could benefit from treatment actually receive the help that could make a difference.

The epidemiology of eating disorders has changed over the past decade with a notable increase in the prevalence of eating disorders occurring in the under-12 age group (Agency for Healthcare Research and Quality [AHRQ], 2010; Alpert, 2009; Field et al., 2003; Kohn & Booth, 2003). Poor detection may result in both short and long term developmental consequences for children (Abraham et al., 2009; AED, 2011; Hudson, Hiripi, Pope Jr, & Kessler, 2007). These children are also more likely to have premorbid psychopathology such as depression or an anxiety disorder and have difficulties with school and social functioning (Gowers & McMahon, 1989; Griffiths, Mond, Murray, & Touyz, 2014; McClelland & Crisp, 2001; Le Grange & Lock, 2011; Puhl & Suh, 2015), academic achievement (Brooks & Goldstein, 2001) and low self-esteem (Madden et al., 2009), among other indicators of poor psychosocial adjustment.

Researchers have known for some time that children who are diagnosed at a young age and early in the course of their illness have improved outcomes post treatment (Herzog,

Nussbaum, & Marmor, 1996; Loeb, Brown, & Goldstein, 2011; van Son, van Hoeken, van Furth, Donker, & Hoek, 2009). Despite this, there are few or no instruments available for children with an eating disorder that can identify and help treatment early in the course of their illness (Le Grange & Lock, 2011; NEDC, 2010b, 2014; Slane et al., 2009).

The major eating disorder models, theories and frameworks mentioned throughout chapter one advocate for the reduction of modifiable risk factors and the increase of protective factors via early intervention, promotion and prevention, and the evaluation of treatment standards and strategies that promote active involvement of families and carers (Darby et al., 2009). Yet prevention programs that target disordered eating practices, have traditionally left parental carers out of the treatment process (Alexander & Treasure, 2012; Treasure et al., 2001). Research suggests that parental carers who develop effective coping strategies to manage their child's maladaptive eating behaviours report that they experience less distress (AED, 2011). Therefore, an increase in coping strategies for parental carers appears to be a necessary step towards addressing the treatment of the child's maladaptive eating (Whitney et al., 2005).

Identifying children *at risk* of an eating disorder is important from a public health perspective (NEDC, 2014). Sub-clinical cases dominate treatment seeking samples among children (Loeb, Craigen, Goldstein, Lock, & Le Grange, 2011). Therefore, where sub-clinical presentations may result in conversion to an eating disorder, children at *risk* are clinically significant in their own right (NICE, 2004). To assist in the assessment of maladaptive eating in children, it is important to obtain knowledge regarding the factors that put a child at risk of developing a disorder and those that protect a child from the development of a disorder, as explored in Chapter two. This information was used in the development of the MEPQ (study one, chapter seven). The next chapter discusses the risk and protective factors of childhood eating disorders. Chapter three provides a review of the available literature on validated

eating disorder assessment tools used in clinical practice. Effective treatment and prevention interventions that may impact on risk and protective factors for childhood eating disorders are also reviewed in subsequent chapters.

Chapter 2: Risk and Protective Factors of Childhood Eating Disorders

Introduction

This chapter identifies risk indicators and protective factors for maladaptive eating and diagnosable eating disorders in children, adolescents and adults. Identifying children *at risk* enables clinicians to consider who will benefit from early assessment and from prevention interventions (AED, 2010; Jacobi et al,. 2011; Jacobi & Fittig, 2010; Keel & Forney, 2013).

Risk and protective factors. Knowledge of risk factors is crucial in identifying populations in need of early assessment and intervention (Darby et al., 2009; Hay et al., 2008; Holm-Denoma et al., 2014; Olson & Goddard, 2012). Risk factors are any attribute, characteristic or exposure of an individual that increases the likelihood of the onset of a disorder (de León, Díaz, & Ruiz, 2008). Alternatively, protective factors may moderate the impact of risk factors by allowing individuals to develop resilience in the face of difficulty (Jacobi et al,. 2011; Jacobi & Fittig, 2010).

Research suggests that individuals identified and treated early in the course of an eating disorder have a significantly better chance of recovery when compared to those with a longer history of illness; this is particularly relevant for children (Crisp, 2006; Dohnt & Tiggemann, 2008; Stice et al., 2007; Jacobi et al., 2011; NEDC, 2010b, 2014; Zabinski et al., 2001). For effective early intervention to occur with children there needs to be a support network of people, such as parents, carers, teachers, physicians and clinicians who are able to recognise and respond to early warning signs of distress, reduced functioning and other risk factors associated with the early onset of an eating disorder (Alexander & Treasure, 2012; de León, Díaz, & Ruiz, 2008). This is because there are multiple factors influencing the onset, development and maintenance of childhood eating disorders, which need to be assessed. These include individual, family, cultural and biological factors (AED, 2011; Ghaderi &

Scott, 2001a). Key risk factors for these disorders include being female (Striegel-Moore et al., 2009), dieting (Herpertz-Dahlmann, 2009; Jacobi et al., 2004), weight concerns (Erickson, Hahn-Smith, & Smith, 2009; Killen et al., 1996) and a family history of weight and eating difficulties (Hudson et al., 2007; Steinhausen et al., 2014)). Other risk factors include exposure to social comparison and teasing (Wilson, Slater, & Mohr, 2012), negative media messages (Harrison & Cantor, 1997; Wilksch, Durbridge, & Wade, 2008), and a genetic vulnerability (Richardson & Paxton, 2009; Ross, Paxton, & Rodgers, 2013).

Protective factors for eating disorders have yet to be fully explored in eating disorder literature (NEDC, 2010a), and include protective factors associated with the individual, school, peer, family, carer, and community influences (Luthar & Cicchetti, 2000). Table 2 summarises key risk factors thought to be involved in the development and maintenance of childhood eating disorders, as well as a number of preventative approaches that may be incorporated into interventions. It is unclear if these risks precede the onset of an eating disorder and as such are symptoms, maintaining factors, or consequences of the disorder (Wade et al., 2000). Knowledge of modifiable, pre-disposing and protective factors is crucial for this thesis. These factors underpin the development of the new MEPQ assessment tool to assist clinicians in identifying children *at risk* of an eating disorder (AED, 2010; NEDC, 2010a). Preventative approaches as described below are fundamental to the FRIENDS programs (Barrett, 2011) and are used as part of the CBT prevention strategy in this thesis (see chapter four).

Table 2

Possible Risk Factors for the Development of an Eating Disorder

	Eating Specific Factors	Generalized Factors	Preventative Approaches
Modifiable risk factors	Dieting and weight concerns		
	Socio cultural and environmental factors		Building social skills
	Poor body image	Poor self-image	
	Maladaptive eating attitudes	Inadequate coping mechanisms	Enhancing problem solving skills
	Maladaptive weight beliefs	Self-regulation problems	Relaxation training
	Specific values or meanings assigned to food or body	Unresolved conflicts, deficits, posttraumatic reactions	Cognitive Restructuring & skill training
Pre-disposing risk factors	Biological factors		
	Gender, Age		
	Eating disorder - specific genetic risk	Genetic risk for associated mental health disturbance	
	Body weight	Temperament / Impulsivity	
	Appetite regulation	Neurobiology mechanisms	
	Psychological risk factors	Poor coping mechanism	Cognitive Restructuring & skill training
Protective factors	Coping skills		
	Family and social factors - Positive family attitudes to eating, weight	Positive family environment	Enhancing family, child and environmental social support
	Social supports and Community environment	Good support network	
	Peer-group weight concerns	Positive peer experiences	Social skills training
	Positive cultural values assigned to body	Social inclusion	

Adapted from; Health Canada. (2002). A Report on Mental Illnesses in Canada, p.83

Modifiable Risk Factors

Numerous studies have documented specific causative risk factors, which are considered to be modifiable and may lead to the development of an eating disorder in children, adolescents and adults. These include, but are not limited to, dieting (Steinhausen et al., 2014; Stice, 2003), weight concerns (Killen et al., 1996; Nicholls et al., 2001), negative body image (Eshkevari et al., 2013; Holt & Ricciardelli, 2008), the adoption of the socially endorsed Western thin body ideal (Stice et al., 2007), and family influences (Lock, Reisel, & Steiner, 2001; Martin et al., 2000). These variables may be moderated by environmental factors or epigenetic mechanisms and thus represent a focal point for prevention (NEDC, 2010b).

Dieting. Dieting is the single most important indicator of the onset of an eating disorder (NEDC, 2010a). Although not everyone who diets will develop an eating disorder, it is extremely rare to find an individual with a diagnosable eating disorder who has not dieted (Stice et al., 2007). Recent studies conducted in Australian have found that adolescent females who diet heavily are 18 times more likely to develop an eating disorder, within six months than a non-dieter and have a 1 in 5 chance of developing an eating disorder within a 12-month period (Wilksch & Wade, 2009).

Australian studies using child-adolescent populations found that 90 per cent of 12 to 17 year old girls and 68 per cent of 12 to 17 year old boys reported being on some form of diet (Patton et al., 1998). A similar study found that 1 in 16 adolescent females reported regularly going without food for one day or more, at least once a week (Wertheim, Mee, & Paxton, 1999). Overall dieting practices have doubled within the past decade in Australia (Darby et al., 2009; Holm-Denoma et al., 2014; Hay et al., 2008). This upward trend applies to both females and males, and where dieting is a strong contributing factor it is seen to affect age groups from children through to older adults (NEDC, 2010a). Dieting together with

weight concerns represents two of the most common indicators of risk factors in maladaptive eating and childhood eating disorders. Therefore as with other risk factors any developed practical scale needs to address theses. The MEPQ as indicated in study 1 attempted to address these factors.

Weight concerns. Concerns about weight represents one of the most commonly assessed and cited risk factors in eating disorder literature (Jacobi et al., 2004; Killen et al., 1996). These concerns include fear of weight gain, attitudes towards eating, dieting, body dissatisfaction, and symptoms tied in with eating disorders such as depression and anxiety (Schulze, Calame, Keller, & Mehler-Wex, 2009; Taylor et al., 2012).

There exists prospective, longitudinal evidence that child weight concerns are related to the development of a range of maladaptive eating problems (Eshkevari, Rieger, Longo, Haggard, & Treasure, 2013; Killen et al., 1996). This evidence is supported empirically in child populations, where weight concerns have been found to correlate with maladaptive weight-control practices (Erickson et al., 2009), impairments to global self-esteem (McClelland & Crisp, 2001) and risk factors pertinent to the development of diagnosable eating disorders (Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006; Stice, 2002). Long-term body dissatisfaction, starting in childhood, has been identified as a predictor of reduced mental and physical health, as is lowered social functioning and poor lifestyle choices that carry through to adolescence (Delinsky & Wilson, 2006; O'Dea, 2007). By adulthood, these individuals are more likely to engage in dangerous dietary practices and weight control methods such as excessive exercise, substance abuse, and in some instances may involve unnecessary surgical interventions to alter appearance (Neumark-Sztainer, et al.; Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006). Although body dissatisfaction alone is an insufficient indicator of an eating disorder, the emotional, behavioural, and social

consequences of this dissatisfaction demands attention (Jacobi et al., 2004; NEDC, 2010a; Smolak, 2004).

The under representation of boys in the literature is an important problem. Although new research is turning its attention to boys' weight concerns there is extremely limited epidemiological data available (Corson & Andersen, 2002; McCabe & Ricciardelli, 2001). Ethnic groups' differences are also poorly represented. As a result it remains unclear whether individuals from ethnic minority groups share the same weight concerns as their counterparts (Smolak, 2004). Limited data on children under the age of ten also makes it difficult to establish when weight concerns become a problem (NEDC, 2010a; Levine & Smolak, 2006). Because of this the MEPQ sought to collect data in these under represented groups.

Risk factors and protective factors for the development of weight concerns may also change from childhood to adulthood (Jacobi et al., 2004). New research, particularly during the preschool and early elementary school years, is urgently required (Smolak, 2004). Several factors that appear to foster weight concern problems in adolescence and adulthood may also be operative in childhood. These include family, media, and society, and will be the focus of the next discussion. The FRIENDS for Life program (Barrett, 2010) used in study 2 chapter eight, incorporates family, social support and media components in the program.

Sociocultural and environmental factors. Sociocultural and environmental influences play a significant role in the development of childhood maladaptive eating (Baumrind, 1991; Bronfenbrenner, 2005). Sociocultural studies have identified a number of specific risk factors for childhood eating disorders these include media and family. The Australian media has been identified as a potential risk factor for those susceptible to maladaptive eating (Harrison & Cantor, 1997; Taylor et al., 2012). This is because media outlets promote a narrow and typically unachievable image of beauty and sell the message that achieving a perfect appearance is the only way to happiness and success (Wilksch,

Durbridge, & Wade, 2008). These messages underpin an environment that fosters the development of body dissatisfaction and disordered eating among individuals starting in childhood. In vulnerable individuals, exposure to these messages increases body dissatisfaction and contributes to the belief that achieving thinness will be a means to higher self-esteem, greater control and freedom from ones problems (Carey et al., 2014;).

Preliminary research into the characteristics of the child-parent relationship of children with eating disorders focuses on dysfunctional family structures, poor communication styles and enmeshed attachment styles (Castro, Toro, & Cruz, 2000; Fernández-Aranda et al., 2007; Jacobi et al., 2004). Families with a history of mood disorders (Lilenfeld et al., 1998), where eating disorders are prevalent in mothers (Micali, Stahl, Treasure, & Simonoff, 2013), where alcoholism are prevalent in fathers (Jacobi et al, 2004) and where atypical dieting occurs across the board (Micali et al., 2013) also have an impact.

Parenting styles influence the relationship between a child's weight and a child's psychological outcomes such as self-esteem and body image (Baumrind, 1991; Galloway et al., 2005; Griffiths et al., 2010; Rhee, 2008). Within the familial environment the role of parents as primary care givers places them in a unique position of choosing how they influence their child with regards to weight-related behaviours and practices (Taylor et al., 2012). Therefore, research on the influence of parenting styles on the relationship between a child's weight, self-esteem, and body image ensure better outcomes in eating disorder prevention programs; especially when children and their parents are included in the promotion of positive psychological outcomes for all participants (NEDC, 2010b).

Pre-disposing Risk Factors

Biological and psychological risk factors, being female and being young are another set of causative factors implicated in the development of eating disorders (Alexander & Treasure, 2012).

Biological Factors. It is currently hypothesised that the genetic basis for childhood eating disorders is likely to be determined by a number of biological factors (Alexander & Treasure, 2012; Fairburn et al., 2009; NEDC, 2010a). These include a combination of genetic factors such as genetic traits and gene–environment interactions along with neurobiological disturbances and adverse environmental factors. These factors increase the likelihood of a child developing an eating disorder, especially in those carrying the greatest genetic and environmental loading (Hinney & Volckmar, 2013). There is also evidence to suggest that some psychological risk factors and character traits, attributable to genetic make-up, may also function as risk factors for childhood eating disorders (Hinney & Volckmar, 2013; Lilenfeld et al., 1998). Future studies that are beyond the scope of the current research are needed to examine the neurobiological disturbances in high-risk individuals, prior to the development of an eating disorder (Bardone-Cone, Sturm, Lawson, Robinson, & Smith, 2009; Crisp, 2006; Keel & Forney, 2013; Schulze et al., 2009; Steiger et al., 2001; Wolfe et al., 2000). These genetic investigations could lead to further elucidation of the neurobiological pathways implicated in both maladaptive eating and eating disorders (Jacobi et al., 2004).

Family Studies. Family studies have provided the next step in determining whether an eating disorder has a genetic base by establishing if these conditions cluster among biologically related individuals (Bulik, 2005; Mazzeo & Bulik 2009). The majority of early family studies have found an increased rate of maladaptive eating practices and eating disorders, particularly anorexia nervosa and bulimia nervosa, in first-degree relatives (Bulik & Reichborn-Kjennerud, 2003; Minuchin, Rosman, & Baker, 1978). Early body dissatisfaction and dieting behaviours are influenced by shared attitudes in the family, but the progression to an eating disorder is governed largely by genetic effects (Bulik, Sullivan, Wade, & Kendler, 2000; Bulik, Yilmaz & Hardaway, 2015; Klump, Keel, Sisk, & Burt, 2010; Klump, Wonderlich, Lehoux, Lilenfeld, & Bulik, 2002). It is important to identify and to

understand the difference between familial settings that are environmental or of a genetic basis. This thesis seeks to understand these differences. In modifiable risk factors familial environment played an important part. However, in non-modifiable risk factors family genetics is paramount (Mazzeo & Bulik 2009; Reichborn-Kjennerud, Bulik, Tambs, & Harris, 2004).

Gender. Eating disorders were traditionally more prevalent amongst females (Hoek, 2006; Striegel-Moore, & Bulik, 2007). However, new evidence suggests males are also at risk and that this risk is increasing (NEDC, 2010a; Striegel-Moore et al., 2009). For instance, reports of binge eating are now comparable with females at 4.9 per cent and males at 4.0 per cent (Hudson et al., 2007). Gender disparity is reversed for sub-clinical BED with reports of women at 0.6 per cent and men at 1.9 per cent (Hudson et al., 2007). Among children 25 per cent of those diagnosed with anorexia nervosa are boys (APA, 2000; 2013). Eating disorders in males may be more prevalent than formally believed, because many cases may go unreported or undetected (NEDC, 2014).

The influence of family members and peers also create gender differences for eating disorders and negative body image (Anderson & Bulik, 2004; Vincent & McCabe, 2000). Both mothers and fathers play a significant role in the prediction of weight loss concerns in girls, however fathers play a more significant role in eating problems for boys (Lewinsohn, Seeley, Moerk, & Striegel-Moore, 2002; Vincent & McCabe, 2000). Direct influences rather than the quality of parent and peer relationships predict eating disorders in both boys and girls (Barry, Grilo, & Masheb, 2001; Vincent & McCabe, 2000). Girls are more likely to be influenced by discussions of weight loss with a peer, whereas boys are often encouraged to lose weight by a parent or a peer. Both are predictors of eating problems. Although further investigation into gender differences in maladaptive eating practices and eating disorders is warranted, this is beyond the scope of this work.

Age. Until recently, individuals with an eating disorder were reported to experience their first symptoms during their adolescents-teen years between the ages of 11 to 17 (Striegel-Moore & Bulik, 2007). In females the average onset of anorexia nervosa was age 19 (Oakley Browne, Wells, Scot, & McGee, 2006) while bulimia nervosa was age 20 (Fosson, Knibbs, Bryant-Waugh, & Lask, 2007; NEDC, 2010a) and binge eating disorder occurred around age 25 (Oakley et al., 2006). Eating disorder presentations had been rarer in younger children (Madden et al, 2009). This is no longer the case. Both the Westmead Hospital in Sydney and the Royal Children's Hospital in Melbourne report a substantial increase in eating disorder cases in young children less than 12 years of age (Madden et al., 2009). Doctors at the Westmead Children's Hospital report that children as young as five are being admitted for the treatment of eating disorders. This figure has tripled in the last decade (Madden et al., 2009). This thesis aims to target this growing population of children through the early identification of those at risk and offering CBT intervention programs.

Psychological risk factors. Research into eating disorders has identified a number of personality traits and psychological disorders that may be present before, during, and after recovery from these disorders (Kaye, Bulik, Thornton, Barbarich, & Masters, 2004; Keel & Forney, 2013; Jordan et al., 2008; Salbach-Andrae et al., 2007). These include personality traits such as perfectionism and negative emotionality, and anxiety and mood disorders. These risk factors are central to the FRIENDS programs, utilised in studies 2 and 3 (chapter eight and nine respectively) that aim to foster a resilient mind-set that may serve as a protective factor to help children and their parental carers deal with negative and anxious provoking life events (Rockwell et al., 2011; Shortt et al., 2001).

Personality traits. Several longitudinal studies have attempted to evaluate whether the personality traits of negative emotionality and perfectionism predict eating disorders (Bardone-Cone et al., 2009; Pearson, Combs, Zapolski, & Smith, 2012; Shafran, Cooper, &

Fairburn, 2003). When perfectionism is maladaptive in nature, the fear of making a mistake and belief that only perfection will lead to social acceptance, often results in unrealistic pressure to achieve (Frost & Marten, 1990). Having unattainable ideals typically leads to inevitable failure and negative self-evaluation, especially about weight, size and shape in eating disordered individuals (Boone, Claes, & Luyten, 2014; Pearson & Gleaves, 2006). Within the literature there is a strong connection between maladaptive perfectionism to the larger construct of negative emotionality (Miller-Day & Marks, 2006; Stoeber, Otto, & Dalbert, 2009).

Negative emotionality is a broad personality construct that includes low self-esteem negative self-evaluation, dissatisfaction, depression, ineffectiveness, and poor interceptive awareness within its definition (Keel & Forney, 2013). Each component has been posited to contribute to eating disorders. Several studies have reported that both negative self-evaluation and perfectionism emerged as risk factors for the development of anorexia nervosa (Bardone-Cone et al., 2009; Fairburn et al., 2009; Wade & Tiggemann, 2013) and bulimia nervosa (Fairburn et al., 2005) when compared healthy controls. In a similar vein, a four year longitudinal study found that body dissatisfaction, depression, ineffectiveness, and poor interceptive awareness prospectively predicted the onset of eating pathology in adolescents (Leon, Fulkerson, Perry, Keel, & Klump, 1999). In a large longitudinal study of adolescents girls elevated perfectionism was a significant risk factor for an anorexic nervosa, and negative emotionality was a significant predictor of bulimia nervosa (Tyrka, Waldron, Graber, & Brooks-Gunn, 2002).

Anxiety disorders. There is evidence to suggest that anxiety, developed in childhood, often predates an Eating Disorder (Herpertz-Dahlmann 2009; Schulze et al., 2009). Shoebridge and Gowers (2000) for example, investigated reports of separation anxiety in children, who later went onto develop an eating disorder. These children initially reported

more difficulties with sleep, separation from their parents, and sleeping away from home, when compared with control groups. Of note, many of these children also reported higher levels of anxiety, harm avoidance, and feelings of worthlessness, post recovery from an eating disorder when compared with healthy their controls.

A number of anxiety disorders such as general anxiety disorder, panic disorder, social phobia, obsessive-compulsive disorder and post-traumatic stress disorder have been reported by individuals with either sub-syndromal or diagnosable eating disorders (Herpertz-Dahlmann, 2009; Schulze et al., 2009). Estimates of comorbidity are reported to be between 20 to 60 per cent for adults, and are similar to that of depressive disorders (Halmi et al., 1991; Jordan et al., 2008; Kaye et al., 2004). Comparable rates are also found in child-adolescent populations (Salbach-Andrae et al., 2007). Further investigation into these estimates of comorbidity in child-adolescent populations is undertaken in this research in studies 2 and 3 (see chapters eight and nine).

Mood disorders. Because mood disorders are influenced by starvation and abnormal eating patterns it is impossible to state whether depressive states are primarily the result of long-term malnutrition or if they were present at onset, or even as a result of the recovery process (Pollice, Kaye, Greeno, Weltzin, 1997). However, a number of depressive symptoms such as depressed mood, emotional emptiness, emotional irritability, loss of pleasure in life, social withdrawal, low self-esteem and poor decision making, during prolong periods of semi-starvation have been consistently linked to eating disorders for more than 60 years (Alexander & Treasure, 2012; Herzog, Keller, Sacks, Yeh, & Lavori, 1992; Herpertz-Dahlmann, 2009; Keys, Brozek, Henschel, Mickelsen, & Taylor, 1950; NEDC, 2014).

The most commonly cited mood disorders said to accompany maladaptive eating and eating disorders, in particular anorexia nervosa and bulimia nervosa, include major depressive disorder and dysthymia (APA, 2000; Herpertz-Dahlmann, 2009). Comorbid

studies employing structured diagnostic interviews have reported anywhere between 15 to 60 per cent of adults with anorexia nervosa or bulimia nervosa also meet the criteria for a depressive disorder (Bushnell, Wells, McKenzie, Hornblow, Oakley-Browne, 1994; DSM-IV-TR, 2000; Halmi, 1991). Up to 80 per cent of children and adolescents diagnosed with an eating disorder also meet with the diagnosis of major depressive disorder, predominantly in the acute stage of their illness (Salbach-Andrae et al., 2007). As indicated earlier treatment programs need to address these issues. The development of MEPQ and its validation was aimed at helping this area, and also at helping validate training programs.

Summary of risk factors. Although no single risk factor alone can adequately explain the development of maladaptive eating and eating disorders; each makes a valuable contribution. Current literature suggests that eating disorders are partially determined by both sociocultural (Strober, Freeman, Lampert, Diamond, & Kaye, 2000) and biological-genetic factors (Hinney & Volckmar, 2013), the latter of which would explain 60 per cent to 70 per cent (Bulik, 2005). However, a part of the variance is not explained by any of these factors (Klump et al., 2002). There are many individuals who experience particular risk factors and who do not proceed to develop maladaptive eating behaviours and therefore do not develop an eating disorder. This has led to a recent shift in the literature to focus also on protective factors that produce a resilience effect.

Protective Factors

Research has identified several child-centred factors, which may protect against eating psychopathologies in childhood (Sameroff & Gutman, 2004). First, there are a number of individual child characteristics that positively affect the ability to maintain adaptive eating practices. These include but are not limited to positive emotional well-being, high self-esteem, positive body image, school achievement, being self-directed and assertive, having effective coping and problem solving skills, and having the ability to successfully perform

multiple social roles (Eshkevari et al., 2013; Luthar & Cicchetti, 2000; Pollard, Hawkins, & Arthur, 1999; Rossa, 2002; Rutter, 1987). Family, social and community supports help one's ability to maintain adaptive eating practices. These include positive peer support, positive role modelling from family and friends, and a positive social media and community environment (Sameroff & Gutman, 2004). The FRIENDS programs (Barrett, 2010) used in study 2 and 3 (chapters eight and nine) are designed to provide coping skills training and medial literacy for the child and offers a Family Therapy skills component for the parents, such as the appropriate use of reinforcement strategies, building self-efficacy, enhancing emotional resilience and competency within a wider familial context (Turby et al., 2010).

Coping skills. The ability to cope is one of the most empirically established child-centred skills, which protects against a range of childhood psychopathologies (Ball & Lee, 2000). Coping skills refers to the various techniques and processes used to cope with a challenging or unpleasant experience or situation. The number of coping skills and strategies that a child possesses can shape the way they respond to difficult or negative experiences, and thereby influence their affective and behavioural response (Vanderlinden, Buis, Pieters, & Probst, 2007). The use of appropriate coping skills can mediate the relationship between negative experiences, and psychological wellbeing (VanBoven & Espelage, 2006).

Effective coping skills include the use of positive strategies such as thought challenging, positive self-talk, help-seeking, and problem-solving, used to address a problematic issue. By comparison, maladaptive coping skills tend to be emotion-focused, resulting in cognitive and behavioural avoidance of the stressor. This ultimately reinforces a range of maladaptive coping behaviours (Fitzsimmons & Bardone-Cone, 2011).

Research with children and adolescents has demonstrated that problem-based coping, and cognitive appraisals based on an internal locus of control are associated with better psychological outcomes (Fitzsimmons & Bardone-Cone, 2011). These outcomes include

decreased risk of psychological dysfunction, fewer internalising symptoms, improved academic achievement, social competence, and improved psychological adjustment. Protective factors help provide a buffer against the use of poor coping mechanism that increase the likelihood of a range of mental illnesses (Vanderlinden et al., 2007). By comparison, emotion-focused coping strategies that facilitate avoidance are associated with poorer psychological outcomes, including anxious and depressive symptomatology, risk factors for eating disturbances and many other psychopathologies that may carry into adulthood (VanBoven & Espelage, 2006).

Overall, the evidence suggests that coping skills that encompass a problem-based approach, adequate appraisal, and greater perceived control will enable children to approach and manage difficult and negative situations in more adaptive ways (Ball & Lee, 2000). Children who lack the ability to appraise a situation appropriately are poorly equipped to face challenging situations. This may moderate the impact of such experiences upon mental wellbeing (Fitzsimmons & Bardone-Cone, 2011). The development of positive coping skills should therefore form a significant part of preventative interventions for childhood eating disorders, as utilised in the FRIENDS for Life program (Barrett, 2010) used in study 2 (chapter eight).

Family factors. One goal of researching family factors associated with eating disorders is to develop criteria from which those at risk of an eating disorder can be identified (McNamara & Loveman, 1990). Early identification introduces the possibility of preventing maladaptive eating behaviours from developing by combating specific family triggers, which may include family characteristics or functioning (NEDC, 2010a). Most of the existing literature is based upon correlational data, and does not yet allow this predictive power (Walsh & Garner, 1997). While consistent factors do emerge as significant family characteristics associated with eating disorders, recent literature suggests that these factors,

including low cohesion, lack of emotional expression, and high conflict, may simply be characteristics of a distressed family, rather than specifically characteristic of eating disordered families (McNamara & Loveman, 1990).

The influence of parents and carers. The role parents and carers play in healthy child development is critical (Kenny & Hart, 1992; Tereno, Soares, Martins, Celani, & Sampaio, 2007). An increasing body of knowledge indicates that the eating behaviours of parents have been identified as central to the development of eating patterns in their offspring (Park & Stein, 2003). Recent studies that support the importance of parenting and carer styles in clinical symptomology and eating practices, have also amassed data on the impact of these styles on the social adjustment and general health of children, adolescents and young adults (Botta & Dumlao, 2002).

Parents and carers in early etiologic models of disordered eating were said to be the primary cause of maladaptive eating (le Grange, Lock, Loeb, & Nicholls, 2009). The early studies showed that several factors were significant in the adoption, development and maintenance of maladaptive eating practices (Mott, 1994). One of the earliest studies identified family functioning as a factor relevant to maladaptive eating practices. Throughout the literature generalising statements argued for limited parental-child contact during the treatment of anorexia nervosa as parents and carers were regarded as enablers of their child's maladaptive eating (Hinrichsen, Sheffield, & Waller, 2007; Mott, 1994). Etiologic theories supported the theory of blame, which argued that the family system and individuals within that system had an adverse effect upon the identified person (Cowan & Cowan, 2006). A number of family interactional theories attempted to further explain these maladaptive eating practices within this framework (Botta & Dumlao, 2002). These theories generated a framework, which stated that parents were to blame for the development and maintenance of their child's illness (Mazzeo, Zucker, Gerke, Mitchell, & Bulik, 2005).

While this psychoanalytical theory continues to be cited in current literature, this theory is incongruent with the position held by relevant current eating disorder groups worldwide (Blissett & Haycraft, 2008; Decaluwé, Braet, Moens, & van Vlierberghe, 2006; Mott, 1994). As a result of research at London's Maudsley Hospital in the late 1970's a paradigm shift ensued (Collins, 2005; Lock, 2001). This shift recognised the potential for families to be an active resource in therapy and deflected the focus from theories that alleged a central etiologic ideology. The portrayal of families in this manner not only lessened the assumed guilt for the parents but also engaged those parents as an element of the therapy (Lock, 2002). This attitude remains current and is espoused in the World Charter for Action on eating disorders (le Grange et al., 2009). It is noteworthy that this practice is reflected in the treatment of paediatric-aged patients (Watkins, Cooper, & Lask, 2011).

Parental style impacts. Minchin (1978) proposed that the role of the family could be altered to arrest maladaptive eating practices in young children. However, while early efforts to validate his theories were unsuccessful parenting styles were identified as important. Through research on parental behaviour at home and the behaviour of the child at school Baumrind (1971, 1991) provided the necessary link between eating disorder research and parental style impact. To achieve this Baumrind (1991) uncovered the key parenting skills associated with positive outcomes in children, and used a combination of these skills to codify three behavioural dimensions or parenting styles; authoritarian, authoritative and permissive.

When explaining the onset of maladaptive eating practices each style was aligned to a different set of developmental outcomes (Enten & Golan, 2008). Authoritative parenting combined warmth, openness, instruction, control and communication that were both effective and responsive and resulted in higher self-esteem (Endicott & Liossis, 2009). Authoritarian parenting was characterised by detached communication, unchallenged authority, high

control and low warmth and resulted in greater behavioural problems (Davey, Fish, Askew, & Robila, 2003). Permissive parenting avoided confrontation and conflict and placed few demands on children and resulted in social incompetence, aggressiveness and poor impulsivity (Decaluwé et al., 2006; Vandewalle, Moens, & Braet, 2013).

Important to the development of a maladaptive eating practices was the examination of the relationship between both feeding and parenting styles in overweight children (Rhee, Lumeng, & Appugliese, 2006; Vandewalle et al., 2013). This was because preliminary findings suggest that the likelihood of developing a preoccupation with food and consequently being overweight were five times greater for children exposed to authoritarian parenting, than compared with their authoritative counterparts (Decaluwé et al., 2006; Enten & Golan, 2008; Kimbrel, Cobb, Mitchell, Hundt, & Nelson-Gray, 2008). The odds of becoming obese doubled for children who were raised in permissive households, where feeding practices were loosely monitored. Final results showed that children raised authoritatively had a significantly reduced risk of being obese, where healthy feeding styles were predominantly encouraged. Overall, Rhee et al.'s (2006) study provided evidence that the stricter environment of an authoritarian family is associated with a child's increase risk of being overweight. The extent to which CBT based interventions may help to positively influence authoritarian family environments and assist families to enact change are examined in study 3, chapter nine.

When it was understood that the authoritarian style, characterised by restrictive feeding practices, was found to be the predominant feeding style adopted by underweight children the influence of parenting styles became critical to the understanding of maladaptive eating practices (Cowan & Cowan, 2006). Etiologic theories offer evidence that maladaptive eating practices occur because children are susceptible to internalizing problems when parents are intrusive and controlling. Differing theories for example Blatt's (2004) theory of

depression and Flett, Hewitt, Oliver, and McDonald's (2002) theory of perfectionism evolved from psychosocial theory and developed into the theory of social expectations and indicated that linkages occur between the growth of perfectionism and controlling parenting.

Other styles were also important to outcomes. Parents who used an authoritative style, showed more supportive involvement and appropriative control over their children's' eating. Indulgent and permissive parenting impacted on feeding styles and typically resulted in less use of controlling feeding practices. Uninvolved parents relied on physical punishment rather than more child-centred parenting teaching techniques, when compared with indulgent parents (Enten & Golan, 2009; Vandewalle et al., 2013).

There is strong evidence that family influences are related to childhood eating disorders (Damiano et al., 2015; Decaluwé et al., 2006; Enten & Golan, 2009; Vandewalle et al., 2013; Young, Clopton, & Bleckley, 2004). Specifically, the parent-child relationships appear to be characterised by parenting patterns and style interactions (Watkins et al., 2011). Research has also implicated the role of parental modelling, of maladaptive eating practices (Francis & Birch, 2005), as well as a family environment that is stressful (Claes, Vandereycken, & Vertommen, 2004; Thienemann & Steiner, 1993). These studies highlight the gains that can be made by studying maladaptive eating behaviours in a family context using integrative theoretical models. In this thesis maladaptive eating behaviours in a family context are addressed in study 3, chapter nine.

Social supports. Social support from sources outside of the home is associated with positive mental health outcomes. Social support from schoolmates and friends, and teachers has all been associated with improved indices of psychosocial functioning (Fitzsimmons & Bardone-Cone, 2011; Keel & Forney, 2013). The positive benefits of social support, both within the family and in the community, are associated with lower rates of comorbid conditions in children.

Friends and family members have the potential to promote recovery for individuals who have eating disorders (Coomber & King, 2012). When attempting to be helpful, it is common for support providers or carers to unintentionally say or do things that are viewed by the recipient as unhelpful. Although social support literature suggests outside support is an important component of treatment, studies suggest that eating disorder patients receive less emotional and practical support than comparison groups and perceive the assistance that they do receive as inadequate (Grisset, & Norvell, 1992; Tiller et al., 1997).

It is not surprising that caeres of individuals with severe eating disorders experience more distress and difficulty in their role than carers of other psychiatric illnesses (NEDC, 2010b). Carers and friends of those with severe eating disorders frequently report frustration with trying to support the individual in recovery, and state that the complexity and ambivalence associated with these illnesses cause them to experience significant distress. This is because individuals with eating disorders are often ambivalent about making changes, and this lack of motivation has been associated with high levels of treatment refusal, dropout, and relapse (Coomber & King, 2012).

The considerable ambivalence often expressed by individuals with eating disorders has led to treatment approaches that maximize patient autonomy and readiness for change. Research shows that eating disorder patients and their health-care providers view collaborative treatment approaches as more acceptable and more likely to produce positive outcomes than approaches that are more directive and less flexible (Alexander & Treasure, 2012). Similarly, studies indicate that friends and family carers also view collaborative support as more helpful than controlling support (Coomber & King, 2012). The role of carers, including carer distress will be expanded upon in study four of this thesis.

Community environment. Protective factors at a community level have received less attention in the literature than child and family factors (NEDC, 2010a). Child functioning

is impacted by neighbourhood quality, neighbourhood cohesion, youth community organisations, quality of school environment, and after-school activities (Arthur, Hawkins, Pollard, Catalano, & Baglioni, 2002; Bond, Toumbourou, Lyndal, Catalano, Patton, 2005).

An Australian study of children living in 257 neighbourhoods found that a sense of belonging to the neighbourhood, such as having positive social relationships within the neighbourhood, was associated with more pro-social behaviour amongst children. An American study reported that children growing up in neighbourhoods characterised by impoverishment were more likely to experience maltreatment, such as negative social relationships, than those living in neighbourhoods without these characteristics (Olson & Goddard, 2012).

Fostering a positive environment is as important to the prevention or amelioration of mental health issues as is strengthening the skills and capabilities of children at risk (Fitzsimmons & Bardone-Cone, 2011). A positive environment for the prevention of eating disorders would be one in which the community, at all levels from public policy to organisations, professions and individuals, has an understanding of eating disorders as serious and complex conditions. Key to the prevention of eating disorders on a national scale is the ability to engage the whole community starting with government in multilevel public policy initiatives (Fitzsimmons & Bardone-Cone, 2011).

Chapter summary. Factors associated with increased risk of maladaptive eating and eating disorders in children, adolescents and adults were reviewed in this chapter. The etiology of eating disorders is complex. A range of biological, psychological, and environmental risk factors are implicated in the development of a clinical eating disorder. Whilst individually the factors constitute an increased risk for eating disorders, the interaction and interconnectedness between these factors makes it difficult to disentangle the effects of any single variable, and to infer a causal relationship with maladaptive eating and eating

disorders. Despite this, risk factors for childhood eating disorders may be used to identify those individuals who are most vulnerable to poorer outcomes in general, and provide targets for early detection, intervention and prevention initiatives.

The current chapter also focused on protective factors for childhood maladaptive eating including child-intrinsic, family-intrinsic, and environmental factors. This review highlighted the important role of such factors in buffering against the effects of risk factors, and reducing the likelihood of adopting maladaptive eating habits that may lead to an established eating disorder.

While knowledge of risk factors is crucial in identifying populations in need of intervention, a better understanding of protective factors is required to inform the content of such interventions. Growing understanding of protective factors has enabled tailoring of these interventions to enhance resilience and mental wellbeing in children who engage in maladaptive eating with promising results (Luthar & Cicchetti, 2000).

Knowledge of risk factors is also crucial for identifying populations that may benefit from early detection and assessment of the *risk* of eating disorders and thereby help prevent the occurrence of more serious eating disorders (AED, 2010; NEDC, 2010a). A number of risk and protective factors underpinned the development of the new assessment tool (Ebenreuter & Hicks, 2013) that assisted clinicians in identifying children *at risk* of an eating disorder and provided affected children and their carers with a set of skills that support healthy eating practices, (outlined in studies 1, 2 and 3, chapters seven to nine). Chapter three now reviews the available literature on validated eating disorder screening instruments in current use in clinical practice and presents some of the difficulties in assessing early presentations of eating disorders in younger children, difficulties that need to be taken into account as the new, DSM-5 related (APA, 2013), evidence based MEPQ was developed as part of this current thesis.

Chapter 3: Approaches to the Assessment of Childhood Eating Disorders

Introduction

Risk and protective factors associated with childhood eating disorders were reviewed in Chapter two. Increasing our knowledge of factors that may protect against eating psychopathologies can lead to prevention initiatives such as early assessment and treatment (Durlak, 1998; Luthar & Cicchetti, 2000; Sameroff & Gutman, 2004). Validated and standardized screening instruments in the early phases of treatment are fundamental to the early detection of maladaptive eating and critical to justifying a treatment plan capable of providing objective data on an individual's progress (Lundgren et al., 2004). This chapter provides a review of the available psychometrically sound eating disorder screening instruments currently used in clinical practice and presents some of the difficulties in assessing early presentations of eating disorders in younger children. Chapters four and five review the literature on effective treatment and prevention interventions for children with eating disorders and those who care for them. This finishes the background to the main design and experimental research of the thesis before progression to the thesis studies 1, 2 and 3.

Early intervention. Early intervention for childhood Eating Disorders includes strategies that assist children and their primary carers to access treatment at critical stages in the development of these conditions. Immediate access to treatment interventions is important when maladaptive eating first occurs, such as when an individual or their carers first seek help, and in the early recurrent episodes of a diagnosable eating disorder (Currin & Schmidt, 2005; NEDC, 2010b). Research shows significantly improved outcomes for individuals who are identified and treated early in the course of an Eating Disorder (Le Grange & Lock, 2011).

Early detection. A key problem for early intervention of childhood Eating Disorders is early detection (Currin & Schmidt, 2005; Madden et al., 2009). Individuals with

a diagnosable eating disorder exhibit clinical indicators that can clearly be recognised as belonging to the condition however, for children, who are in the early stages or actively hide their maladaptive eating behaviours, it is not so easy to discern (Levine & Smolak, 2006; Mustapic et al., 2015). They may take great pains to camouflage their bodies, misdirect others' attention, and hide certain eating rituals and behaviours and they typically do not question their own maladaptive set of behaviours (Johnson, Cohen, Kasen, & Brook, 2002; Madden et al, 2009). Consequently, maladaptive eating behaviours in children often remain unnoticed by the children themselves, their parents and carers, teachers and healthcare professionals. Australian health care settings have typically reported low rates of identification of eating disorders in children (Madden et al., 2009) with more than 50 per cent of cases going undetected (APA, 2010).

Early detection, especially in children under the age of 12, has proven to be very challenging and frequently practitioners fail to diagnose an eating disorder in this age group (Le Grange & Loeb, 2007). This is because young children are less likely to report fear of weight gain and fatness, vomiting or laxative abuse, or rapid weight loss, and are more likely to deny or not realise the severity of their illness (Madden et al., 2009). Similarly, several psychological features of an eating disorder may not be easily articulated by children (Chamay-Weber et al., 2005; Le Grange & Lock, 2011). Some parents may not be aware of the signs of an eating disorder or may struggle with their own subclinical eating disorder and withhold important information (Williams, 2011).

Young children with eating disorders can become seriously ill (NEDC, 2010a). Common hospital presentations include electrolyte disturbance, bradycardia, hypotension, cardiac abnormalities and suicidal behaviour, especially in very underweight children (NEDC, 2014). Poor detection may result in both short and long term developmental consequences for young children (Abraham et al., 2009, AED, 2011). Children with an eating disorder may

experience significant impairment in growth and physical development during puberty (Madden et al., 2009). For example, the starvation syndrome characteristic of anorexia nervosa, may result in serious medical complications, the most serious being death due to cardiac arrest (Katzman, 2005; Mehler & Brown, 2015). If starvation is maintained over an extended period of time, damage to the heart, the liver, kidneys, stomach and bowels, muscles and bones and arrested growth and development will occur (Castro et al., 2000; Johnson et al., 2002). Some of these medical complications can be reversed with treatment (Le Grange & Lock, 2011). However, what makes the onset of an eating disorder particularly significant for children is that even after resolution of the illness, these individuals will experience ongoing difficulties (Eshkevari et al., 2013; Hudson et al., 2007). These include cardiovascular, neurological and psychological symptoms as well as significantly higher levels of chronic fatigue, pain and insomnia that will persist into adulthood (Lantzouni, Frank, Golden, & Shenker, 2002).

Children diagnosed with bulimia nervosa commonly experience physical consequences related to self-induced vomiting. These include dental and gum problems, swollen salivary glands and mouth sores, disturbed electrolyte levels, disturbed electrical impulses in the heart (due to reduced potassium levels), inflammation of the digestive tract, gastrointestinal bleeding, and in some instances gastric rupture (Johnson et al., 2002; Le Grange & Lock, 2011). Children with BED are more susceptible to medical complications associated with being overweight or obese (Hudson et al., 2007). These include type II diabetes, high blood pressure and gastrointestinal problems (Criego et al., 2009; Bulik et al., 2003).

There is limited information available on the medical consequences of maladaptive eating that falls outside the diagnostic criteria of the DSM-IV-TR (APA, 2000) and DSM-5 (2013). There is some evidence to suggest sub-syndromal presentations of anorexia nervosa

pose significant physiological complications including growth retardation, pubertal delay, deficiencies in bone mineral acquisition (Johnson et al., 2002) as well as psychological impairments equivalent to levels seen in full anorexia nervosa (Maguire et al., 2008). In major Australian hospitals, approximately 60 per cent of children admitted have life-threatening complications (Madden et al., 2009). Unnoticed early symptoms of maladaptive eating may contribute to the high percentage of children presenting with life-threatening medical complications (Madden et al, 2009).

Assessment of Eating Disorders

Several comprehensive psychiatric interviews and assessments designed to assess the presence or absence of an eating disorder exist. However, there are many issues yet to be resolved (Bryant-Waugh, 2013; Levine & Smolak, 2006). Traditional eating disorder instruments tend to be lengthy and are designed for specialist use only (AED, 2011; Morgan, Reid, & Lacey, 1999). This has made them impractical for use in primary care settings where the majority of children first present with eating difficulties (Henderson & Freeman, 1987).

Instruments designed to assess childhood eating disorders have mostly been derived from instruments designed for adults (Jacobi, Abascal, & Taylor, 2004) or middle to late adolescence, and have not been validated for use with younger children (Alexander & Treasure, 2012). Until recently, these assessments were deemed suitable for clinical practice. Eating disorders were reported to occur primarily in mid to late adolescence and had been rare in younger children (Madden et al., 2009). This is no longer the case. Both the Westmead Hospital in Sydney and the Royal Children’s Hospital in Melbourne have reported a substantial increase in eating disorder cases in the under-12 age group (Madden et al., 2009). Doctors at the Westmead Children's Hospital reported that children as young as five are being admitted for treatment of eating disorders. This figure has tripled in the last decade (Madden et al., 2009). Maladaptive eating behaviours have doubled in the same time (NEDC, 2012).

Given the increasing frequency of eating disorders and maladaptive eating patterns in paediatric populations, assessment of young children is essential (Bernat & Resnick, 2006).

Another problem with traditional eating disorder assessments is that many are based on diagnostic criteria most commonly derived from the previous and now out-dated DSM-IV-TR (APA, 2000) criteria. This is problematic given individuals with milder cases of an eating disorder do not meet all of the criteria in the DSM-IV-TR (APA, 2000); yet almost 50 per cent go on to develop a diagnosable eating disorder (Fisher et al., 2001). Additional problems include a lack of consistent assessment for measuring childhood eating disorders (Anderson, 2004) and limited cross-cultural validation research, with only a few variations in methods for validity testing and differences in methods of translation (Marquer et al., 2012; Spiker, Hebbeler, & Barton, 2011). Childhood eating disorder assessments developed and tested with samples of children with disabilities or who are linguistically or culturally diverse are currently in short supply (AED, 2011). The Eating Disorder Inventory and the Bulimic Investigatory Test are reported to be culturally based. Because of this the full specturm of eating disorders may not be appropriately identified with other cultures. These tools have been found to have a number of false positives, and translated versions of these scales may lead to alterations in meanings in different cultures (Makino, Tsuboi, & Dennerstein, 2004).

In response to the above problems, the International Workgroup of Experts recommended a two stage screening process for childhood eating disorders. This process aims to rule out suspicious symptoms through the use of: a) screening instruments with clinically significant cut off points and b) existing eating disorder diagnostic criteria to confirm a diagnosis (NEDC, 2012). To meet the first objective, a valid screening tool that is quick and easy to administer and appropriately supplied to medical and mental health professionals, needs to be available for use (Madden et al., 2009).

Screening Instruments

Screening instruments typically include questions regarding eating, dieting, weight, and exercise habits, self-image, self-esteem, body shape perception, menstruation, drug use, and interpersonal relationship (National Health System of the Ministry of Health and Consumer Affairs [NHSMHCA], 2009). This is consistent with the review given earlier on risk and protective factors. A number of these self-report screeners enable the systematic assessment of eating practices and behaviours. Unlike traditional interviews and assessments, screening instruments are relatively fast and easy to administer, with a simple cut off score to indicate clinical levels of psychopathology, which makes them ideal for busy medical and health professionals (Marquer et al., 2012). Screening assessments provide a means to identify those children in need of additional evaluation and treatment.

Eating disorder screening instruments often detail a two-phase process (D'Souza, Forman, & Austin, 2005; NEDC, 2010b). Phase one aims to rule out suspicious symptoms and phase two assesses those identified at risk to determine if they fulfil formal eating disorder diagnostic criteria. When screening for the presence of eating disorders, it is not necessary to determine an exact diagnosis or obtain detailed patterns of potential symptoms (Jacobi et al., 2004). The purpose of screening is to identify individuals who are likely to be at risk of an eating disorder and need further assessment. Therefore, these types of assessments are applicable in the initial assessment phase, of the two stage screening process, but not in subsequent detailed examination.

Several authors have proposed a set of criteria and recommendations for the assessment of eating disorder screening instruments (Morgan et al., 1999; Selzer, Hamill, Bowes, & Patton, 1996; Stice et al., 2000). These criteria determine their usefulness according to test relevance, development, psychometric properties and external validity. Based on the results of a systematic review published by Jacobi et al. (2004) a select number

of self-report screening instruments for eating disorders fulfil the above-mentioned criteria. These instruments are validated, useful in clinical practice and are designed to effectively identify potential cases of eating disorders. These instruments predominantly target age ranges from 11 to 13 and are extrapolated from adult measures. They include the Children Eating Attitudes Test (ChEAT; Maloney et al., 1988), the Sick, Control, One, Fat, Food questionnaire (SCOFF; Morgan et al., 1999), the Survey for eating disorders (SED; Freund, Graham, Lesky, & Moskowitz, 1993), the Branched eating disorders Test (BET; Selzer et al., 1996), the Bulimia Test–Revised (BULIT-R; Thelen, Farmer, Wonderlich, & Smith, 1991), the Bulimic Investigatory Test Edinburgh (BITE; Henderson & Freeman, 1987). See Table 3 for information on selected eating disorder screening instruments.

Table 3

Eating Disorder Screening Instruments

Test title and author	Age group	Purpose	Information	Test items
The Children Eating Attitudes Test (ChEAT; Maloney et al., 1988).	8-13 years	Screener to assess eating & weight control habits using DMS-IV-TR (APA, 2000) criteria.	ChEAT is a modified version of the adults Eating Attitudes Test-26 (EAT-26; Garner & Garfinkel, 1979). ChEAT may be more suitable for adolescents than children.	26
The Sick, Control, One, Fat, Food questionnaire (SCOFF; Morgan, Reid, Lacey, 1999)	11 years +	Screening tool for DSM-IV-TR (APA, 2000) eating disorders.	Five short questions that test for possible anorexia nervosa or bulimia nervosa.	5
The Survey for eating disorders (SED; Gotestam & Agras, 1995)	Adolescent & adults	Diagnostic screener for all DSM-IV-TR (APA, 2000) eating disorders.	The SEDs is lengthy and response options vary depending on type of administration (e.g. in person or by telephone)	36
The Branched eating disorders Test (BET; Selzer, Hamill, Bowes, & Patton, 1996)	12 years +	Screener for identification of potential cases of eating disorders	Computer administrated questions, which are followed up by more specific questions regarding frequency, duration, and severity of symptoms.	47
The Bulimia Test–Revised (BULIT-R; Thelen, Farmer, Wonderlich, & Smith, 1991).	12 years +	Screener to assess bulimia nervosa in adolescents	28 items reflect DSM-III-(Ref: 1987) diagnostic criteria and 8 items are related to specific weight control behaviours	36
The Bulimic Investigatory Test Edinburgh (BITE; Henderson & Freeman, 1987)	13 years +	Screener to assess symptoms of bulimia nervosa or BED	The BITE consists of two subscales: the symptoms scale and the severity scale	36

Adapted from Jacobi et al. (2004) recommended screening assessment criteria

The following section describes the tools used for detecting eating disorders that align with the Jacobi et al. (2004) recommended screening assessment criteria.

The Children Eating Attitudes Test. The Children's Eating Attitudes Test (ChEAT; Maloney et al., 1988) is a commonly used, brief, self-report screening questionnaire designed to assess eating and weight control habits in children aged 8 to 13. The ChEAT was fashioned off the adult version of the Eating Attitudes Test (Garner & Garfinkel, 1979) and the language was simplified for children requiring a 5th grade reading level. Previous reviews have examined the psychometric properties of the ChEAT and reported good internal consistency, with Cronbach's alpha values in the range of .71-.87 (Maloney et al., 1988; Sancho, Asorey, Arija, & Canals, 2005; Smolak & Levine, 1994). Four factors comprise the ChEAT and include dieting, over concern with eating, social pressure to increase body weight and extreme weight control practices, which represent the construct of disordered or maladaptive eating.

The authors of the ChEAT attempted to identify disordered or maladaptive eating practices in children by drawing upon theories contained in the literature regarding the construct domains of maladaptive eating and how these construct domains should be measured (Smolak & Levine, 1994). However, there have been discrepancies in the literature as to what the ChEAT actually measures. For example, a factor analysis conducted by Smolak and Levine showed there are primarily four underlying factors, while others report either a five-factor model (Lynch & Eppers-Reynolds, 2005) or a six-factor model (Anton et al., 2006). Ocker, Lam, Jensen, and Zhang (2007) conducted a confirmatory factor analysis and reported a three and four-factor structure, both of which were described as being a poor fit. Similar discrepancies have been reported when using the adult version of the ChEAT, (the EAT-26; Garner & Garfinkel, 1979) for non-clinical adolescents, which has yielded inconsistent results with some studies producing four factors (NHSMHCA, 2009), and others

finding five factors (Lynch & Eppers-Reynolds, 2005). These results create uncertainty about the content and factor structure of the ChEAT (Maïano, Morin, Lanfranchi, & Therme, 2013). There have also been questions as to the ChEAT's suitability for use in non-clinical populations (Anton et al., 2006).

The literature identifies another concern with the ChEAT's high sensitivity and specificity, but low positive predictive value for identifying anorexia nervosa cases in the general population (Le Grange & Lock, 2011). Lattimore and Halford (2003) found that scores obtained on the ChEAT were not an accurate indication of disordered eating and Erickson and Gerstle (2007) found that aspects of the ChEAT only identified disordered eating in certain age groups (NHSMHCA, 2009). Because the ChEAT was designed using the previous DMS-IV-TR (APA, 2000) diagnostic criteria, children with milder cases of eating disorders who do not meet this criteria may not be identified as being *at risk* (Fisher et al., 2001). Research on the relationship between total ChEAT scores and BMI among children has also been found to be inconclusive (Ranzenhofer et al., 2009) and previous research has confirmed that the DSM-IV-TR (APA, 2000) criteria may have not been developmentally appropriate for use with young children (Burke, Kraemer, & Shaffer, 2010; Schneider, 2009). Some of these issues have been rectified in the new DSM-5 (APA, 2013); however, these changes are not yet reflected in the test arena.

The Sick, Control, One, Fat, Food questionnaire (SCOFF). The SCOFF (Morgan et al., 1999) is a screening tool for DSM-IV-TR (APA, 2000) eating disorders and is commonly used in a non-specialist setting with individuals' who engaged 11 years and over, who are considered possibly to have an eating disorder: either anorexia nervosa or bulimia nervosa (NHSMHCA, 2009). It consists of five short questions that include: Do you make yourself sick because you feel uncomfortably full?; Do you worry you have lost control over how much you eat?; Have you recently lost more than 1 stone (6kg) in a 3-month period?; Do

you believe yourself to be fat when others say you are too thin?; Would you say that food dominates your life?. Scores range from 0 to 5 points (No=0 and Yes=1). A score greater than 2 indicates the likely diagnosis of an eating disorder (Morgan et al., 1999). Independent studies performed in primary care indicate sensitivity values that range between 78 per cent and 85 per cent and specificity values that range between 88 per cent and 90 per cent, with only affirmative answers (Cotton, Ball, & Robinson, 2003). These are good results given the questionnaire is so brief. The reliability of the instrument, when self-administered (written) or when administered by a physician (oral), was also assessed and the results only evidenced minimal differences in SCOFF's detection ability. However, the authors suggest that self-report responses may be more honest given that the patient's confrontation with the interviewer is reduced (Cotton et al., 2003).

This tool has been criticised for its briefness (Cotton et al., 2003), that the age range of 11 years and up is too broad, that it does not assess enough symptoms common to eating disorders, and that it has a narrow view of what constitutes eating disorders as defined by the previous DMS-IV-TR (APA, 2000). Due to the 12.5 per cent false-positive rate, some argue that the SCOFF is not sufficiently accurate for identifying individuals at risk of an eating disorder, in the general population (Cotton et al., 2003). Further work is also needed to establish the SCOFF's validity and reliability.

The Survey for Eating Disorders. The SEDs (Ghaderi & Scott, 2001b) is a self-report questionnaire, which consists of 36 questions to determine a DSM-IV-TR (APA, 2000) diagnosis of anorexia nervosa, bulimia nervosa, and EDNOS (including BED). Of these questions 18 are for diagnosis, 4 are demographic questions, with the remaining questions seeking information about the onset of eating disorder. In a review performed by Ghaderi and Scott they found that there were no significant differences between diagnoses concluded from the SEDs and the Eating Disorders Examination (EDE), indicating a high predictive value for

the measure. Test re-test reliability is reported to be high after approximately a two week interval between tests and concurrent validity was also good, in that participants who met a diagnosis on the SEDs also had significantly elevated scores on the EDE (Ghaderi & Scott, 2001b). Although the SEDs is designed for adults, it has also been used with adolescents (Le Grange & Lock, 2011), but rarely with children. Unlike the SCOFF, the SEDs has strong DSM-IV-TR (APA, 2000) conceptualization and comprehensive diagnostic capabilities for anorexia nervosa, BED, and bulimia nervosa. However, the SEDs is lengthy and response options vary depending on type of administration (e.g. in person or by telephone) therefore more psychometric studies are needed to validate cut off scores, as on occasion over or under diagnosis occurs (Ghaderi & Scott.; Le Grange & Lock, 2011).

The Branched Eating Disorders Test. The BET (Selzer et al., 1996) is a branched questionnaire administered via computer. It is written at a 12-year old level and consists of 47 questions, which are followed up by more specific questions regarding frequency, duration, and severity for identification of potential cases of eating disorders (Le Grange & Lock, 2011). In a study conducted by Selzer et al. the BET was used with 653 students in grades 5 to 8 and was compared with similar measures (Cooper & Fairburn, 1993). The BET indicated sensitivity of .70 and specificity of .99 in categorising a nonclinical sample as being at high or low risk for developing an eating disorder. Although the BET was developed in order to address the shortcomings of self-reporting measures and interviews (Selzer et al., 1996) this tool seems lengthy and administratively difficult and has been criticised for the target age range of 12 years and up, which has been deemed as too broad (NHSMHCA, 2009).

Bulimia Test–Revised. The BULIT-R (Thelen et al., 1991) is a 36-item questionnaire that was developed to assess bulimia nervosa in adolescents aged 12 years and over on the basis of criteria set out in the DSM-III-R (APA, 1987; Freund et al., 1993). The BULIT-R is scored using a five-point Likert scale. Scoring is based on 28 items that reflect

DSM-III-R (APA, 1987) diagnostic criteria and the remaining eight items are related to specific weight control behaviours (Le Grange & Lock, 2011).

Although this tool is used mostly with adolescent samples, little is known about the psychometric properties of this measure for adolescents (McCarthy, Simmons, Smith, Tomlinson, & Hill, 2002). Thelen et al. (1991) provided evidence of the validity of the BULIT-R in predicting group membership, using female bulimic and control subjects and showed test-retest reliability (r =.95) and validity in predicting the diagnosis in an adult female non-clinical sample. The BULIT-R has also been found to have high internal consistency (alpha = 0.98) and has demonstrated validity in identifying individuals who meet the diagnosis for bulimia nervosa based on DSM-III-R (APA, 1987) criteria in a sample of adolescent and adult females (Le Grange & Lock, 2011). Thelen et al. (1991) identified five factors, which included bingeing and control, radical weight loss and body image, laxative and diuretic use, self-induced vomiting, and exercise. A four factor model has been proposed for adolescent boys and girls that look at bingeing and control separately and normative rather than radical weight loss (Vincent, McCabe, & Ricciardelli, 1999).

This tool is somewhat dated given it was developed using previous DSM-III-R criteria (APA, 1987); however, it is a brief, easy to score, well-validated measure of the symptoms of bulimia. In clinical practice, it is still extremely useful as a screening measure for individuals suspected of having bulimia nervosa, and as a means of tracking progress throughout treatment (Anderson et al., 2004). However, the ability of the BULIT-R to differentiate between bulimia nervosa and partial cases of bulimia nervosa has not been clearly tested in adolescent populations (NHSMHCA, 2009). Lastly, the target age range of 12 years and over is broad and the BITE is not deemed suitable for use with younger children.

The Bulimic Investigatory Test, Edinburgh. The BITE is a self-report questionnaire completed in 10 minutes or less (BITE; Henderson & Freeman, 1987), it is

designed to identify children aged 13 years and over with symptoms of bulimia nervosa or BED (Freund et al., 1993). The BITE consists of 36 items that configure two subscales: the symptoms scale and the severity scale. A total score of 25 or more points indicates the presence of bulimia nervosa or BED (NHSMHCA, 2009). Henderson and Freeman (1987) found that the BITE demonstrated satisfactory reliability and validity when used with adult women. The internal consistency of the symptom subscale and the severity subscale was evidenced by alpha coefficients of .96 and .62, respectively, and test-retest reliability was also demonstrated. The internal consistency of the BITE (alpha = .86) has also been demonstrated with an 18-24 year students sample (Le Grange & Lock, 2011). The BITE specifically has shown sensitivity to change in both symptoms and behaviour and is able to clearly distinguish binge eaters from normal subjects. However, the ability of the BITE to differentiate between bulimia nervosa and partial cases of bulimia nervosa and other eating disorders has not been clearly ascertained and population data are scarce (NHSMHCA, 2009).

Screening Instrument Deficits: Implications

Current screening instruments do not capture *early* presentation of eating disorders in children, currently reported in eating disorder literature. Over the past decade eating disorder related hospitalisations have increased 119 per cent among children under 12 years old (Harb, 2012) and 10 per cent of all new eating disorder cases are found in children 10 years or younger (Rodgers et al., 2009b). In children aged 5 to13 years, it is estimated the annual Australian incidence for early onset eating disorders requiring hospitalisation to be 1.4 per 100 000 children (Madden et al., 2009). This is significant because early identification and treatment leads to reduced morbidity and mortality (Lock, Agras, Bryson, & Kraemer, 2005). Until now, little work has been done to develop a valid screening instrument that is capable of identifying maladaptive eating practices, pre-cursers to eating disorders, in children aged 8 to12. This is concerning given the recent reports of substantial rises in eating

disorder cases in the under-12 age group (Madden et al., 2009). The current thesis aimed to rectify this creating an instrument which identifies maladaptive eating practices of children in a younger age bracket.

As stated above the majority of screening assessments are not designed specifically for younger children and were fashioned using adult measures (NEDC, 2012). Screening tools currently used to diagnose childhood eating disorders are designed for middle to late adolescents (NEDC, 2012) and are not reflective of current trends in eating disorder presentations. Le Grange and Lock (2011) noted a number of deficits within childhood eating disorder screening tools. Current screening tools are heavily focused on DSM-IV-TR (APA, 2000) eating disorder outcomes and do not account for pre-diagnostic indicators or pre-cursors to eating disorders. This is evident where the screening instruments currently available are unable to differentiate between complete and partial eating disorders and there exist no specific questionnaires for screening of partial or subclinical cases of anorexia nervosa (NHSMHCA, 2009). There was therefore a need to conduct experimental research investigating the applicability of a newly developed screening assessment technique for use with younger children who engage in a range of maladaptive eating practices (Chamay-Weber et al., 2005).

Additional points to consider in the assessment of eating disorders. Detection of childhood eating disorders presents some additional challenges for clinicians. These typically involve the integration of data obtained from several sources that may include the child, their parent/s, teachers, and medical professionals (Hwang, 2010). Accurate assessment can be complicated by the low concordance typically found between two adults' reports on a child's level of disordered eating such as a mother and a teacher or a mother and a father. In some cases discrepancies between ratings have been found to relate to an existing parental eating problem (NEDC, 2012). This low concordance between multiple informants has been

attributed to various factors, such as situational specificity of symptoms, the differing perspectives of informants, cultural and generational differences, measurement error, and the degree of psychopathology of the informant (Andersen, Bowers, & Watson, 2001; Bravender et al., 2010; Hwang, 2010).

When obtaining self-report data from young children, there is also a variety of developmental factors that need to be taken into account such as short attention spans (Alexander & Treasure, 2012), language abilities (Le Grange & Lock 2013), over-compliance and socially desirable response biases (Bravender et al., 2010). There is some evidence to suggest that young children can relate to both positive and negative aspects of their internal world (Barrett, 2010; NEDC, 2010b). This is important as it supports the notion that, given the use of appropriate assessment techniques, young children could provide meaningful information about their affective and behavioural adjustment.

Potential advantages of developing a tool that identifies pre-diagnostic indicators of maladaptive eating in children aged 8 to 12. If we accept that identification will often result in prevention then the advantage of providing a psychometric instrument that identifies pre-diagnostic indicators of maladaptive eating for use with children aged 8 to 12 is self-evident (Le Grange & Loeb, 2007; NEDC, 2010b). Research shows significantly improved outcomes for individuals who are identified and treated early in the course of an eating disorder. Thus, early detection could potentially translate into significant human and economic cost savings.

Despite this probable outcome, there currently exists no satisfactory indicators of who will acquire an eating disorder and who will not (Fink, Smith, Gordon, Holm-Denoma, & Joiner, 2009; Patton, Johnson-Sabine, Wood, Mann, & Wakeling, 1990). Until recently individuals including a large proportion of children with a significant eating pathology who did not meet full clinical diagnostic criteria were unrepresented in the clinical arena, research

and the literature (Stice, Ng, & Shaw, 2010). While the DSM-IV-TR and DSM-5 criteria are useful for standardising the definitions used in research and practice concerning the identification of *at risk* persons for the diagnosis of an eating disorder, they do not give attention to the pre-diagnostic aspects of these eating disorders. Thus the potential utility of a psychometric tool capable of identifying persons *at risk* is high.

The first requirement of an effective screening instrument would be to identify initial signs and symptoms of maladaptive eating that would be otherwise missed by current clinical eating disorder instruments (Hwang, 2010). These signs and symptoms could therefore be smaller in number and less intense (Chamay-Weber et al., 2005) and may include early behaviours, such as calorie-restrictive dieting, or attitudes, like body dissatisfaction, that are considered precursors to eating disorders (Perkins et al., 2006). Identification and treatment of individuals who are placed at the earliest steps in the spectrum, that is before symptoms develop into a more serious eating disorder, would hypothetically result in a decrease in the prevalence of eating disorders (Levine & Smolak, 2006).

Within test literature there is a lack of consensus as to how eating disorders and disordered eating should be measured. This has resulted in the subscale structure of current screening instruments not adequately identifying and assessing all the primary dimensions of eating disorder symptoms. Domains derived from current diagnostic criteria as well as key features indicated in the literature include psychological domains (Malson et al., 2008) affective/emotional mood states (Polivy & Herman, 2002; Stice, 2002), and physical/behavioural components (Blodgett et al., 2007; Le Grange & Lock, 2011). The current study recommended that the construct of maladaptive eating be defined by the Williamson et al. (2004) Integrated Cognitive-Behavioural theory of eating disorders. This theory gives attention to five symptom patterns or domains common to eating disorders.

These include cognitive, emotional and social domains and a physical as well as a behavioural domain (Fairburn et al., 2009; NEDC, 2010b; Vitousek & Orimoto, 1993).

There has also been a longstanding debate in the paediatric psychiatric literature about whether psychopathology in children is dimensional, with clinically significant problems representing the extreme end of a continuum, or categorical, with individuals either meeting or not meeting criteria for a specific disorder (NEDC, 2012). Categorical instruments often miss significant pre-diagnostic symptoms in those who may recover categorically from anorexia nervosa or bulimia nervosa (Eddy et al., 2008; Hwang, 2010). Thus, an individual who at pre-treatment meets the diagnosis of anorexia nervosa or bulimia nervosa and improves in therapy (and although no longer meeting the full diagnostic criteria for an eating disorder), may continue to show significant symptoms and signs of eating disorders and impairment. However, they may be considered recovered based on categorical diagnostic measures. Consequently, utilizing a categorical diagnostic measure as an assessment of outcome with pre-diagnostic symptoms of maladaptive eating may prove unreliable. Given the vagueness of the criteria used for diagnosing early onset eating disorders, few if any current diagnostic measures even classify eating problems outside those accepted as DSM-IV-TR classifications (APA, 2000; Eddy et al., 2010).

The challenge associated with the dimensional approach when applied to young children is distinguishing between developmentally normal eating, maladaptive eating, and clinically significant eating disorders (Hwang, 2010). There appears to be a continuum of eating difficulties during childhood, with graduations based on degrees of severity, persistence, and impairment (Stice et al., 2007). Children who display maladaptive eating difficulties often engage in the same disturbed eating behaviours as those with a diagnosable eating disorder; albeit at a somewhat lower level of frequency and severity (Mustapic et al., 2015; Watkins et al., 2011). Clinical intervention often requires the clinician to decide

whether or not to treat a child. This often involves defining caseness based on a cut-off point on a dimensional measure of applying diagnostic criteria and is therefore, a categorical decision (i.e., making a diagnosis).

The current research was built on the basis that early identification approaches rely on the validity of the concept of a continuum or spectrum of Eating Disorders (Shisslak et al., 1995). Le Grange and Loeb (2007) hypothesise the existence of a spectrum or linear progression of disordered eating practices and behaviours that move along a trajectory path from mild to severe (Alexander & Treasure, 2012). Situated in the middle range are maladaptive eating practices (Shisslak et al., 1995). Individuals at a higher risk of developing an Eating Disorder exhibit more pre-diagnostic psychopathology than their more chronic and stable sub-syndromal counterparts. In theory this makes early detection easier for the clinician (Stice, 2002).

Van der Ham, Meulman, van Strien, and van Engeland (1997) considered eating disorders to be one syndrome with a broad spectrum of expressions of manifestations. According to their views the core symptoms of eating disorders are the same, but the symptomatology can be differently expressed in the severity of the disorder and in the kind of eating behaviour during the course of the illness. By the term core symptoms, they mean those symptoms that underline the behavioural symptoms and can be considered as inner states, which activate the maladaptive eating behaviour, such as binge eating and purging, as well as daily weigh-ins, heavy exercise and adherence to strict food rules (Blodgett et al., 2007; Le Grange & Lock, 2011).

These two approaches support the premise that any eating disorder syndrome is part of a spectrum of common ways in which these inner states may express themselves through maladaptive eating behaviours (Stice, Ng, & Shaw, 2010). Given that eating disorder symptoms, including weight, are apt to fluctuate across time, it is also possible that the

transition from anorexia nervosa to bulimia nervosa may not represent a change in disorder but rather a change in stage of an illness (Alexander & Treasure, 2012).

Far more unites the various forms of eating disorders than separates them (Hwang, 2010). Rather than focusing on differences between the eating disorders, there is a case for highlighting the many features that are shared by them and are largely peculiar to them. These cross-diagnostic similarities become even more obvious if a longitudinal perspective is taken. This is because individuals do not adhere to their DSM-IV-TR diagnostic criteria over time but instead they often move between them (NEDC, 2012). Fairburn and Harrison (2003) suggest creating a single unitary diagnostic category of eating disorders incorporating anorexia nervosa, bulimia nervosa and EDNOS without any subdivisions. The main argument for proposing a trans-diagnostic solution of this type is that the current emphasis on subdividing the eating disorders into anorexia nervosa and bulimia nervosa (Eddy et al., 2008), each with their two subtypes, EDNOS (and possibly BED) detracts attention from the most striking characteristic of the eating disorders, their commonalities.

The above research suggests that there is a need for a screening instrument, capable of detecting maladaptive eating practices or the formative stages of eating disorders in children aged 8 to 12. This is when the problem eating first occurs and the instrument would help prevent the occurrence of more serious Eating Disorders. The current research aimed to develop a new screening questionnaire, the MEPQ, to measure maladaptive eating in children 8 to 12, with adequate symptom domain coverage. This aim was the focus of study 1 of this thesis (chapter seven).

Chapter summary. Maladaptive eating practices in children are not only clinically significant in their present state, but may actually represent both action and hope for preventive efforts through the recognition of the risk of progression from pre and subclinical eating psychopathology to a full eating disorder. The detrimental effects on outcome of

delaying treatment and the severity and nature of eating disorders once the diagnostic threshold is crossed represent a potential point of no return, especially in those diagnosed with anorexia nervosa (Bravender et al., 2010). Children who engage in maladaptive eating may in fact be exhibiting early caseness or syndrome of these disorders (Bravender et al., 2010). Eating disorders are notoriously difficult to treat. Any attempt to disrupt them in their early phases is an important goal in preventing more chronic and treatment-resistant forms. The current research argues the best interventions for maladaptive disorders should be derived from the prevention fields.

Identifying pre-diagnostic variants of eating disorders is important from a public health perspective; as such presentations may result in full conversion to an eating disorder for a subset of individuals (Ben-Tovim et al., 2001; Le Grange, Loeb, Van Orman, & Jellar, 2004). Individuals who display sub-syndromal variants are clinically significant in their own right, carrying liabilities in the medical, psychiatric and psychosocial domains similar to their higher-threshold diagnostic counterparts (Jordan et al., 2008; Peebles, Hardy, Wilson, & Lock, 2010).

The aim of this work was to capture a wider net of individuals than is currently identified; especially young children aged 8 to 12. The current thesis sought to develop and validate assessment and treatment tools for early detection of the *risk* of eating disorders in children by accounting for lower and more developmentally sensitive thresholds of symptom severity and thus helping prevent eating disorders. In turn the outcome was and is hoped to offer clinicians effective assessment and treatment options in dealing with individuals, their families, their carers, and the community.

Issues remain regarding the appropriateness and validity of screening instruments for the early pre-cursors of eating disorders in childhood. Children are heavily underrepresented in test development research as well as clinical research. The majority of current screening

instruments assessing disordered eating for older children and adolescents have not been validated for use with younger children aged 8 to 12 (Alexander & Treasure, 2012). It has also been suggested that the previous DSM-IV-TR (APA, 2000) criteria may have not been developmentally appropriate when designing screening instruments for use with younger children (Burke et al., 2010; Schneider, 2009). Lastly, more specific guidelines are still required to fully understand how the new DSM-5 (APA, 2013) criteria may or may not apply to young children.

Throughout this chapter, issues were also noted in regards to child self-report instruments. The importance of considering developmental factors when assessing young children was discussed. It has been argued that young children could provide meaningful information when appropriate assessment techniques are used.

Chapters four and five following both review literature on early intervention and prevention initiatives for children with eating disorders and those who care for them. Early treatments based on an individual therapy and group-based interventions for these children and their carers will be reviewed. This serves to demonstrate that treatment and prevention programs, under relatively ideal conditions, may reduce a range of maladaptive eating behaviours in children and youth as well as assist those who care for them.

Chapter 4: Treatment of Childhood Eating Disorders

Introduction

The previous chapter reviewed current screening instruments that target children *at risk* of an eating disorder (Burke et al., 2010; Schneider, 2009). Children are heavily underrepresented in test development research as well as the literature. This chapter reviews literature on effective treatment options for children with eating disorders. Early treatments based on individual therapy are reviewed, followed by an exploration of studies evaluating group-based interventions for these children, in particular the FRIENDS (Barrett, 2010) programs. This chapter is of relevance to the current PhD thesis also, as it examines the FRIENDS for Life program that is utilised as part of study 2 (see chapter eight).

Overview of Conceptual Models Underlying Treatment

The distress and impairment associated with childhood eating disorders makes treatment a priority (AED, 2011; Becker, 2011; Waddell, Godderis, Schwartz, & Garland, 2005; NICE, 2004). The aim of treatment is to reduce the duration, severity and impairment associated with eating disorders, as well as to prevent recurrence of the disorder (Alexander & Treasure, 2012; Bergh, Brodin, Lindberg, & Sodersten, 2002; Le Grange & Lock, 2011). To determine the efficacy of psychological treatments for eating disorders, controlled trials have assessed a number of pertinent therapies. These therapies include individual and group CBT family therapy, Interpersonal Psychotherapy, behavioural therapy and behavioural weight control programs (NICE, 2004). The results support CBT as a treatment of choice (Persons, 2008; Wilson, Grilo, & Vitousek, 2007) certainly for bulimia nervosa (Shapiro et al., 2007a), and increasingly for anorexia nervosa (Pike, Walsh, Vitousek, Wilson, & Bauer, 2003), and BED (Hilbert & Tuschen-Caffier, 2004) in adult populations. In the case of children, CBT has been most successful when combined with Family Therapy (Le Grange et al., 2007; Lock, Couturier, & Agras, 2006). Understanding CBT and family-based

interventions for anorexia nervosa, bulimia nervosa and BED is central to the current thesis that looks not only at developing a validated assessment instrument but also examines interventions for children *at risk* of an eating disorder.

Cognitive-behavioural therapy model. CBT is considered the treatment of choice for people with established eating disorders (NICE, 2004; Wilson et al., 2007). CBT is a time limited and focused approach that helps individuals understand how thinking and negative self-talk and self-image can directly impact upon their eating and negative behaviours. CBT often focuses on identifying and altering dysfunctional thought patterns, attitudes and beliefs that may trigger and perpetuate restrictive eating. In the early 1980's Fairburn developed a specific model of CBT to help in the treatment of anorexia nervosa, using the traditional foundations of CBT therapy (Fairburn et al., 2009). CBT was found to be highly successful in that it addressed the psychological, familial, and societal facets correlated with eating disorders and directly focused on the problematic thinking and behaviours that sustain eating disorder symptoms (Persons, 2008; Wilfley et al., 2002; Wilfley, Kolko, & Kass, 2011).

CBT is also an effective form of therapy for depression, addiction, mood disorders and anxiety, which commonly co-occur with eating disorders (Persons, 2008). This is achieved through the promotion of emotional wellbeing and resilience, which prevents the onset of a range of social-emotional problems (Madden et al., 2009). CBT is a versatile therapy. It can be applied in both individual and group therapy settings, and the techniques utilized are commonly adapted for self-help applications (Alexander & Treasure, 2012). Each has been found to be equally effective when delivered in any of these modalities (Barrett, 1998, Barrett & Turner, 2004; Shortt et al., 2001).

To date, CBT has shown to be an effective treatment for anorexia nervosa but it is too soon to know if CBT is the best treatment (Bulik, Berkman, Brownley, Sedway, & Lohr, 2007; NEDC, 2010b). The low prevalence (less than1 per cent), longer duration of treatment,

and need for hospitalization of some clients with anorexia nervosa may account for the paucity of studies (NICE, 2004). Although this population may experience serious medical conditions that require periodic inpatient treatment, these individuals can be effectively treated on an outpatient basis to regain weight (Eisler, Lock, & Le Grange, 2010; Treasure et al., 2002). Other treatments currently offered include psychodynamic psychotherapy, motivational enhancement therapy (Fairburn, 2005, 2010) and CBT based family interventions (Chen et al., 2010). In the treatment of anorexia nervosa in children and adolescents, family interventions are usually offered (Couturier, Isserlin, & Lock, 2010; Dare, Eisler, Russell, Treasure, & Dodge, 2001; Eisler et al., 2005; Eisler, Simic, Russell, & Dare, 2007; Eisler et al., 2010).

For individuals diagnosed with BED, treatment efficacy supports various interventions including group CBT and behavioural weight control programs (Bulik, Sullivan, Carter, McIntosh, & Joyce, 1998; NICE, 2004; Wilson, Wilfley, Agras, & Bryson, 2010). Treatment of BED targets both binge eating and weight loss, because most of this population is overweight and at risk of serious health complications. While CBT is effective in achieving the former goal, behavioural weight control programs are equally as effective, and unfortunately CBT has lacked success thus far in producing weight loss (Hilbert & Tuschen-Caffier, 2004).

The success of CBT is most notable for bulimia nervosa, where CBT has been demonstrated to be better than antidepressant medication and more effective or as effective as all psychotherapies with which it has been compared (Agras, Walsh, Fairburn, Wilson, & Kraemer, 2000; Byrne et al., 2001; Chui, Safer, Bryson, Agras, & Wilson, 2007; Fairburn et al., 2009; Fairburn & Cooper, 2011). CBT treatment for bulimia nervosa occurs over the course a 16 to 20 weekly sessions divided into three stages. Adolescents with bulimia nervosa may be treated with CBT tailored as needed to suit their age, circumstances and level of

development, and including the family and carers when appropriate. Its focus is not only on helping patients change their eating habits but also on addressing their way of thinking, especially the over-evaluation of shape and weight that maintain their disordered eating (Byrne, Fursland, Allen, & Watson, 2011; Fairburn, 2005; Fairburn & Cooper, 2011; Latzer, Peretz, & Kreutzer, 2008).

Preliminary studies have also shown some promise in the treatment of sub-threshold individuals who engage in maladaptive eating practices. These include CBT guided self-help with children and adolescents (Byrne, Fursland, Allen, & Watson, 2011; Schmidt et al., 2007; Stice, Marti, Shaw, & Jaconis, 2009), and Acceptance and Commitment Therapy with late adolescents (Juarascio, Forman, & Herbert, 2010).

Family therapy model. Another form of treatment shown to be effective in the treatment of eating disorders with adolescents with anorexia nervosa and bulimia nervosa is Family Therapy (Paulson-Karlsson, Engström, & Nevonen, 2008; Smith & Cook-Cottone, 2011). Family Therapy identifies the parents and carers of the ill child as the best ally and resource for their child's recovery. In this evidence-based approach, parents are acknowledged as the most committed and competent people in their children's life and therefore the best qualified to find ways to fight illness, and to assist them to regain healthy weight and end unhealthy behaviors (Lock et al., 2010).

The psychosomatic conceptual model of Minuchin et al. (1975) first sparked interest in the use of family interventions in the treatment of eating disorders in adolescents with anorexia nervosa. The rationale behind this approach was rooted in the notion that families have a key causal role in the development of their child's eating difficulties. Empirical studies failed to support Minuchin's et al. aetiological role of family dysfunction (Richer, 2010). As a result, a new form of Family Therapy developed, which emphasised the family as a resource (Le Grange, Eisler, Dare, & Russell, 1992).

The first treatment trial of Family Therapy was conducted in 1987. Russell, Szmukler, Dare, and Eisler (1987) studied adolescents with a short duration of illness who had undergone a period of weight restoration in specialist eating disorder units. They found Family Therapy was superior to individual supportive counselling in maintaining weight gained. Their findings stimulated new research into different types of Family Therapy for adolescents with anorexia nervosa (Le Grange et al., 1992; Eisler et al., 2005; Eisler et al., 2007; Eisler et al., 2010; Geist, Heinmaa, Stephens, Davis, & Katzman, 2000; Robin et al., 1999).

Mitchell and Carr (2000) reviewed seven studies of the effects of differing types of Family Therapy for adolescent girls suffering from anorexia nervosa or bulimia nervosa. They found that outpatient services where family-based treatment programs involving concurrent therapy for parents and adolescents lead to sustained weight gain and improvement in psychosocial adjustment. Here family therapy was found to be effective if it included psycho-education about the risks associated with maladaptive eating and emphasized parent's involvement in monitoring their children's eating habits.

Overall, Family Therapy approaches are more efficacious for individuals who display less severe eating disorder symptoms when first diagnosed, are below 18, and report a duration of illness of less than three years, when compared with the outcomes of an individual supportive therapy approach (Eisler et al., 2010; Fisher, Hedrick, & Rushford, 2010). This favourable outcome for family-based treatment was further demonstrated at randomized clinical trials comparing family-based treatment with adolescent-focused individual therapy for adolescents with anorexia nervosa. At the 4 to 5 year follow-up, between 60 to 90 per cent of individuals had fully recovered while only 10 to 15 per cent remained seriously ill (Lock et al., 2010). Outpatient family therapy also compares quite favourably to other treatment modalities such as inpatient care where full recovery rates vary

between 33 per cent to 55 per cent (Lock et al., 2010). Despite the success of Family Therapy in the treatment of adolescent with anorexia nervosa, studies of Family Therapy for bulimia nervosa, EDNOS and sub-threshold cases, have been more limited and so far inconclusive (Richer, 2010; Zucker, Marcus, & Bulik, 2006). This thesis aims to rectify this by including family members, including parental carers in the intervention process for study 2 and 3 (chapters eight and nine).

Family-based Cognitive Behavioural Therapy Model. The effectiveness of both CBT and Family Therapy in the treatment of childhood eating disorders has led to the development of a Family-based Cognitive Behavioural Therapy (FCBT; Ball, Mitchell, 2004; Eisler et al., 2010; NICE, 2004). FCBT approaches focus on the reciprocal interactions between parent/s and child (Lock et al., 2010). Parents living with their child are seen to be in a unique position to facilitate new experiences in which children can test dysfunctional beliefs and behaviours tied to maladaptive eating (Le Grange, Crosby, & Lock, 2008). Parents can also reinforce positive behaviour changes, model healthy lifestyle choices and directly monitor their child's progress (Alexander & Treasure, 2012; Barrett, 2010; Le Grange, Crosby, Rathouz, & Leventhal, 2007).

FCBT has been developed using the principles of two conceptual frameworks, Behavioural Family Intervention and Division of Responsibility in Feeding (Fraser, Norton, Morgan, & Kirkwood, 2002). Based on social learning principles, Behavioural Family Intervention aims to teach parents strategies that increase their positive interaction with children and thereby reduce the more negative aspects of parenting such as coercive or inconsistent ways (Potts, McCormack, & Watson, 2011). Behavioural Family Intervention programs achieve these outcomes through the use of verbal instructions, role modeling, positive reinforcement and stimulus control techniques. For children with feeding difficulties the effectiveness of Behavioural Family Intervention strategies are well documented (Dadds,

Sanders, & Boor 1984; Honey et al., 2007; Pasold, Boateng, & Portilla, 2010; Sanders & Dadds, 1993; Truby et al., 2010).

In contrast, the Division of Responsibility involving the parent and child in a Feeding framework is designed to enhance positive feeding interactions (Fraser et al., 2002). Parents are seen to be responsible for providing their child with nutritious, safe and engaging foods, while the child's responsibility is directed towards the amount of food they eat. In theory, there will be a reduction in parental stress and a concurrent decrease in behavioural non-compliance as a result of improved feeding interactions between the parent and child (Potts et al., 2011). Here, the family is seen as the optimal environment to allow for changes in maladaptive eating behaviors and attitudes. Ideally interventions should occur when the child is aged between 3 and 8 (Fraser et al., 2002) prior to the establishment of lifelong eating habits (Fisher et al., 2010).

The Maudsley Family approach, for example, is a particular kind of FCBT intervention that incorporates these two frameworks. As a treatment approach it has shown remarkable promise in the treatment of anorexia nervosa and bulimia nervosa in child and adolescent populations (Lock et al., 2010). This occurs before the disordered eating behaviours have become fully entrenched (Lock, 2002; Lock & Le Grange, 2005). The treatment approach sees the parents of their child as the best ally or resource for the child's recovery. In this evidence-based approach, parents are seen as the most committed and competent people in their child's life and therefore best qualified to find ways to fight the illness, to regain healthy weight, and end unhealthy behaviours.

Several clinical trials have been conducted to evaluate the efficacy of FCBT interventions (Rhodes, Baillee, Brown, & Madden, 2008; Wallis et al., 2012; Wallis, Rhodes, Kohn, & Madden, 2007). Recent results from a series of studies conducted at the University of Chicago involved 121 randomly assigned girls and boys aged between 12 and 18 who

completed either one year of FCBT or one year of individual therapy for the treatment of anorexia nervosa (Le Grange, Binford, & Loeb, 2005; Lock, Agras, Bryson, & Kraemer, 2005; Lock et al., 2010). At twelve-month completion 49 per cent of those who had been in FCBT were in full remission, more than double the 23 per cent result for those in individual therapy. Among child-adolescents who were in remission at the end of the treatment itself, only 10 per cent of the family therapy group had relapsed a year later, compared with the 40 per cent result for child-adolescents who had individual therapy. Whether FCBT will ultimately prevent the conversion of maladaptive eating to a full eating disorder diagnosis remains unknown (Rockwell, Boutelle, Trunko, Jacobs, & Kaye, 2011). Nevertheless, the above research highlights the importance of involving parents to facilitate successful treatment of eating disorders (Eisler, Lock, & Le Grange, 2010; Lock & Le Grange, 2011). This leads to the FRIENDS program, which was emphasised in the research carried out in this thesis.

The FRIENDS Programs

Another approach that has successfully combined the principles of the CBT and the Family Therapy model is the FRIENDS programs (Barrett, 2010; Barrett, Rapee, Dadds, & Ryan, 1996; Barrett & Turner, 2004). These programs are designed to provide cognitive restructuring, behaviour change and coping skills training for the child and offer a Family Therapy skills component for the parents. Parental training includes the appropriate use of reinforcement strategies, building self-efficacy, enhancing emotional resilience and competency within a wider familial context (Turby et al., 2010). The FRIENDS programs have evolved to include components useful in the treatment of maladaptive eating, in particular over eating, and has demonstrated efficacy when run concurrently with supplementary dietary advice (Lim, Norman, Clifton, & Noakes, 2009). The following model displays the main characteristics of the FRIENDS treatment programs (see Figure 3).

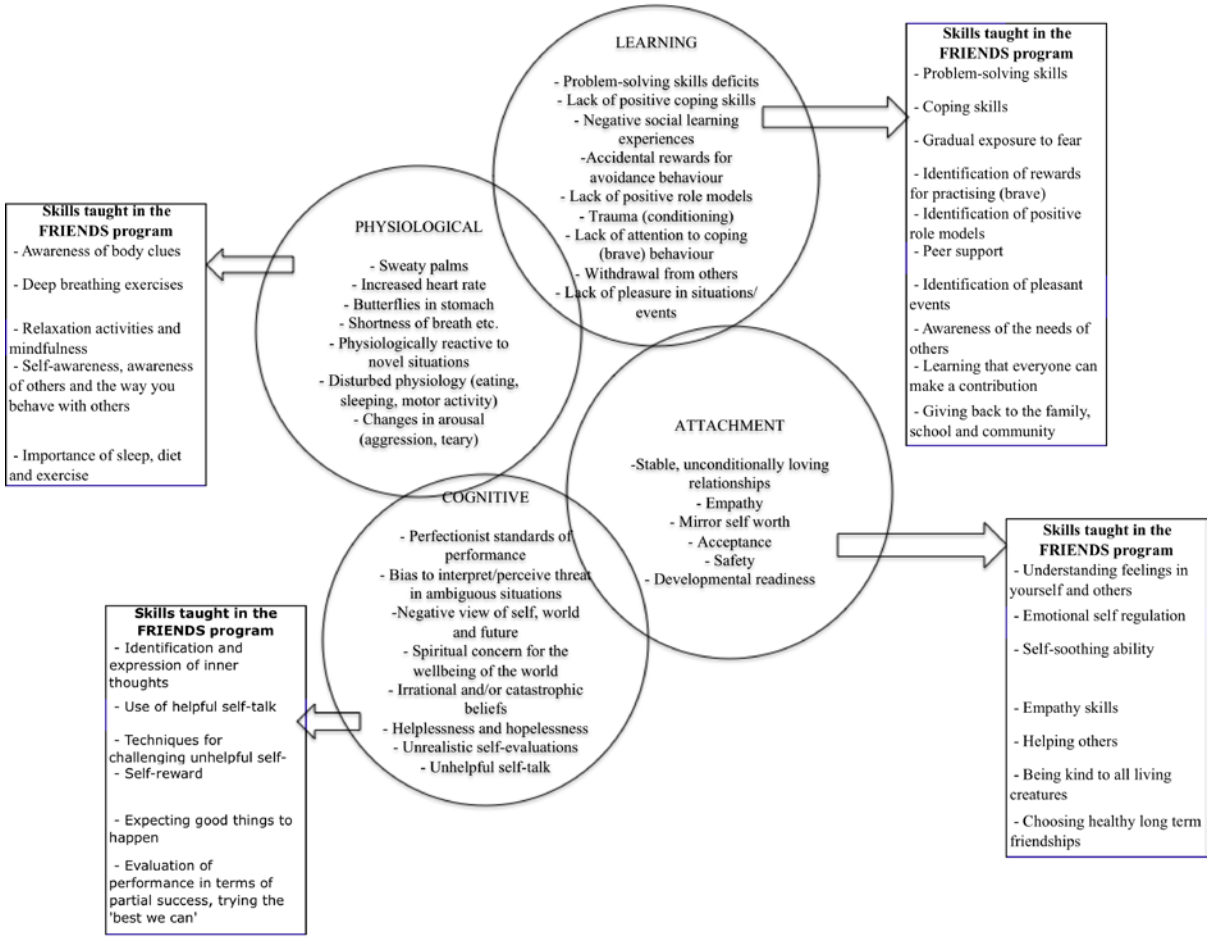

Figure 3. The FRIENDS Family-based Cognitive Behavioural Therapy Model (Barrett, 2004)

Characteristics of the FRIENDS treatment programs. The programs under the FRIENDS umbrella (Barrett, 2004, 2010) follow the combined principles of CBT and Family Therapy. The programs give attention to cognitive, physiological, and learning processes thought to interact in the internal and external expressions of eating dysfunction. The intervention has as a focus the internalising problems associated with poorly perceived self-image, with mental health symptoms, and problems in social relationships and externalising problems associated with health-damaging behaviours. The FRIENDS programs are specifically designed to provide cognitive restructuring, behaviour change and coping skills

training for the child together with a Family Therapy skills component for parental carers. Parental carers' training includes the appropriate use of reinforcement strategies, building self-efficacy, enhancing emotional resilience and competency within a wider familial context (Turby et al., 2010). Central to the FRIENDS programs is attentional and resiliency training. This training aims to foster a resilient mind-set that may serve as a protective factor to help children and their parental carer/s deal with negative life events (Rockwell et al., 2011; Shortt et al., 2001).

The underlying philosophy of the FRIENDS programs is strength-based. Not only does it aim to empower children to make positive change in their lives, it also values the unique knowledge and experiences that parental carers bring to the group (Barrett, 2010). The programs utilise a multicomponent approach that includes a *do no harm* stance and promotes self-esteem, facilitates media literacy and peer support and encourages a collaborative team approach in which the child, parental carer, and clinician work together with the goal of increasing both the child's and the family's confidence and coping skills.

Characteristic of the FRIENDS for Life program. The FRIENDS for Life program (Barrett, 2010) was created from the *Coping Koala* anxiety treatment program (Barrett et al., 1996), an Australian adaptation of the USA-originated *Coping Cat* treatment program (Kendall, 1990). The program later became the FRIENDS *prevention* program and was adapted for group delivery (Barrett, 1998; Shortt et al., 2001). The FRIENDS program has evolved to include *prevention interventions* useful in the treatment of maladaptive eating, in particular over eating, and has demonstrated efficacy when run concurrently with supplementary dietary advice (Lim et al., 2009). For the purpose of this PhD thesis a modified version of the FRIENDS for Life program (Barrett, 2010) was offered as a prevention intervention for children *at risk* of an Eating Disorder (see chapter eight). CBT

intervention programs, such as the FRIENDS programs, have been most successful for children at risk when combined with Family Therapy (Le Grange et al., 2007; Lock, Couturier, & Agras, 2006). Understanding CBT and family-based interventions for children at risk of an eating disorder is central to this thesis that looked at developing the MEPQ and examined the FRIENDS programs for children *at risk* of an eating disorder. Research pertaining to the efficacy of the FRIENDS programs run as a prevention intervention is detailed in the following chapter.

The FRIENDS for Life program is recommended for use with upper primary school-aged children and may be delivered as an individual or group intervention. In a clinic setting, the FRIENDS for Life program is designed to be run as 10 weekly sessions for 60 to 90 minutes, with an option to conduct two follow-up booster sessions, one and three months apart. The FRIENDS for Life program encourages participants' parents to join the child in the final 20 minutes of each session. Children are given the opportunity to demonstrate new skills learned during session and teach their parents these skills to be practices at home together. Homework tasks ensure newly acquired skills are practiced between sessions and help keep parents involved in the process (Barrett, 2010).

Barrett (2011) has further created an upward extension of the FRIENDS for Life program to include an adult version, separate to the children and parent programs. The adult CBT FRIENDS for Life program is designed for use with adults 18 years and above and may be delivered as an individual or group intervention. In a clinic setting, the adult CBT FRIENDS for Life program is designed to be run in a number of formats that include a weekend workshop, four half days or two full days spread over two consecutive weeks, or one hourly sessions spread over 10 consecutive weeks. An optional refresher session may be offered to participants one month after the programs completion.

Skills emphasized in treatment. The primary skills emphases in the FRIENDS programs are similar in both the child and adult version. To help facilitate learning processes in the child's version, each primary skill corresponds to a letter in the FRIENDS for Life anagram, which includes **F**eelings, **R**emember to relax and have quiet time, **I** can do it, I can try my best, **E**xplore solutions and coping step plans, **N**ow reward yourself, you've done your best, **D**on't forget to practise, and **S**mile, stay calm and talk to your support networks (Barrett, 2010). For the adult program this is condensed into the LIFE anagram, and includes: **L**earn to be mindful, **I**nner helpful thoughts, **F**eeling like a resilient person and **E**xercise and eat healthily (Barrett, 2010). An example of each skill is provided below.

The **F**eelings skill involves affective education, with its focus on recognising and understanding feeling in ones' self and in others, and how feelings may be conveyed through verbal and non-verbal communication (Barrett, 2010). The family component of this skill encourages family members to discuss and explore each other's feelings as well as role-play these feelings non-verbally. The adult CBT FRIENDS for Life program includes an additional section on the importance of self-regulation and self-soothing activities in stress reduction (Barrett, 2011).

The **R**emember to relax and have quiet time skill has as its focus, relaxation. Parental carers are encouraged to support this component by reinforcing the use of these strategies in the home. Parental carers are also asked to schedule a period of quiet time each day as part of a long-term stress reduction strategy (Barrett, 2010). The adult CBT FRIENDS for Life program for adults includes a similar section on ways to help the whole family relax (Barrett, 2011).

The **I** can do it, I can try my best skill emphasises the cognitive component of the FRIENDS for Life program with the introduction of *self-talk* and *thought challenging* (Barrett, 2010). Parental carers are encouraged to help reinforce these actions in between

sessions through verbal rewards and modelling the skills themselves. The adult CBT FRIENDS for Life program includes additional discussions on challenging old habits and how positive thinking and impacts on physical health (Barrett, 2011).

The **E**xplore solutions and coping step plans skill include two core learning components created to help children cope in challenging situations (Barrett, 2010). Parental carers are also thought to create their own coping step plans and are encouraged to model the procedure at home with their child. The adult CBT FRIENDS for Life program encourages adults to devise a coping step plan to help met a future goal (Barrett, 2011).

The **N**ow reward yourself, you've done your best component, encourages children to acknowledge their efforts and progress towards achieving their goals (Barrett, 2010). Parental carers may support their children at this stage by recognising and rewarding their proactive behaviours, thereby reinforcing the use of coping skills learned in the program (Barrett, 2010). This improves the likelihood that such behaviours will be maintained. The adult CBT FRIENDS for Life program lists the benefits of feeling good through helping others and encourages adults to become part of a support group, or be a support person, for someone in their community (Barrett, 2011).

The final two program components are delivered together and include the **D**on't forget to practice and **S**mile, stay calm for life (Barrett, 2010). The first component serves as a reminder for children to continue to practice their coping skills plan so they may continue to improve, post program. The second component serves as a reminder for children to remain calm in the face of big challenges; they have been equipped with the necessary coping strategies to manage psychological distress (Barrett, 2010). Parental carers may assist the maintenance of these strategies by encouraging their continued use. The adult CBT FRIENDS for Life program encourages adults to reward and celebrate their success once challenges have been met directly (Barrett, 2011).

For more detailed information on the session content and structure of the FRIENDS for Life program and the adult CBT FRIENDS for Life program see chapter eight and nine respectively where studies 2 and 3 are reported.

Summary of treatment models. Evidence in support of effective treatments for eating disorders is limited, due to the complexity of these disorders (AED, 2011; Crow & Peterson, 2009), and difficulty in implementing randomized controlled trials of significant size (NEDC, 2012). This review presents only a small proportion of treatments currently available. No single treatment approach has been shown to be effective for all individuals with an eating disorder (Alexander & Treasure, 2012). Therefore, clinicians need to continuously evaluate psychological treatments for eating disorders, and monitor emerging research, to identify promising and proven practices (Loeb et al., 2011; NEDC, 2014). The selection of approaches must take into consideration the individuals, their diagnosis, the stage of their illness and comorbid conditions, within the context of their family, peer and social environment (Levine & Smolak, 2006; NICE, 2004). Further research is needed into the appropriateness of treatments for boys and specific cultural groups, as these are not extensively evaluated (Becker, 2011; NEDC, 2010b). The FRIENDS for Life program (Barrett, 2010) complies with best practice standards, which was essential to support this thesis as it includes all genders and ethnicities. See chapter five for more information on best practice standards for CBT interventions.

Treatment issues. Despite ongoing research into treatments for childhood eating disorders, and continued refinement and evaluation of intervention protocols, relapse and non-recovery still remain a significant problem (APA, 2010; Crow & Peterson, 2009; Spear et al., 2007). Many recovered individuals resume maladaptive eating behaviours or do not complete treatment by dropping out prematurely (Halmi et al., 2005; Stein et al., 2001). Barriers around access to services, financial viability and knowledge about available mental

health services contribute towards the under-treatment of children with an eating disorder in Australia.

Owens et al. (2002) posit that there are three categories of barriers to access for child mental health services. The first category is structural barriers, whereby access to services is limited by a lack of available services, especially for those who reside outside metropolitan areas (Campbell, 2004). The development of eating disorder services in Australia has been uneven both within and between states, and between the public and private healthcare sectors (NEDC, 2010a). Specialist services are concentrated in large metropolitan centres with access to care in rural and remote regions extremely limited or, in many cases, non-existent. Similarly, the availability of care for different age groups, types of eating disorders and specific treatment interventions is more often reflective of clinician interest and expertise than coordinated planning (Victorian Government Department of Human Services [VGDHS], 2007). Meeting the demand for service will require not only more services, but also better targeted and use of existing services (Zubrick, Silburn, Burton, & Blair, 2000).

An additional structural barrier includes the inability to pay for private services, which are beyond the financial means of many families (NEDC, 2010b; Owens et al., 2002). In Australia only 10 per cent of individuals' with eating disorders obtain treatment and recovery is only achieved in approximately half of patients treated (Slane et al., 2009). The majority of those who seek treatment do not receive the intensity of treatment they need to stay in recovery (Engel et al., 2009). This is because treatment is difficult and expensive once an individual develops a full eating disorder (Levine & Smolak, 2006). The cost of outpatient treatment, including therapy and medical monitoring, can extend to $100,000 or more (Darby et al., 2009). The stigma attached to eating disorders may also preclude individuals in seeking the treatment they need (Griffiths et al., 2014). By the time children are referred for treatment, the detrimental effects of the eating disorder upon mental and physical development as well

as school performance, and relationships with peers may have advanced to the extent where some of the problems cannot be reversed (Campbell, 2004).

The second category is barriers related to perceptions about eating disorders, including; the proficiency of parents, teachers, and health care providers in identifying children requiring assistance, denial of the severity of a child's eating difficulties, and beliefs that the illness does not require treatment (AED, 2011; Campbell, 2004; Dancyger et al., 2005; Owens et al., 2002; Madden et al., 2009). From an early age children in Westernised societies are exposed to the cultural norms of dieting, poor nutrition and unrealistic body ideals (Durkin, Paxton, & Wertheim, 2005). Acceptance of these norms makes the identification of individuals who engage in these maladaptive eating practices challenging (Yeo & Hughes, 2011). These individual's favourable regard for weight loss and poor mental health literacy for eating disorders, add to the difficulties of parents, teachers, and health care providers detecting the onset of an eating disorder and offering treatment early in the course of the illness (Mond & Hay, 2008; Hay, Darby, & Mond, 2007).

The third category is barriers related to perceptions about mental health services themselves, including; lack of trust, previous negative experience with mental health services, and stigma attached to being treated for a mental illness, in particular an eating disorders (Becker, 2011; Griffiths et al., 2014; Neumark-Sztainer, 2009; Puhl, & Suh, 2015). When indicators of maladaptive eating first present the ability of children to engage with appropriate help at an early stage, is regarded as a protective factor for eating disorders (NEDC, 2012). Yet, children who display early maladaptive eating behaviours often delay help, as a consequence of their illness (Kelly, Jorm, & Wright, 2007; NEDC, 2010a). Difficulties with diagnosis of eating disorders in children tend to increase mistrust of the mental health system and widen the gap between onset and time of first treatment (NEDC, 2010b). Australian research into the duration of treatment delay has identified a median of 10

years delay for those with bulimia nervosa and 15 years for those meeting criteria for anorexia nervosa (Hart, Jorm, Paxton, Kelly, & Kitchener, 2009). For those children who progress to treatment phase fear of stigmatisation often leads to early termination of treatment (Levine & Smolak, 2006). This thesis through the development and validation of the MEPQ sought to offer these groups knowledge to support their needs. By identifying children at risk earlier in the course of their maladaptive eating, families, parental carers and clinicians may act as an advocate for children reluctant to seek help. This provides families, parental carers and clinicians with the opportunity to seek preventative methods when maladaptive eating practices become evident rather than rely on treatment approaches, which due to poor utilisation and poor response are not ideal (Levine & Smolak, 2006).

Summary

Literature pertaining to the treatment of childhood eating disorders was reviewed in this chapter. No single treatment approach has been shown to be 100 per cent effective in the treatment of eating disorders, however CBT is considered to be the treatment of choice for children, when used in combination with Family Therapy (Le Grange et al., 2007). This chapter also provided information on the FRIENDS programs, utilised as part of study 2 (see chapter eight) and study 3 (see chapter nine).

Relapse and non-recovery of eating disordered individuals (APA, 2010; Eshkevari et al., 2013; Spear et al., 2007) as well as barriers around access, knowledge and affordability of mental health services has resulted in a shift in focus from treatment to prevention (NEDC, 2012). A review of the prevention literature for childhood eating disorders is presented in the following chapter. Early identification and the opportunity for prevention is important to this thesis. Therefore, the MEPQ together with the FRIENDS programs targeted this shortfall as shown in studies 1, 2 and 3 (chapters seven, eight and nine).

Chapter 5: Prevention of Childhood Eating Disorders

Introduction

Evidence shows that early intervention for children with pre-diagnostic indicators of eating disorders may prevent the disorders from moving along a trajectory path from mild to severe (Alexander & Treasure, 2012). The poor utilization and response to treatment, as mentioned in the previous chapter, suggests that addressing eating disorders once they have moved along the trajectory from mild to severe, is not the most optimal intervention model for children (Levine & Smolak, 2006). This has resulted in a shift away from treatment of childhood eating disorders to that of prevention (Zubrick et al., 2000). Preventative interventions presented early in one's life offer proactive methods for reducing eating disorder risk (Dohnt & Tiggemann, 2008) by establishing a range of skills for the individual to better manage life's difficulties. Timely delivery of preventative interventions may also reduce the economic burden of these disorders through decreasing the need for costly clinical treatment, which happens once disorders are established (Darby et al., 2009). This strategy may also relieve the pressure of high demand currently placed on already stretched mental health services (VGDHS, 2007). Economic benefits of timely prevention interventions may also include reduced rates of unemployment, and decreases in lost productivity as a result of parental carer absenteeism due to significant caring responsibilities of children with eating difficulties (Treasure et al., 2001).

Literature pertaining to the prevention of childhood eating disorders is reviewed in this chapter. Theoretical approaches to prevention are presented, followed by the examination of specific eating disorder prevention interventions for effected children and their parental carers, such as the FRIENDS prevention programs, which are of primary relevance to the current PhD thesis. The seven components that must be included in an eating disorder prevention program for young children as well as issues of parental carer burden are also

identified. This chapter serves to demonstrate that prevention programs, under relatively ideal conditions, may reduce a range of maladaptive eating behaviours in children and youth and assist those who care for them. Subsequently in studies 2 and 3 the thesis demonstrates the value of the study 1 – developed scale, in being able to assess change occasioned by such intervention training programs applied to the child and to the parent.

Theoretical approaches to prevention. A number of theoretical approaches to prevention have developed in an attempt to address a range of mental health issues across different population groups. Caplan (1964) first published a model of prevention based on the idea that mental health problems developed in clear cut stages. In each stage, primary, secondary and tertiary, prevention had a specific aim. Primary prevention aimed to reduce the incidence of new cases through intervention before disorders occur, and secondary prevention aimed to reduce the prevalence of a disorder through early identification and intervention prior to the disorder becoming severe (Grave, Luca, & Campello, 2001; Kaplan, 2000). Tertiary prevention aimed to reduce the prevalence of a disorder by reducing its duration and the possibility of recurrence through treatment (Lock et al., 2010; Stice et al., 2007).

An alternate view was put forward by Mrazek and Haggerty (1994) who challenged Caplan's (1964) work arguing that mental health problems develop in a gradual progression or trajectory, rather than clear cut stages. Therefore, by identifying and reducing risk factors, early in the course of a disorder, prevention of that disorder is possible. Mrazek and Haggerty's work prompted the Institute of Medicine to propose an alternative prevention model. Their model also had three levels of prevention, universal, selective and indicated, which have specific aims attached and are differentiated on the basis of their position to the target sample along a developmental continuum.

Universal and targeted prevention strategies have advantages and disadvantages associated with each level of prevention. This suggests that one level is no more optimal than

another (NEDC, 2010b). Universal prevention strategies are directed at entire populations, while targeted prevention is directed at children identified as having risk factors or early eating disorder symptomology (Waddell et al., 2005). Selective prevention strategies target individuals considered to be *at risk* of developing an eating disorder (Levine & Smolak, 2006). In contrast, indicated prevention strategies target children considered to be at a *high risk* of an eating disorder. The next section reviews the prevention levels in terms of the overall aims, as well as the advantages and disadvantages.

Universal prevention. The first level on Mrazek and Haggerty's (1994) continuum concerns universal prevention strategies. These strategies target the general community or an entire population without any consideration of whether early symptoms are present (Stice et al., 2007). Universal prevention efforts aim to promote general health and well-being, foster resilience and reduce the risk of eating disorders amongst non-symptomatic populations (Levine & Smolak, 2006). Examples of universal prevention approaches include billboard advertising and an intervention provided to a whole school without restriction to a particular at risk group (Waddell et al., 2005). Because universal programs are positive, proactive, and provided to participants regardless of risk status, their potential for stigmatising participants is minimised (Parle, 2012). In the short term, universal prevention programs may increase resiliency and decrease risk factors. In the long term, it is expected that these changes will lead to fewer eating problems and fewer cases of eating disorders (Russell-Mayhew, 2007).

Selective prevention. Selective prevention programs are presented to an entire subgroup because the subgroup as a whole is at a higher risk for an eating disorder than the general population. Selective interventions aim to promote general health and well-being, foster resilience and reduce the risk of eating disorders to an identified subgroup (NEDC, 2010b). These strategies are more discerning in their approach. Instead of including a whole population as with universal prevention, selective prevention target those at a higher risk

(Stice & Shaw, 2004; Stice et al., 2007). Targeted subgroups may be defined by age, gender and family history, or on the basis of biological, psychological, social, or environmental risk factors known to be associated with eating disorders (NICE, 2014). For example, given the influence of parenting styles on the relationship between a child's weight, self-esteem, and body image (Davis, Delameter, & Shaw, 2001; Davison & Birch, 2002; Davison, Markey, & Birch, 2003; Mustapic et al., 2015) selective prevention strategies may involve the targeting of children parental carers and families together, where one or both parents are known to experience significant difficulties with eating (Truby et al., 2010).

Indicated prevention. The third level concerns indicated prevention programs, which have an even narrower focus in their approach. They are designed to maximise early detection and treatment for people with symptoms of eating disorders who are at a high risk for developing an eating disorder but do not meet threshold diagnostic criteria (Russell-Mayhew, 2007) or other mental or physical health complications (Stice et al., 2007). Examples of indicated interventions include education on the unhelpful physical and psychological effects of dieting and psycho-education on balanced nutrition and physical activity (Alexander & Treasure, 2012). Grade eight girls and boys, for example, who report high levels of concern with their body image may be targeted with indicated prevention programs.

There are a number of advantages and disadvantages inherent in each level of prevention (NEDC, 2010b). For example, indicated and selective prevention programs typically run smaller group interventions. This practice may afford participants more individual attention, leading to less participant attrition, than with the Universal prevention. Indicated and selective prevention programs by focusing on reducing rates of psychopathology in individuals who are most at risk of disorder, or who display pre-

diagnostic criteria for a disorder, only include those individuals identified as requiring intervention (Levine & Piran, 2001; Stice et al., 2007).

An advantage of Universal prevention programs is that they target a larger population, which include both at risk and not at risk children. This avoids problems with singling out; isolating and stigmatizing individuals considered to be high risk and also capture individuals not easily identified for the indicated and selective prevention programs (Parle, 2012). A disadvantage to the Universal prevention program is that the comparatively larger numbers tend to inflate the financial cost and extend the time frames, making indicated and selective prevention more attractive for potential funding opportunities (NEDC, 2010b). One difficulty with indicated and selective strategies it that they require accurate identification of children at risk (RANZCP, 2011); too often a child's personal risk is based solely on the presumption that their particular subgroup is at risk (Parle, 2012). Finding reliable and valid screening measures that test children at risk of an eating disorder, as well as providing appropriate cut-offs to define risk reliably, present methodological and clinical difficulties for clinicians (Anderson et al., 2004; Braet et al., 2007; Christie, Watkins, & Lask, 2000; Decaluwé & Braet, 2004; Powers, 1996; Stice et al., 2000). To date, there have been no screening tools that effectively identify at risk individuals who may benefit from indicated and selective approaches (NICE, 2004). There exists a need for assessment and enhanced treatment tools that will assist clinicians in identifying children *at risk* of an eating disorder and will provide affected children and their carers with a set of skills to support healthy eating practices at the selective level. The current thesis aimed to highlight the useful strategies offered by CBT and FCBT when accessing the three levels of prevention; universal, selective, and indicated for childhood eating disorders and to develop an assessment tool for the delivery of selective intervention programs. This assessment tool was designed to be

administered to children aged 8 -12, when maladaptive eating practices first occur (Le Grange & Loeb, 2007).

Prevention Interventions for Childhood Eating Disorders

Universal, selective, and indicated prevention programs utilise multiple theoretical orientations and models to target specific eating pathologies as well as risk factors implicated in the onset of an eating disorder. Until now, mental health promotion programs, shown to be successful in other childhood psychological conditions such as depression, anxiety and externalising behaviours, commonly comorbid with eating disorders, have not been investigated in those *at risk* (Alexander & Treasure, 2012; NEDC, 2010b; 2012; 2014).

As symptom-specific eating disorder education is shown to be more of a risk than a benefit to young children (NEDC, 2012), mental health promotion programs, unlike traditional eating disorder prevention programs, do not have it as a focus (NICE, 2004). However, mental health promotion programs such as the FRIENDS program (Barrett, 2010), the REACH for Resilience program (Roth, 2000) and the Penn Prevention Program (Jaycox, Reivich, Gillham, & Seligman, 1994) target eating disorder risks, even though it is not their original intent. This offers the potential for promising new research directions (NEDC, 2010b), and allows the researcher integration opportunities that supplement existing mental health programs, often run in schools, with eating disorder education.

Universal prevention programs. Wilksch and Wade (2009b) compared an eight-session universal prevention program called Media Smart to a control group among 540 Australian secondary school students. The intervention utilised theoretical orientations to target risk for eating disorders that included the internalisation of media body ideals and social-cognitive theory. Measurement occurred at baseline, post intervention, and at the six-month and two year mark. Post-hoc testing on significant findings revealed that girls who participated in the Media Smart program had higher self-esteem post intervention, and were

less concerned with their weight and shape at the two-year mark, when compared with the control group. Boys that participated in Media Smart reported higher self-esteem, improved body image, less concern with their weight and shape, and an overall reduction in their dieting practices post intervention and at six month follow-up, when compared with boys that did not participate in Media Smart. The program appeared to be most effective at producing positive change among boys. As a result of the above the MEPQ included a *social* domain to measure social impacts on children's eating. To compliment this, the FRIENDS programs also contain a medical literacy component to further address any concerns.

McVey, Tweed, and Blackmore (2007) evaluated a universal prevention initiative named Healthy Schools Healthy Kids, which included a range of school-wide activities run in conjunction with teachers and psychologists. The intervention utilised multiple theoretical orientations and models including the CBT and NSVS model as well as social-cognitive theory to target risk for eating disorders. Four schools were randomised to undergo the prevention program or be in the control group. Altogether 982 male and female middle-school students and 91 teachers participated and were evaluated. Measurements on body satisfaction, internalisation of media body ideals, size acceptance, disordered eating, weight based teasing, weight loss and muscle-gaining behaviours, and teachers' perceptions of the school climate occurred at baseline, post intervention and at the eight month mark. The program had a significant impact among boys and girls on internalisation of media body ideals, when compared with the control group, and with disordered eating in the short-term among girls. Findings suggest that the program appears to be more effective at producing positive change among those considered to be high risk of acquiring an eating disorder, when compared with those considered to be low-risk.

When extending the research into interventions shown to be successful in other childhood psychological conditions two Australian studies stand out at the universal

prevention level. These are the CBT based REACH for Resilience program (Roth, 2000) and the FRIENDS for Life program (Barrett, 2010). Both programs aim to prevent risk factors of eating disorders, such as anxiety, depression and low self-esteem as well as promote resiliency and the adoption of helpful coping strategies, which is important to the current thesis.

Roth (2000) conducted a universal prevention study of internalising disorders in 25 preschools across Australia, using the REACH for Resilience program. The program, designed for parents and teachers of pre-schoolers aged between 4 and 6 years, sought to protect children emotionally against the development of internalising disorders. The program focuses on increasing young children's Resourcefulness, Esteem, Assets, Confidence and Happiness, and is also the acronym for REACH. Altogether 355 families completed the full six sessions of the program. Results from teacher reports suggest a slight treatment effect at post intervention, but not at follow-up, with the control group showing more anxious withdrawn and angry-aggressive behaviours. There were no treatment effects reported by parents at post intervention or follow-up. Roth (2000) hypothesised that one of the shortfalls of his research was the lack of consistent parental participation in all sessions. The FRIENDS programs, described in the previous chapter, integrate parents as active program-participants or as active home-participants. This is achieved via handouts and booklets, which children take home to study with their parents.

In another Australian study, Stallard et al. (2007) conducted a 12-month trial of the FRIENDS for Life (Barrett, 2004) program, targeted at the universal prevention level. The FRIENDS program combines a NSVS resiliency framework with developmentally appropriate CBT skills to enhance social and emotional abilities. One hundred and six children aged between 9 and 10 completed self-report questionnaires on anxiety and self-esteem. Post intervention and the 3 and 12 month follow-up results revealed a significant

reduction in symptoms of anxiety and increased self-esteem. In total, 67 per cent of the high-risk group at baseline were considered to be low risk at the 12-month mark. Also, children measured as low risk at baseline did not move into the high-risk group post intervention or at the 3 or 12-month follow-up. These findings suggest that the FRIENDS for Life program has both an intervention and a preventative effect, at the universal level.

Selective prevention programs. The effect of media literacy on disordered eating at the selective level of prevention was examined by Neumark-Sztainer, Sherwood, Coller, & Hannan, (2000). Two RCT trials compared the media literacy program Free to be Me with a stress management control condition, and the other compared media literacy with a no-intervention control condition. Total participants included 287 girls with a mean age of 10 years. Both trials reported on the effect of these programs post intervention and at the 3 and 6 months mark. Findings suggested that the Free to be Me program appeared to be effective at producing positive change among girls who received media literacy training. This group reported less internalisation of the thin ideal and acceptance of dominant sociocultural attitudes related to appearance, when compared with girls who did not receive any media literacy training.

McVey, Davis, Tweed, and Shaw (2004) evaluated the efficacy of the Every Body is a Somebody program (Seaver, McVey, Fullerton, & Stratton, 1997) with 258 preadolescent girls having a mean age of 10 years. In addition to media literacy training the program also provides strategies around self-esteem, communication and social-problem solving as well as psycho-education about weight, healthy eating, exercise and stress management. Schools were randomly assigned to either the intervention program or to a control condition. Measurements of body image, self-esteem, eating attitudes and behaviours, and perfectionism occurred at baseline, one-week post intervention, and at the six and 12-month mark. Post-hoc testing indicated that the intervention group had significantly higher body image satisfaction

at post-test compared with the control group. These gains were not maintained at the six and 12 month follow-up. The intervention condition experienced greater improvement in self-esteem and dieting behaviours over the course of the study, when compared with the control condition, and was maintained at the six and 12-month follow-up. Findings over the course of the study suggest that the program appears to be more effective at producing positive change among individuals who experienced significant reductions in bulimic behaviours, self-oriented perfectionism, and socially prescribed perfectionism.

Several investigations have been conducted to examine the effectiveness of selective interventions across a range of risk groups. These interventions seek to prevent common risk factors of eating disorders, such as anxiety, depression and low self-esteem. For example, a number of studies evaluated the efficacy of the FRIENDS for Life program (Barrett, 2004) in reducing the psychological distress experienced by migrant children and adolescents of former-Yugoslavian, Chinese, and mixed-ethnic backgrounds. Participants reported improvements on measures of self-esteem, internalising symptoms, and future outlook post intervention, with gains maintained at the six-month mark (Barrett, Sonderegger, & Sonderegger, 2001; Barrett, Sonderegger, & Xenos, 2003).

Cooley, Boyd, and Grados (2004) conducted a pilot trial of the FRIENDS for Life program (Barrett, 2004) with a group of inner-city African-American children aged between 10 and 11 years, these children reported experiencing anxiety related exposure to violence. Findings suggest that the FRIENDS for Life program appeared to be effective at reducing anxiety around safety concerns, post-intervention.

In summary, the above results provide preliminary evidence suggesting that selective interventions can benefit children from preschool to adolescent age in the reduction of risk factors for eating disorders such as anxiety and depression as well as promoting protective factors such as social and emotional strengths. Given prevention is an aim of the

outcome for developing the MEPQ these above results were useful in the development of the assessment tool in study 1 (chapter seven) and the prevention intervention strategies offered in studies 2 and 3 (chapter eight & nine).

Indicative prevention programs. Killen et al. (1993) evaluated an 18 lesson school based psycho-education program that addressed healthy eating attitudes and unhealthy weight regulation methods, such as dieting, binge eating, and self-induced vomiting, at the indicative level. Altogether, 931 girls aged between 11 and 13 years, who reported concerns about their weight were assigned to the treatment or control group (class as usual). Measurements were collected at baseline, post intervention and at 7, 14, and 24 months. Findings suggested that girls who received the psycho-education reported experiencing a greater gain in knowledge of curriculum content, pre and post-intervention, as well as a significantly smaller change in BMI kg/m2, relative to the control group. Neither group reported changes in bulimic attitudes and behaviours, appearance concern, restraint, weight concern, and purging behaviours.

Franko and colleagues (2005) compared a two-session CD-ROM indicative prevention program, Food, Mood, and Attitude with 240 low and high risk eating disorder symptomatic female college students with a control group. Randomisation was stratified pre-intervention according to high or low risk status. Measurements on internalisation of concerns about the thin ideal, shape, and weight were collected. Results indicated the participants who received the prevention program were more likely than the control group to reduce overeating and inappropriate compensatory methods such as self-induced vomiting or laxative use. The Food, Mood, and Attitude program was effective in modifying eating disorder risk factors, however success was limited to the high risk group. Furthermore, results from the program are not easily comparable to similar studies conducted with children.

Interventions not specifically designed for eating disorders, but which target risk factors and comorbid conditions linked to these disorders, at the indicative level include the Penn Prevention Program and the FRIENDS program.

The Penn Prevention Program utilises CBT techniques to teach children effective coping strategies to use in the face of negative life events (Jaycox et al., 1994). The program aims to enhance mastery and competence across a variety of situations that include lowered academic attainment, poor peer relations, lowered self-esteem and behaviour problems, as well as prevent symptoms of depression. Jaycox et al. conducted an indicated study with 69 children, who were assigned to a CBT treatment group or a control group. Children who participated in Penn Prevention Program reported a reduction in depressive symptomology and an improvement in their classroom behaviour post-test, relative to the control groups. Treatment group gains continued through to the two year mark.

Bernstein, Layne, Egan, and Tennison (2005) compared the effectiveness of the CBT based FRIENDS for Life program (Barrett, 2004) delivered with and without a separate parent training component. Children aged between 7 and 11 years, who reported having elevated levels of anxiety were included in the study, along with their parents. Significant reductions in symptoms of anxiety were noted in both child intervention groups, relative to a control group, post-intervention. No effect was reported by children whose parents participated in the additional training. However parents who participated in the training observed their children's anxiety to be lower than those who did not receive any training.

Summary of CBT Prevention Programs

CBT prevention programs for childhood eating disorders are clearly effective in reducing rates of eating disorder symptomology and risk factors and comorbid conditions, across the three levels of prevention. At post-intervention, individuals who participated in the Food, Mood, and Attitude program (Franko et al., 2005) reported a reduction in

internalisation of the thin ideal, shape and weight concern. Post-intervention gains were also reported by individuals who participated in the Every Body is a Somebody program (Seaver et al., 1997), where an increased body image satisfaction, self-esteem and reduced dieting behaviours were observed. Participants of the Healthy Schools-Healthy Kids program (McVey, Tweed, & Blackmore, 2007) reported a long-term reduction in internalisation of media body ideals on disordered eating, when compared with control groups, eight months post intervention. At the 12 month mark, participants of the Every Body is a Somebody program report a reduction in self-oriented perfectionism, and socially prescribed perfectionism, when compared with the control group.

Equally impressive are the findings of interventions not specifically designed for eating disorders, but which target risk factors and comorbid conditions linked to these disorders. The Penn Prevention Program (Jaycox et al., 1994) showed promising results, with a reported reduction in depressive symptoms and an improvement in academic attainment, post intervention. At the two year follow up, lower levels of depression were maintained. Participants of the FRIENDS for Life program (Barrett, 2004) reported a significant reduction in symptoms of anxiety post-intervention, and an increase in self-esteem, mood and an improved outlook, at the three, sic and 12-month mark. When the FRIENDS program included parent training it was shown, when rated by parents, to be superior to CBT alone, post-intervention. Overall, it is clear that preventative interventions are more effective than no treatment in reducing eating disorder symptomology, comorbid conditions and risk factors in children.

Results derived from a series of meta-analytic reviews, Stice (2004) and Stice et al. (2007) provided further evidence that eating disorder prevention strategies work. In 2007 Stice found, for example that 51 per cent of eating disorder prevention strategies reduced eating disorder risk factors, and 29 per cent reduced current or future eating pathology.

Larger effects occurred for strategies that were selective rather than universal, multisession instead of a single session and delivered by professional interventionists as opposed to endogenous providers (Stice et al., 2007).

From the above research it was decided that a selective level of prevention, delivered in a group format, by a trained professional, targeting risk factors rather than specific eating pathologies, would be beneficial in this thesis for the prevention of eating disorders (Stice, 2004; Stice et al., 2007). Given this level of effectiveness, the factors that constitute best practice when targeting children with an eating disorder are now reviewed.

Best Practice Standards for Prevention Programs

Levine and Piran (2001) argued that there are seven components that must be included in an eating disorder prevention program for young children, if it is to meet best practice standards. These include: 1) a do no harm approach; 2) a self-esteem component, 3) a resiliency component; 4) a media literacy component; 5) the inclusion of both boys and girls; 6) their peers, 7) and their parents, in the prevention process. The FRIENDS for Life program (Barrett, 2010) utilised these best practice standards, which was essential to support the current work. These best practice standards are endorsed by the NEDC (2010) and NICE (2004) as detailed below.

Do no harm. The underlying principle of all prevention programs and initiatives is that participants must do no harm (Levine & Piran, 2001). Unfortunately this component of the Best Practice initiative is problematic. One unintended consequence of eating disorder prevention programs, especially those, which contain symptom-specific education, is that they may be more of a risk than a benefit. This is because children who are at risk, or are particularly sensitive to, materials on eating disorders may inadvertently learn about and then apply extreme weight and shape control practices that may prove to be harmful (Madden et

al., 2009). Research evidence for this effect however is only indicative (Alexander & Treasure, 2012).

Another problem exists when the content of eating disorder prevention programs is delivered in a manner that moralizes eating patterns or intensifies eating, weight, and shape concern (NEDC, 2010b). Professionals in the field warn of providing detailed information about eating disorder symptoms and suggest talking about eating disorders more generally. Discussions about good versus bad foods and attention to individuals' weights or body mass index may convey inappropriate personal attitudes towards body shape and weight (Russell & Ryder, 2001).

The REACH for Resilience program (Roth, 2000), the Penn Prevention Program (Jaycox, et al., 1994) and the FRIENDS for Life (Barrett, 2004), prevention programs for children mentioned above do not contain specific eating disorder information. In particular, the FRIENDS for Life program (Barrett, 2010) currently includes information on healthy eating and drinking, exercise, rest and sleep that has been shown to be helpful in addressing over eating, and has demonstrated efficacy when run concurrently with supplementary dietary advice (Lim et al., 2009).

Enhancing self-esteem. Low self-esteem increases the chance of maladaptive eating behaviours in children (Button, Loan, Davies, & Sonuga-Barke, 1997). Prevention initiatives can help children build their self-esteem and encourage healthy attitudes about nutrition and appearance. This shifts their focus away from weight, food and dieting concerns (Abraham, 2003; O'Dea, 2007). Children with high self-esteem are better able to cope with teasing, criticism, stress, anxiety and low mood, all risk factors for eating disorders (McVey, Tweed, & Blackmore, 2004; Piran, 2005).

In the above mentioned prevention programs for children, the Every Body is a Somebody (Seaver et al., 1997), Media Smart (Wilksch & Wade, 2009b), the Penn

Prevention Program (Jaycox, et al., 1994) and the FRIENDS for Life program (Barrett, 2004, 2010) contain a self-esteem component.

Resiliency and coping. Skills that aid habitual use of more accurate and flexible thinking can be absorbed by children from a very early age and may optimize development of resilience and effective coping strategies (Gonzales, 2012; Masten & Obradovic, 2006; Ungar, 2004). Resiliency skills and helpful coping strategies may protect children against stress, anxiety (Ong, Bergeman, Bisconti, & Wallace, 2006) and depression (Boyden & Mann, 2005), known risk factors for the eating disorders (Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004). Non-resilient thinking styles can lead to the development of inaccurate beliefs about one's self, such as poor body image or weight distortions, which may result in the adoption of maladaptive eating behaviours and other inappropriate problem-solving strategies (Obradovic, Bush, Stamperdahl, Adler, & Boyce, 2010). Reivich and Shatte (2002) argue that a person's thinking style determines resilience more than any other single factor.

Since the 1970's, resiliency promotion programs for children have focused on the building of self-esteem, increasing school readiness (Christenson, Sinclair, Lehr, & Godber, 2001) and supporting the parent-child relationship (Charney, 2004). Yet the majority of resiliency programs have tended to overlook the importance of thinking styles and processes in the development of resilience and handling of stress and adversity (Masten, Cutuli, Herbers, & Gabrielle-Reed, 2009). The FRIENDS program (Barrett, 2004, 2010) is a CBT based resiliency program, which addresses this oversight.

Media literacy. Australian media, for example, promotes the Western cultural ideals that equate beauty and happiness with an extremely thin body shape. Children without media literacy skills and who are exposed to this message from an early age are unlikely to question its validity (McVey et al., 2004). Media literacy training provides children with the knowledge and skills required to help them question what they see in the media (Friedman,

2002; Kusel, 1999). Children involved in media literacy programs report less internalization of society's thin ideal than participants who do not receive any training (Wade, Davidson, & O'Dea, 2003).

Free to be Me (Neumark-Sztainer, et al., 2000), Every Body is a Somebody (Seaver et al., 1997), Healthy Schools Healthy Kids (McVey, Tweed, & Blackmore, 2007) mentioned above, all include media literacy training as a part of their programs. The FRIENDS for Life program (Barrett, 2004, 2010) differs in its approach by including tips on reducing reliance on technology, especially television and mobile phones, as well as providing opportunities to discuss the pros and cons of one way communication over the Internet (Barrett, 2010).

Facilitate peer support. Programs that facilitate peer support act as a counter measure against the effects of bullying or teasing about shape and weight (Barrett, 2004, 2010). In addition, age appropriate training in basic communication skills, problem solving and conflict resolution, makes the most of existing peer influences, by providing peers with the skills needed to assist their friends (EDRC, 2001). From the aforementioned programs, The REACH for Resilience program (Roth, 2000), the Penn Prevention Program (Jaycox et al., 1994) and the FRIENDS for Life program (Barrett, 2010), facilitate peer support. In contrast, the Every Body is a Somebody program (Seaver et al., 1997) has as a focus effective communication skills to increase social support networks. Therefore the positive aspects of peer groups and friendship networks as a mechanism for working together to explore healthy approaches to eating need to be acknowledged with the above preventative interventions for childhood eating disorders.

Include boys and girls. Traditionally prevention programs for eating disorders were designed and implemented on females groups. However, recent studies have identified an increase in body image issues and maladaptive eating practices in boys and young adolescent men, creating a new need (O'Dea & Maloney, 2000). McVey et al. (2004) recommends

educating boys about body image issues and helping them to manage unhealthy practices related to eating and exercise. They also report benefits in facilitating awareness in boys about the intense pressure faced by their female counterparts. The Media Smart (Wilksch & Wade, 2009b), Healthy Schools Healthy Kids (McVey et al., 2007), the REACH for Resilience program (Roth, 2000), the Penn Prevention Program (Jaycox et al., 1994) and FRIENDS for Life program (Barrett, 2004) all include both girls and boys.

Include parents. Childhood eating disorder prevention programs have traditionally left parental carers out of the treatment process (Piran, 2005). Consequently parents often report having a limited understanding of the skills required to help their child develop healthy attitudes and behaviours towards eating (Russell & Ryder, 2001), as well as difficulty when implementing and reinforcing new skills taught to their children during treatment (Rockwell, Boutelle, Trunko, Jacobs, & Kaye, 2011). The REACH for Resilience program (Roth, 2000), the Penn Prevention Program (Jaycox, et al., 1994) and the FRIENDS for Life program (Barrett, 2004, 2010) all provide the opportunity for parents to participate in their child's program. The FRIENDS program (Barrett, 2004, 2010) goes one step further by offering separate training for parents. This training includes the appropriate use of reinforcement strategies, building self-efficacy, enhancing emotional resilience and competency within a wider familial context (Turby et al., 2010).

In summary, a number of programs, as discussed satisfy the NEDC (2010) and NICE (2004) criteria for Best Practice. However, the FRIENDS program by utilising a multicomponent approach that includes a do no harm stance, enhancing self-esteem, underpinning coping and resilience, facilitating media objectives, nurturing peer support while including parents and both boys and girls in the program, stands apart. Because of this the FRIENDS program was used as a prevention intervention in this thesis.

Interventions for Parental Carers

Parental carers face many physical, emotional and financial difficulties when trying to deal with their child's maladaptive eating behaviours. The unintended consequence, as AED (2011) shows, is that the resulting parental distress and lack of strategies to effectively manage their child's eating difficulties may be a factor in the development of maladaptive eating contributing to their child's eating disorder. Because parents who develop effective coping strategies to manage their child's maladaptive eating behaviours experience less distress (AED, 2011), helping to increase resilience and coping strategies in parents is a positive first step in addressing the treatment of their children (AED, 2011).

Maximising the utility of parental carers. Since parental carers have the capacity to make an invaluable contribution to their children and positively impact upon society and the Australian health care system (NEDC, 2010b), finding ways to maximize the utility of parents, improve their mental health, and reduce carer stress is essential if researchers and clinicians are to address the psychological and economic costs of treatment (Alexander & Treasure, 2012; Treasure et al., 2002). Eisler et al. (2007) described how families often arrive at treatment having spent months to years absorbed in the management of their children's disordered eating. Potential treatments such as FCBT and Family Therapies are demanding of parents. They are expected to be an effective component necessary to change the maladaptive eating behaviours of their child. Therefore, parents can be empowered to make the necessary changes in their own thinking, behaviour and environment and thus be effective.

Parental carers of children with maladaptive eating behaviours require specialised support (NEDC, 2010b). Ideally, interventions directed to the parental carers should focus on reducing carer distress and the overall impact on their health and well-being (NICE, 2004). This in turn will help make them become more competent and confident and more able to provide safe and effective care to their child (Alexander & Treasure, 2012).

Intervention studies involving parental carers. Intervention studies involving children with eating disorder far outnumber those conducted with their parental carers (NEDC, 2010b; Treasure et al., 2002). However, several studies have shown that group interventions including CBT style psycho-education for managing a number of problematic behaviours in children and supportive counselling significantly reduce caregiver burden (Acton & Kang, 2001; Brodaty, Green, & Koschera, 2003) and increase knowledge, confidence and feelings of inclusion in parental carers (Carlton & Pyle, 2007).

Sorensen, Pinquart, and Duberstein (2002) found group interventions designed to reduce carer burden and distress were also effective in improving carer-recipient symptoms such as anxiety and depression, while Gitlin and colleagues (2003) found multicomponent interventions, rather than single interventions like support groups or education, significantly reduced carer burden. Davis and colleagues (2004) reported an unexpected reduction in burden and distress for caregivers receiving friendly, socially supportive phone calls. Even without in-home caregiver skills training these calls provided some respite from caregiving. Home visits and enhanced social support can also help reduce caregiver depression (Roth, Mittelman, Clay, Madan, & Haley, 2005; Teri, McCurry, Logsdon, & Gibbons, 2005).

Spettigue and colleagues (2014) conducted a study that evaluated the efficacy of a two-hour CBT style psycho-education session combined with bi-weekly telephone support with the goal of increasing parental career knowledge about eating disorders, increasing self-efficacy by empowering parents to support their child's recovery, and decreasing the impact of eating disorder symptoms on the family. The intervention was targeted at parental carers whose child was waiting to be assessed for an eating disorder. Participants included 51 parental carers and 36 children. The brief intervention successfully increased parental carer knowledge of the illness, feelings of self-efficacy, and help-seeking behaviours.

One unique intervention offers fathers of children who had recovered from an eating disorder the ability to co-facilitate psycho-education and support group activity with clinicians. Preliminary results indicate that these fathers experienced improvements in connections with their child as well as feelings of increased hope and knowledge about eating disorders post intervention (NEDC, 2010b).

A promising carer skills-based support model from the UK has been empirically evaluated and adopted within some Australian clinical settings (Sepulveda, Lopez, MacDonald, & Treasure, 2008). The support model is over three months and includes six two-hour workshops and one follow-up workshop. The focus of the workshop is accepted psychological techniques and theories, and includes motivational interviewing and cognitive behavioural theory. It is designed to ensure parental carers receive the practical skills necessary to assist them to care for and support their child with an Eating Disorder. The program's objectives include resilience and stress management, compassion, expressed emotion, emotional intelligence, and communication support; strategies to improve a child's motivation to recover and help to manage maladaptive eating disorder symptoms. The program's preliminary data suggests a reduction in carer distress, as well as the negative attributes of care-giving such as the carer burden and day-to-day difficulties that are a result of the maladaptive eating disorder symptoms (Sepulveda, Lopez, Todd, Whitaker, & Treasure, 2008).

The current research aimed to add to the existing studies on the importance of parental roles in the treatment of maladaptive eating. An adult version of the CBT based FRIENDS program was offered to parental carers to offer alternate skills required to help their children (Dohnt & Tiggemann, 2008). The adult version of the CBT based FRIENDS program was selected based on Best Practice criteria set out by the NEDC (2010) and NICE (2004) as outlined above.

Chapter Summary

Literature pertaining to the prevention of childhood eating disorders was reviewed in this chapter. Best practice for the prevention of disorders in children as well as treatment issues such as parental/carer burden were also discussed. Preventative interventions presented early in one's life, when children first report weight concerns (Cororve et al., 2006; Scime & Cook-Cottone, 2008) offer proactive methods for reducing eating disorder risk (Dohnt & Tiggemann, 2008) by establishing a range of skills for the individual to better manage life's difficulties. Timely delivery of preventative interventions may also reduce the social and economic burden as well as relieve the pressure of high demands currently placed on an already stretched mental health service (VGDHS, 2007). There is also a need for effective prevention intervention strategies that improve the effectiveness of parental carers as moderators of treatment outcomes (Alexander & Treasure, 2012) and ease the stress on other family members (Zucker et al, 2006). Parental carer CBT skill building interventions may be seen as both a primary form of treatment and prevention for childhood eating disorders.

Chapter six presents the current program of research and the general methodology for studies 1, 2 and 3 of the current thesis. It does this by consolidating the findings of the literature review and uses this information as a foundation for discussing each study and the hypothesis therein. The following chapters deal with these studies in detail.

The thesis to this point has demonstrated the urgent need for an instrument that can assess in children 8 to 12 years of age, pre-cursors to eating disorders, or maladaptive eating practices. The questionnaire's development is given in detail in chapter seven. Further, the review over these five earlier chapters has shown the need for effective treatment programs for both children and their carers. Chapters eight and nine deal with outcomes from delivering such programs and relates the outcomes to the developed MEPQ. Chapter ten summarise the whole project.

Chapter 6: The Thesis: Summary, Overview and Primary Research

Introduction

This thesis arose from the premise that there was a need for assessment and enhanced treatment tools that would not only assist clinicians in identifying children *at risk* of an eating disorder but would provide affected children and their carers with a set of skills that support healthy eating practices. Children with an eating disorder face ongoing barriers that act against the disorders being identified and treated early in the course of the illness (Engel et al., 2009; Slane et al., 2009; Yeo & Hughes, 2011) and those who care for them are often left out of the treatment and recovery process (Alexander & Treasure, 2012). In order to slow the progression of eating disorders in childhood more research and resources are required to detect pre-diagnostic indicators. Effected children and their parental carers require tools that will bring about positive changes in the child's eating (Le Grange & Lock, 2011) and reduce carer distress and burden (AED, 2011; Alexander & Treasure, 2012; Treasure et al., 2001).

Traditional childhood assessment methods have been unable to detect maladaptive eating practices or eating disorders in their formative stages. To assist in meeting this shortfall the researcher sought to develop and validate assessment and treatment tools for early detection of the *risk* of eating disorders in children and thereby to help prevent the occurrence of more serious eating disorders. Because maladaptive eating behaviours are considered to be precursors to eating disorders a new MEPQ questionnaire aimed at identifying these behaviours was developed. This MEPQ questionnaire was then used among children aged 8 to 12, undergoing CBT based treatment interventions, to assess changes in eating behaviours. It was also used in a treatment program with parental carers.

As the frequency of eating disorders in paediatric populations in Australia is increasing, identifying maladaptive eating behaviours was considered the first step in this process. However, this current study also considered the impact on the wider community. The

study aimed to reduce the social and financial cost associated with childhood eating disorders by offering effective assessment and prevention intervention strategies not only for affected children, but also for their carers and their clinicians.

For the purpose of this thesis the CBT based FRIENDS prevention programs were selected to provide *at risk* children with a set of skills that would support healthy eating practices (Barrett, 2010). Changes in their maladaptive eating practices were assessed at four stages in the program using the newly developed MEPQ a tool that provided clinicians with the ability to assess these changes. Because prevention programs which target disordered eating practices, have traditionally left parents out of the treatment process (Alexander & Treasure, 2012) parental carers were invited to take part in one of two FRIENDS programs offered to underpin existing skills and other alternate skills required to assist themselves and their children. Given that parents play an essential role in their child's return to healthy eating behaviours, there is a need to more formally investigate interventions that may reduce parental carer burden, and protect the mental health of parents.

Considerable evidence points to the effectiveness of CBT based prevention programs in reducing diagnosable eating disorder in children (Alexander & Treasure, 2012). However to date, research conducted with children *at risk* of an eating disorder has been scarce. Chapter four provided evidence that suggests these programs may be effective when presented early in one's life. Typically when children first report significant eating concerns (Le Grange & Lock, 2011; NEDC, 2010a; Scime & Cook-Cottone, 2008), and are offered proactive methods for reducing eating disorder risk by establishing a range of skills for the individual to better manage life's difficulties (Dohnt & Tiggemann, 2008). Chapters one, three and four outlined the detrimental effects of delayed intervention on outcomes for children *at risk*, and highlighted the refractory, severe nature of eating disorders once the diagnostic threshold is crossed. However, further research with more empirically validated

prevention programs aimed at assisting *at risk* children, was and is urgently required. The current thesis aimed to rectify this shortfall in part.

Studies

The PhD project, beyond the literature review, involved three separate studies conducted from 2011 to 2013. The aim of the first study was to develop a questionnaire (the MEPQ) to help clinicians identify early maladaptive eating practices as a potential precursor to eating disorders. The aim was to add to current knowledge available to the clinical practitioner through identification of potential maladaptive eating practices. The focus of this study was to develop a psychometrically sound screening tool for detection of the *risk* of eating disorders in children aged 8 to 12, when maladaptive eating practices first occur (Le Grange & Loeb, 2007) and thus provide a window for the prevention of eating disorders in children (NEDC, 2010b). The new tool was based on the five dimensions of the Williamson et al. (2004) Integrated Cognitive-Behavioural theory of eating disorders and gives attention to cognitive, physiological and learning processes thought to interact in the internal and external expressions of eating dysfunction. The preliminary stages of development of the new Maladaptive Eating Practices Questionnaire (MEPQ) included an expert panel to review the initial 89 items drafted. A provisional 43-item version of the MEPQ was administered to a sample of 329 participants (256 females and 73 males) aged 16 to 25 (*M*= 20.08 years, *SD*= 2.487) to finalise the items. To enable study of the psychometric properties of the MEPQ, the 25-itemed version was administered to two additional samples of 224 participants (67 males and 157 females) over 17 years (*M* = 30.96, *SD* = 13.92). The MEPQ-25 was also used in study 2 among a sample of 90 child participants (70 girls and 30 boys), aged 8 and 12 (*M*= 9.92 years, *SD* =1.45) undergoing CBT based treatment interventions, to assess changes in eating behaviours.

The aim of study 2 was to provide children at risk of an eating disorder with a set of

skills that would support healthy eating practices. Thus the focus of Study 2 was to evaluate the efficacy of a modified CBT prevention program for children *at risk* of an Eating Disorder, using the FRIENDS for Life program (Barrett, 2004), (using outcome child response measures and the MEPQ). This study involved 90 participants (70 girls and 30 boys), aged between 8 and 12 years of age (*M*= 9.92 years, *SD* =1.45), recruited from eating disorder clinics and organisations Australia wide. This age group was selected based on the finding that maladaptive eating practices first appear in the upper junior school years and thus provide an ideal window for the prevention of eating disorders in children (NEDC, 2010b). This eight-session intervention was selected to provide *at risk* children with a set of skills that would support healthy eating practices. The researcher assessed whether children who received the modified CBT FRIENDS for Life program would, following the intervention, experience reductions in maladaptive eating practices and associated risk factors and an increase in protective factors, as measured by child self- report measures including: the Strengths and Difficulties Questionnaire (Goodman 1997, 2001), and the Birleson Depression Scale (Birleson 1981). The newly developed MEPQ was also used among these children undergoing the eight-session intervention, to assess changes in eating behaviours. A secondary focus of study 2 was to examine whether there was a greater benefit for children, when their parental carers were actively involved in their intervention, when compared with children where no parental carer was present. A sample of 30 female parental carers aged between 23 and 45 years of age (*M*= 30.57 years, *SD* = 5.96), was recruited (with their children) as part of study 2. All participants completed a package of child self-report measures assessing maladaptive eating, anxiety, depression, and coping skills and behavioural difficulties, prior to commencing the intervention. Outcomes were recorded post-treatment, and at a three-month follow-up. The MEPQ was valuable in study 2 as it also identified changes in children's maladaptive eating practices and provided clinicians with the

ability to assess these changes beyond the child self-report and parental reports.

The aim of the third study was to provide parental carers of children who were engaging in maladaptive eating with the skills required to help their children and to reduce their own parental carer burden. Thus the focus of study 3 was to investigate the efficacy of a CBT prevention program for parental carers of children with maladaptive eating difficulties. The adult FRIENDS for Life program (Barrett, 2011) was used for this purpose with outcome measures that included the Depression, Anxiety and Stress Scale-Short Form (DASS-21; Lovibond & Lovibond, 1995) and the 14-item Resilience Scale (RS-14; Wagnild, 2009). A sample of 60 female parental carers aged between 22 and 46 years of age (M= 32.83 years, SD =5.96), was recruited from eating disorder organisations Australia wide. The CBT based FRIENDS program, a three-session intervention, was selected to provide effective prevention intervention strategies that would improve the effectiveness of parental carers as moderators of treatment outcomes and to also ease the stress on these carers. Primary outcome measures of risk factors (e.g. stress, anxiety and depression) and protective factors (e.g. coping and resiliency) identified in eating disorder literature were used to evaluate short and long-term effects of this adult CBT intervention at baseline, post-intervention, and at three-month and six-month follow-up. A secondary focus of study 3 was to examine whether there was a greater benefit for children with maladaptive eating behaviours, when their parental carer participated in a CBT group intervention, when compared with parental carers who did not (wait-list control group). A parent-rated report measure of childhood mealtime eating behaviours was used to evaluate short and long-term changes in their children's eating at baseline, post-intervention, and at three-month and six-month follow-up.

Hypotheses of the Current Study

It is clear that childhood eating disorders are difficult to treat, and attempts to disrupt them in their early phases, when maladaptive eating practices first occur, would assist in

preventing or reducing the incidence of these disorders (Dohnt & Tiggemann, 2008; Stice et al., 2007). In order to reduce the severity, duration and impact of childhood eating disorders, early identification and timely intervention is considered to be the ideal standard of care (NEDC, 2010b; Steinhausen et al., 2014).

Hypotheses - Study 1. Study 1 of this thesis involved the development of a new psychometric measure, the MEPQ-25. It was hypothesised that the new MEPQ-25 would reveal a factor structure consistent with the domains of the Williamson et al. (2004) Integrated Cognitive-Behavioural model of Eating Disorders (shown to be important in assessing maladaptive eating practices). It was further predicted that each domain would demonstrate adequate internal consistency, construct and face validity and test-retest reliability. To demonstrate the convergent and discriminant validity this study compared the MEPQ-25 against similar eating disorder measures, and against measures of psychological distress and personality already demonstrated to be valid. It was hypothesised that there would be a strong positive relationship between the MEPQ-25 and similar eating disorder measures, and a weak, inverse relationship between the MEPQ-25 and measures of psychological distress.

Hypotheses - Study 2. Study 2 examined the efficacy of a modified CBT prevention program for children at risk of an eating disorder, using the FRIENDS for Life program. It was hypothesized that, when compared with the active waitlist control group, maladaptive eating practices, and associated risk factors (stress, anxiety and depression), would decrease and protective factors (strengths and resiliency) would increase in participants who received the modified CBT FRIENDS for Life program. It was hypothesized that when compared with the active waitlist control group expected gains, experienced post-intervention, would be maintained at the 3-month follow-up for participants who received the intervention.

A secondary focus of study 2 was to examine whether there was a greater benefit for children, when their parental carers were actively involved in the modified CBT FRIENDS for Life program (e.g. present in the group), when compared with children's groups where no parental carers were present. It was hypothesized that when compared with groups where no parental carers are present, direct parental involvement in the group interventions would result in a reduction in maladaptive eating practices and reduce associated risk factors (stress, anxiety and depression), and would also result in an increase in protective factors (strengths and resiliency).

In addition, it was hypothesized that when compared with groups where no parents were present expected gains experienced post-intervention would be maintained at the 3-month follow-up for children whose parents were actively involved in their program.

Hypotheses - Study 3. Study 3 investigated the efficacy of a CBT prevention program for parental carers of children with significant eating difficulties, using the adult FRIENDS for Life program, without outcomes assessed through self-report questionnaires for the children concerned. It was hypothesized that, when compared with the waitlist control group, stress, anxiety and depression, would decrease and the protective factors including strengths and resiliency, would increase in parental carers enrolled in the adult FRIENDS for Life program. It was also hypothesized that when compared with the active waitlist control group expected gains, experienced post-intervention, would be maintained at the 6-month follow-up for participants enrolled in a CBT group intervention.

A secondary focus of study 3 was to examine whether there was greater benefit for children, when their parental carer participated in a adult CBT FRIENDS (Barrett, 2010) group intervention, when compared with parental carers that did not (wait-list control group). A parent-rated report measure of mealtime eating behaviours was used to evaluate short and long-term changes in their children's eating outcomes. It was hypothesized that when

compared with the wait-list control group, expected gains experienced post-intervention would be maintained at the six-month follow-up for children whose parental carer participated in a CBT group intervention.

The following chapters now report on the three studies in turn.

Chapter 7: Study 1: Maladaptive Eating Practices Scale Development

Research Purpose

The literature review identified that no childhood assessment methods currently exist that are capable of detecting maladaptive eating practices or eating disorders in their formative stages. Study 1 was undertaken as a means of addressing this shortfall. It sought to develop a psychometrically sound screening tool for detection of the *risk* of eating disorders in children aged 8 to 12. This tool was based on the five dimensions of the Williamson et al. (2004) Integrated Cognitive-Behavioural theory of eating disorders and gave attention to cognitive, physiological and learning processes thought to interact in the internal and external expressions of eating dysfunction. The assessment tool was designed to be used with children aged 8 to 12, when maladaptive eating practices first occur (Le Grange & Loeb, 2007), to identify these maladaptive practices, and thus hopefully to provide professionals with a tool for assisting with the prevention of eating disorders in children (NEDC, 2010b).

Throughout this chapter in some areas it is necessary to summaries and repeat essential elements from chapters one to six of the thesis to provide a complete overview of the elements of study 1.

Research Rationale

The rationale was to identify maladaptive eating practices considered to be pre-cursors of a diagnosable eating disorder that place children *at risk* (Alexander & Treasure, 2012). A practical and logical option for children was an assessment tool for the early detection of the *risk* of an eating disorder.

The current research defined *at risk* to mean possibility. That individuals have the possibility of acquiring an eating disorder when they engage in maladaptive eating behaviours similar to those with a diagnosable eating disorder albeit at a lower level of frequency and severity (Mustapic et al., 2015; Watkins et al., 2011). They have engaged in

practices that put them *at risk*. Maladaptive eating practices are significant in the identification of at risk individuals because these practices are the single most important proximal indicator of the onset of eating disorders (Nicholls, Christie, Randall, & Lask, 2001; Steinhausen, Jakobsen, Helenius, Munk-Jørgensen, & Strober, 2014).

The current study recommended that the construct of maladaptive eating be defined by the Williamson et al. (2004) model. This model outlines five symptom patterns or domains common to eating disorders that helped provided a categorical decision or cut-off point in which to measure maladaptive eating. The newly developed screening tool was scored totalling items corresponding to each domain subscale, with a total score being an aggregate of the five domains.

For a subset of individuals sub-clinical presentations may result in conversion to a diagnosable eating disorder. Therefore, identifying children *at risk* of an eating disorder is important from a public health perspective (Birmingham et al., 2005; Loeb, Brown, & Goldstein, 2011). Children a*t risk* are also clinically significant in their own right, carrying liabilities comparable to their higher-threshold diagnostic counterparts (Holt & Ricciardelli, 2008). Sub-clinical cases dominate treatment seeking samples, particularly among children (Loeb et al., 2011) and girls and boys under the age of 12 are equally affected (Rosen, 2010). Children who appear to be at a higher risk of developing an eating disorder exhibit more pre-diagnostic psychopathology than their more chronic and stable sub-syndromal counterparts (Le Grange & Loeb 2007; Levine & Smolak, 2006). Consequently there is a number of challenges clinicians' face when trying to identify children *at risk* of an eating disorder. These challenges fall into the three areas of insight, identification and concealment.

As discussed in Chapters one and three traditional eating disorder assessments derived from DSM-5 (APA, 2013) diagnostic outcomes do not give attention to maladaptive eating behaviours considered to be precursors to eating disorders, as they lack sufficient

domain coverage representative of maladaptive eating practices falling outside accepted clinical criteria (NEDC, 2010a). Alternative domains for the classification of eating disorders in children have been proposed to better reflect the range of eating issues seen (Nicholls & Bryant-Waugh, 2009; Nicholls, Chater, & Lask, 2000) yet this new knowledge has not been transferred to test childhood development limiting clinical responsiveness.

Clinicians are further restricted by a set of clinical diagnostic criteria for eating disorders that are unable to identify those *at risk.* Developmental considerations such as the level of cognitive maturation and corresponding ability to articulate abstract psychological symptoms, physiological developmental stages are also not accounted for (Burke et al., 2010; Le Grange and Lock, 2011; Schneider, 2009). Limitations of these criteria have been discussed extensively in the literature, (Ackard, Fulkerson, & Neumark-Sztainer, 2007; Bravender et al., 2007; Wonderlich, Joiner, Keel, Williamson, & Crosby, 2007) and revisions to these criteria have been proposed but not fully addressed in the current DMS-5 (APA, 2013; Rosen, 2010).

The ego-syntonic nature of the disorder poses a further challenge to identifying children *at risk* of an eating disorder (Le Grange and Lock, 2011; Loeb, Brown, & Goldstein, 2011). This is because children *at risk* do not typically question their own maladaptive set of practices often becoming adept at hiding early warning signs, diverting attention from themselves (Johnson et al, 2002; Madden et al, 2009). Although children are particularly susceptible to under detection little work has been done to develop a valid instrument capable of identifying precursors to their eating disorders (Lundgren et al., 2004), allowing greater accuracy and early assessment of behaviours, traits, and circumstances that may indicate risk.

Research Aims

The current study sought to address the above challenges via the development of a new Maladaptive Eating Practices Questionnaire (MEPQ) that would realise domain

coverage sufficient for identifying existing maladaptive eating behaviours in children and those at *risk*. The original Thoughts on Eating Questionnaire (ITEQ; Ebenreuter & Hicks, 2013), involved three key dimensions but further research suggested five separate domains would give increased benefit. The MEPQ-25 proposed five separate domains, two of which had not previously been considered by test authors or been transferred to the test arena. (Nicholls & Bryant-Waugh, 2009; Nicholls et al., 2000).

The current study offered a wider view of the latent constructs underlying maladaptive eating, thus allowing for a new interpretation of what constitutes maladaptive eating practices by proposing the five separate domains incorporating factors representative of the Williamson et al. (2004) model of eating disorders and which currently fall outside the definition of DSM-5 eating disorder outcomes (APA, 2013).

The identified domains are important for the assessment of maladaptive eating practices and include cognitive, emotional and social domains (internalising problems) and physical and behavioural domains (externalising problems) factors, which had not been previously considered by test authors. It was predicted that the inclusion of these domains would assist in establishing construct validity as well as content validity. It was expected that internal consistency would be revealed for the total MEPQ and subscales with suitable Cronbach's alpha coefficients. Face validity and test-retest reliability were also expected to be high.

It was further hypothesised that the MEPQ would demonstrate convergent and discriminant validity in the context of its relationship to other tests. Included in this study were the Eating Attitudes Test (EAT-26; Garner, 1997), the Multidimensional Body-Self Relations Questionnaire-Appearance Scales (MBSRQ-AS; Cash, 2000), the Depression Self-rating Scale for Children (DSRS-C; Birleson, 1978) and the International Personality Item Pool (Mini IPIP- 20; Donnellan, Oswald, Baird, & Lucas, 2006). It was hypothesised that

convergent validity would be demonstrated by high correlations between the MEPQ and the EAT-26, the MBSRQ-AS, and the DSRS-C, and discriminate validity would be demonstrated by low correlations between the MEPQ and the Mini IPIP-20 personality facets.

Research Design

Study 1 comprised five phases. Each phase addressed a specific research aim of this work. Phase 1, 2 and 3 addressed the first research aim via item development for use with the 8 to 12 year age group. In phase 2 external panels reviewed the preliminary items. In phase 3 an explanatory factor analysis was conducted. An older sample was chosen in the initial construction of the MEPQ, with a sample of 16 to 25 year olds. Phase 4 evaluated the psychometric properties of the new MEPQ in the context of its relationship to other tests. Bivariate correlations were conducted to assess for convergent and discriminant validity.

Ethical approval was gained for phase 1 to 5 through the Bond University Research Ethics Committee, BUHREC, protocol number RO-1440 (including a small amendment, see Appendix A). Six eating disorder organisations, two Queensland outpatient hospitals and one University were approached and given information about the study. The Butterfly Institute for Eating Disorders and Bond University approved participation (Appendix A), and a full written proposal outlining the research, target population, test protocols and materials pertinent to the research was submitted, prior to board approval being gained by both Eating Disorder organisations.

Method

Phase 1: Basis to Test Questionnaire Construction

The main focus of phase 1 was to generate a large number of test items to adequately represent each of the five domains of the Williamson et al. (2004) model of eating disorders that include the internal and external expressions of eating dysfunction. Based on the literature review, these domains were developed in line with DSM-5 (APA, 2013) eating

disorder criteria, standardised measures on eating disorder and theoretical models of eating dysfunction.

Phase 1: Identification of Domains of Maladaptive Eating Practices

Procedure. A literature review was completed on the spectrum of eating disorders, using the time frame of May 2011 to March 2012. The search was limited to articles published in English within the last 10 years (2001 to 2011). Retrieved articles were examined together with relevant articles identified in bibliographies. The outcome of this review was that a list of potential constructs/ variables was generated. Along with this, a number of well-established eating disorder scales were consulted, including the Children's Eating Attitude Test (ChEAT; Maloney, McGuire, Daniels, & Specker, 1989); the eating disorder Examination (ChEDE) - Child Version (Christie et al., 2000); the eating disorder Examination (EDE; Sysko, Walsh, & Fairburn, 2005); the Child eating disorder Examination Questionnaire (ChEDE-Q; Decaluwé, & Braet, 2004); the Children’s Binge eating disorder Scale (C-BEDS; Shapiro et al., 2007b); and the Kid's eating disorders Survey (KEDS; Childress, Jarrell, & Brewerton, 1993). The identified instruments were reviewed and scales and items that best captured the relevant domain were selected for further analysis.

Phase 1: Item Generation

Procedure. The Williamson et al. (2004) five domains identified as cognitive, emotional, behavioural, physical and social dimensions (see chapter one, Figure 2) were included along with domain coverage of the constructs identified in other literature. These domains comprised a wider spectrum of eating styles and related also to the impact of peers, parents, and media. In addition, constructs relating to eating disorders, either through high rates of comorbidity or symptoms overlap (e.g. depression and anxiety) and constructs that could mediate the development of maladaptive eating (e.g. coping and resiliency), were taken into account. Through examination of the literature 100 preliminary indicator items were

written to assess each of the five domains of the Williamson et al. (2004) model and the related constructs reported to mediate the development of maladaptive eating (see Appendix A). These actions were in line with ensuring content validity.

During the item generation process reading level and comprehension were considered and a scoring system was selected. In order to ensure that items were adequately worded, Payne's (1980) checklist was used as a point of reference, along with extensive information on adequate test construction (as cited in Hogan, 2007). The readability level of the test instructions and the 100 items in the MEPQ was assessed using the Flesch-Kincaid Grade-level feature of Microsoft Word, and was estimated to be at the reading level of a child aged between 7-9 years (grade 2+ reading level). This was deemed suitable for the 8-12 age group the new test was aimed at. A 6-point Likert scale offered participants the opportunity to quantify their preferences subjectively. Items were anchored at each end with "never" (0) to "always" (5). Sixty per cent of items on the scale were positively worded, the rest were negatively worded counteracting response set bias (Hogan, 2007). It was hoped that the inclusion of more positively worded items would ensure suitability for use with children and adolescents recruited from outpatient clinics (Solano-Flores, 1993).

This version was then pilot-tested using a sample of 30 university students age 16 to 25 (top end of age sample) to further test language usage and readability. As a result of this action 26 items were removed due to culture specific language, poor comprehension, and/or repeat questions, with a 74-item scale remaining for the next stage of the research.

Method Phase 2: Expert Rating of Preliminary Items

Participants. The test construction phases included a panel of 15 expert reviewers chosen to gain a diversity of stakeholder perspectives on the content domains proposed for inclusion in the instrument, and to assess content validity. Participants were recruited via convenience sampling and research was advertised on the Bond University research notice

board then located on Level 3, in the Humanities building; the explanatory statement (see Appendix A) was attached.

Participants' ages ranged from 18 to 58 years (*M*= 29 years, *SD*= 9.4). Of 15 participants eight were male, seven female and participants ethnicity included Australian (94%), American (2%), and European (4%). The panel included 6 academics and 9 post-graduate students, all with expertise in eating disorder research and scale development. The participants worked within various areas such as psychology (academic and clinical practice), test design, test development and multimedia/ interface design. The researcher herself was not a participant in this process, thereby reducing the potential for bias through inclusion.

Procedure. The panel was invited to assess the 74 written statements. Assessment criteria included: construct, content and face validity. Reviewers were provided with a sheet of listed criteria to provide focus and consistency in marking and a short brief about the research project. In total 16 statements were subsequently excluded for being poorly worded, ambiguous, difficult to understand, too similar to another item and for potentially assessing a different construct. The review panel was also asked a series of questions pertaining to the MEPQ. For example, the panel were asked: if there is a need for an instrument to screen for the presence of pre-diagnostic indicators among children and adolescents, if the constructs or variables of maladaptive eating selected by the researcher were appropriate, if there were other aspects of eating disorders that should be included, and if any of the domains suggested by the researcher were inappropriate. The researcher looked over the review panel's feedback and made suggested adjustments to the MEPQ leaving 58 items.

Phase 2: Parent Panel Review

Participants. A parent review panel that comprised 20 mothers and 5 fathers was consulted in the initial development stage of the resulting 58-item MEPQ. These participants were recruited via a number of private psychology clinics across Queensland. Participants'

ages ranged from 32 to 45 years (*M*= 38.5 years, *SD*= 4.2). Participants' ethnicity included Australian (82%), Asian (1%), Indian (1%) and European (6%). The researcher was not a participant in this process, thereby reducing the potential for bias through inclusion.

Procedure. Parents were asked to provide constructive feedback about the 58-item MEPQ's overall utility. Readability and comprehensiveness of item content, clarity of test instructions and ease of response format were key factors for consideration. Feedback on test format and presentation were also encouraged. In total 15 statements were excluded from the MEPQ for being poorly worded, ambiguous, difficult to understand or for being too similar to another item. Overall, the test development stage served to generate 43 key acceptable statements.

Method Phase 3: Item Reduction

The aim of this phase was to further reduce the number of total items to correspond to the five domains of the Williamson et al., (2004) model, informing a multi-scale measure. Test literature recommends from 3 to 10 items to form a reliable scale (Hinkin, 1998; Kline, 2000) and although consensus differs on the number of items required to form a reliable scale, test authors agree that the addition of items, beyond a certain point, gradually reduces the effect on internal reliability (Hogan, 2007; Tabachnick & Fidell, 2013). Following construction of the 43-item MEPQ, internal validation occurred across two samples, and involved item analysis and then an exploratory factor analysis.

Participants. The refined 43-item MEPQ was compiled into a questionnaire (see final 43 items Appendix A) and administered to a sample of *n* = 329, 16 to 25 years age group (*M*= 20.08 years, *SD*= 2.49). The sample was recruited from three sources; from Bond University's participant pool volunteer program via convenience sampling (*n*=98) and from two National eating disorder foundations, the Butterfly Institute and the Eating Disorder

Foundation, in the period 2011 to 2013. This sample comprised 256 females and 73 males, (Australian 72%, Asian 9.1%, European 9.7%, American 7.3%, and Other 1.5%).

Measure. The refined MEPQ was a 43-item questionnaire, developed in Phases 1 to 3 of this study, and was designed to capture maladaptive eating practices in the formative stages, in children aged 8-12. Example items include: 'I think about how much I eat all the time' (Cognitive domain), 'When I'm bored I eat' (Emotional domain), 'I eat in secret' (Behavioural domain), and 'I keep trying to have the perfect body' (Physical domain). Seventy-five precent of the test items were positively worded (e.g., I cheer myself up with food), and the rest were negatively worded (e.g., I cannot eat if I am nervous). This ensured suitability for use with individuals recruited from eating disorder support groups, by reducing the chance of unfavourable response to negatively worded items and eliminating the chance of response set bias (Hogan, 2007). A 6-point Likert scale offered participants the opportunity to quantify their preferences subjectively. Items were anchored at each end with "never" (0) to "always" (5), with high scores on each of the domains indicating that participants may engage in a range of maladaptive eating practices. Total administration time for the MEPQ was approximately 20 minutes.

Procedure

University Sample. Testing was conducted in the university's lecture and tutorial rooms with a desk capacity of between 30 to 60 seats. Data was collected via paper and pencil assessment. Upon testing, each participant was given an explanatory statement to review and a consent form to sign for participants' under 18 years of age and a form to record demographic data (see Appendix A) before they were handed the 43-item MEPQ. Test administration was approximately 10 minutes. De-briefing was offered at the conclusion of testing and details of eating disorder organisations and Lifeline was provided in anticipation of participants requesting further assistance.

Eating Disorder Foundation Sample. Participants were recruited via the Butterfly Institute for Eating Disorders' website following internal board approval from the organisation. Interested participants were provided with general information about the research, an explanatory statement and a BUHREC research information (Appendix A). Because the 43-item MEPQ was offered electronically, via a survey monkey link, (https://www.surveymonkey.com/s/N6J2TD5) only those over 18 years of age were invited to participate in the research. The recruitment set-up encouraged voluntary participation. The contact details of the recruiter were provided for debriefing purposes and for further explanations about the research to those who were interested. Details of Lifeline were provided via the explanatory statement in anticipation of participants requesting further assistance.

Results

Overview of Analysis

The data sets for Phases 1 to 5 were analysed using SPSS statistical package for Windows Version 20.0. The data was examined for possible data entry and coding errors, missing values and violations of statistical assumptions. Corrections to data entry errors were made. Missing data that constituted less than 5% of the data were replaced using stochastic substitution (Allison, 2001).

Descriptive analyses were run to ensure data quality and means and standard deviations fell within expected ranges. Statistical assumptions pertinent to factor analysis, of linearity, normality, homogeneity of variance and multicollinearity were assessed. Bivariate scatter-plots confirmed that data linearity and straight-line relationships were viewed among variables for each sample. With the exception of Age and Gender, histograms revealed normal distribution of scores for the combined data set. Because of the selective nature of the

university and eating disorder foundation sample, scores were mildly skewed (standardised skew/kurtosis <7), thus the data was not transformed (following Tabachnick & Fidell, 2013).

The data was also screened for the presence of multivariate and univariate outliers. Tabachnick and Fidell (2013) suggest univariate outliers with standard scores (+/- 3.29, p<.001) should be deleted. Accordingly three outliers for the variable Age in the combined data set were deleted. In order to detect multivariate outliers Mahalanobis distance was employed. Three outliers were detected. However, the researcher ran the data with and without the outliers and found no meaningful changes to results, and the outliers were not deleted (Myers, Gamst, & Guarino, 2006). Absence of multicollinearity in the data set was confirmed via Pearson Product-Moment Correlation Coefficient. Correlations fell between *r* = .01 and *r* = .80 for each sample. Overall correlations for both data sets were moderate (e.g. <.90); thus there were no issues of singularity among variables (Tabachnick & Fidell, 2013). Inter-correlations among items revealed many correlations greater then .30, indicating items on the MEPQ measure the same underlying construct, a factor analysis using oblique rotation was deemed suitable (Tabachnick & Fidell, 2013).

Exploratory Factor Analysis

The aim of an exploratory factor analysis of the remaining 43-item MEPQ was to reduce the number of items and to determine the underlying factor structure. Item retention and/or removal was determined by how well each item represented one of the five domains.

The Kaiser-Meyer-Olkin index, a measure of adequacy of the correlations measured reported a value of greater than .947 indicating the data was highly structured and suitable for factor analysis. Inspection of the values presented in the anti-image matrices suggested an underlying structure to the data, where small partial correlations with the diagonal were observed (Tabachnick & Fidell, 2013). Additionally, Bartlett's test of sphericity was found to

be significant $F = 9205.35$, $p < .0001$, indicating that the factor model was appropriate (Hersen, Hilsenroth, & Segal, 2004).

Initial exploratory factor analyses were run to determine which extraction method would produce the best factor solution for the 43-item MEPQ. This was achieved using Principal Components Analysis and Maximum Likelihood extraction with oblique (direct oblimin) rotation, as suggested by Kline (2000). An oblique (direct oblimin) rotation was chosen, as there was no theoretical reason to indicate that the subscales would be orthogonal (Kline). Squared multiple correlations of each variable with all other variables were used to estimate communalities, along with oblique (direct oblimin) rotation (Tabachnick & Fidell, 2013). Factor extraction decisions were based on the five dimensions, the interpretability of the resulting factor solutions, and Cattell's screen test, in which factors are arranged along the abscissa in descending order (Cattell, 1966; 1978).

Visual inspection of the screeplot (see Appendix D) revealed five factors suitable for extraction, communalities were high and each factor had several variables with high loadings. These conditions, along with a large sample size, are indicative of a reliable scree test (Carrell, 1966; 1978). Interpretation of the Kaiser criterion indicated a seven-factor solution, where factors were extracted with an eigenvalue greater than 1.0 and accounted for 35.56% of the variance. However, Cattell's scree test provided a more conservative estimate, indicating a five-factor solution, which was in line with the cognitive, emotional, social physical and behavioural domains of Williamson et al. (2004) model. In an attempt to find the most interpretable matrix, a number of possible solutions were run, beginning with Cattell's scree test five-factor solution. A threshold value of greater than .30 for the inclusion of an item in the interpretation was set to emphasise each variable's contribution and simplify factor structure (Tabachnick & Fidell, 2013).

The final Principal Components Analysis extraction of five-factors with oblique (direct oblimin) rotation provided the most parsimonious solution as 25 items were clearly defined and shown to have uniformity and meaning for this research. The five- factor solution accounted for 60.7% of the variance with factor 1 accounting for the largest percentage of variance 29.45% factor 2 contributing 14.15% of the variance and factor 3 accounting for 6.57% of the variance, factor 4 accounting for 5.71% of the variance and factor 5 accounting for 4.78% of the variance. Myers et al. (2006) purport variance greater than 30% is considered adequate, and indicated good construct validity. The results of an oblique rotation of the solution are displayed in table 4.

Loadings less than .35 have been excluded for clarity (Tabachnick & Fidell, 2013; see table 4). All questions loaded on to one factor ≥.35, except for split-loadings experienced on item 40 “People become upset when I do not eat” and item 21 “I take food wherever I go” suggesting the solution structure is minimally complicated by content. Interpretive labels were assigned for each factor. Where split loading existed, items were assigned to the component deemed most appropriate by the researcher.

Factors 1, 2 and 3 correspond to the cognitive, emotional and social domains representative of the Williamson et al. (2004) model. Items 3, 4, 8, 9, 33 and 35 loaded onto the cognitive factor 1 and relate to concepts of dysfunctional thoughts about food and body dissatisfaction and other body image concerns (Malson et al., 2008). Items 11, 13, 20, 29 and 38 loaded onto the emotional factor 2 and related to concepts of negative affect and encompasses mood states such as depression, stress, shame, inadequacy, guilt, and helplessness tied to body image (Polivy & Herman, 2002; Stice, 2002). Items 16, 25, 36, 39 and 40 loaded onto the social factor 3 and relate to the role of social context in shaping maladaptive eating practices (Andersen, 2002).

Factors 4 and 5 correspond to the physical and behavioural domains representative of the Williamson et al. (2004) model. Here items 6, 26, 30 and 31 loaded onto the physical factor 4 and relate to concepts of rigid control over eating behaviours and may include adherence to strict food rules and excessive exercise (Blodgett et al., 2007). Items 10, 12, 21, 42 and 43 load onto the behavioural factor 5 and are characterised by eating rituals, which may include obsessive calorie counting and episodic, unrestrained, eating behaviours (Andersen, 2002). Table 5 displays the eigenvalues and variance accounted for by each factor.

Table 4

Obliquely rotated component loadings of the 25-item MEPQ

Pattern Matrix [a]	Factor 1 Cognitive	Factor 2 Emotional	Factor 3 Social	Factor 4 Physical	Factor 5 Behavioural
35. I think my size makes me unpopular	.89				
3. I think I look bigger than everyone else	.82				
33. I want to be thin to fit in	.82				
9. I want to cry when I see myself in the mirror	.79				
4. If I keep my stomach empty I think I will feel better	.68				
8. I do not like people seeing me eat	.61				
38. People tell me to stop eating		.31			
11. When I'm bored I eat		.86			
13. I cheer myself up with food		.80			
29. Even when I am full I can eat more		.73			
20. I always want to eat		.71			
39. People tell me I am too thin			.82		
36. People try to force food on me			.72		
40. People become upset when I do not eat	.36		.63		
18. I am the last to finish my meals			.42		
25. I only eat the same foods at every meal			.34		
30. Even when I am exhausted I make sure I exercise				.88	
31. I panic when I cannot exercise				.75	
6. I think I know ways to control my weight				.45	
26. I stop myself from eating before I am full				.33	
42. I eat my whole meal					.74
43. I leave something on my plate					.71
12. I cannot eat if I am nervous					.59
10. I am not hungry when I am tired					.58
21. I take food wherever I go			.36		-.45

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization. a. Rotation converged in 17 iterations.

Table 5

Eigenvalues and Total Variance Explained by a Five-factor Solution of the 25-item MEPQ

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
	Cognitive	Emotional	Social	Physical	Behavioural
Eigenvalues	7.36	3.54	1.64	1.43	1.20
Variance (%)	29.45	14.15	6.57	5.71	4.78
No. of items	6	5	5	4	5

Internal Consistency of Domains

The internal consistency of domains that comprise the 25-item MEPQ was assessed using Cronbach's alpha coefficient for the full scale and the subscales. Overall, item consistency was high Cronbach's $\alpha = 0.86$ (see Appendix D). A Cronbach's $\alpha > .70$ is cited in the literature as being the acceptable minimum (Tabachnick & Fidell, 2013) and indicates the degree to which a set of constructs collectively measures what it intends to measure and provides evidence that participants responded to the items consistently and reliably. Item analysis suggests Cronbach's α could increase to .87 if item 21 was removed from the questionnaire. Given the importance of the question to this study, item 21 remained. Table 6 displays alpha coefficients for each of the five domains, next page.

Table 6

Alpha Coefficients of the Three Domains of the 25-item MEPQ

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
	Cognitive	Emotional	Social	Physical	Behavioural
Total Items	6	5	5	4	5
α coefficients	0.91	0.77	0.76	0.69	0.56

Inspection of the mean inter-item correlation indicated relatively low correlations between factors, confirming five separate factors that measure individual ideas derived from the same underlying theory (see Table 7).

Table 7

Inter-item Correlations Between the MEPQ and its Five Factors

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	1.0	.11	.23	-.23	.22
Factor 2	.11	1.0	-.10	.09	-.35
Factor 3	.23	-.10	1.0	-.31	.24
Factor 4	-.23	.09	-.31	1.0	-.12
Factor 5	.22	-.35	.24	-.18	1.0

Test-retest Reliability

In order to assess test-retest reliability, the final 25-item MEPQ was administered to 206 participants from the eating disorder Foundation sample twice with a one month interval between initial and retest administration. The test scores remained stable between testing

periods, indicating good test re-test reliability r (205) = 0.93, $p < .01$ (two-tailed), (see Appendix D).

Method: Phase 4

Bivariate Correlations

The aim of phase 4 was to assess the psychometric properties of the 25-item MEPQ in the context of its relationship to other tests. Bivariate correlations were conducted to assess for convergent and discriminant validity. Convergent validity was examined by comparing the MEPQ-25 scale scores with those of the Eating Attitudes Test (EAT-26; Garner, 1997), the MBSRQ-AS (Cash, 2000) and the (DSRS-C) (Birleson, 1978). Discriminant validity was assessed by observing correlations between MEPQ-25 scales and the International Personality Item Pool scales (version Mini IPIP- 20; Donnellan et al., 2006).

Participants and Procedure. Participants were gained from two samples. Participants who completed MEPQ-25 together with the EAT-26 and DSRS-C were recruited for the purpose of Study 2 as conducted by the researcher (see Chapter eight for a full description of the participants, and procedures used to select the sample and administer the questionnaire).

Participants who completed the MEPQ-25 together with the MBSRQ-AS and the Mini IPIP- 20 were derived from a separate fourth year honours thesis, which used the MEPQ-25's in a supplementary study assessing its validity, reliability, and underlying structure (Beasley, 2013). Participants (224) from this study were a sample of convenience, consisting of 67 males and 157 females aged 17-35 (M = 30.96, SD = 13.92), who were actively recruited through the social media network Facebook, by person, or by advertisement on the Psychology department notice board at Bond University.

Measures

Maladaptive Eating Practices Questionnaire-25. The MEPQ-25, a 25-item self-report measure intended for the early detection of the *risk* of Eating Disorders in children, includes cognitive, emotional, social, physical and behavioural domains. A 6-point Likert scale offered participants the opportunity to quantify their preferences subjectively. Items were anchored at each end with "never" (0) to "always" (5). These examples items include "I start to get anxious before mealtimes" (emotional subscale, item 8) or "I am always the last to finish my meals" (behavioural subscale, item 11). Ratings were reversed coded (for items 6, 10, 16, and 22,) so that higher scores reflected higher standing, and to ensure suitability in clinical populations. The MEPQ-25 was scored totalling items corresponding to each subscale. The highest possible score on each of the 25 items was 30 and the lowest is 0.

Eating Attitudes Test-26. The EAT-26, developed by Garner (1997), is a 26-item scale designed to determine whether an individual might have a DSM-IV-TR defined eating disorder. The EAT-26 utilises three subscales: *dieting*, the pathological avoidance of fattening foods; *bulimia* and *food preoccupation*, the tendency to binge and purge and *oral control*, the degree of self-control over eating (Garner, Olmsted, Bohr, & Garfinkel 1982). From a 6-point Likert scale participants answered the 26 items according to how each statement was most like them, ranging from "never" (0) to "always" (5) by marking the number next to their statement of choice. Example items include, "Feel extremely guilty after eating" (dieting subscale, item 10) and "Have the impulse to vomit after meals" (bulimia and food preoccupation subscale, item 25; Garner, 1997). By totalling the items that corresponded to each separate scale and then summing these to derive one total score, the EAT-26 yields a single index of disordered eating attitudes. Potential scores on the EAT-26 range from 0 to 78; scores of less than 20 are usually thought to be an indication of an eating disorder pathology that is subclinical (Chamay-Weber et al., 2005; Garner, 1997). Research has tended to sum

the EAT-26 into a single score. The total EAT-26 score was used in the current study (Lane, Lane, & Matherson, 2004). The 26-item version is reported as having high internal reliability 0.93 and validity 0.88 (Garner et al., 1982; Ocker et al., 2007) and alpha internal consistency coefficients for Dieting 0.89, Bulimia and Food Preoccupation 0.87, and Oral Control 0.68 (Mukai, Kambara, & Sasaki, 1998).

The Multidimensional Body-Self Relations Questionnaire-Appearance Scales. The MBSRQ-AS is a shortened version of the 69-item Multidimensional Body-Self Relations Questionnaire (Cash, 2000), both of which are designed to assess body image and body concerns in adolescents' aged 15 and above. The MBSRQ-AS consists of 5 subscales, which include appearance evaluation, appearance orientation, overweight preoccupation, self-classified weight and the body areas satisfaction scales; however only the appearance evaluation and overweight preoccupation scales were used in the current study. The appearance evaluation subscale, for example, utilises a 5-point Likert scale that participants answered according to how each statement was most like them, ranging from 1 = *definitely disagree* to 5 = *definitely agree*. Each subscale employs a slight variation of this Likert scale. Examples of test items include 'Most people would consider me good-looking' and 'My body is sexually appealing'. The MBSRQ-AS has been reported to have good internal consistence for both males (α = .88) and females (α = .88) in the literature (Cash, 2000).

The Depression Self-rating Scale for Children. The DSRS-C is a brief 18-item self-rating scale developed for children between the ages of 8 and 14 years of age (Birleson 1981). The scale was developed from a longer inventory of 37 items that were described in the literature in association with depressive syndromes in childhood. Items are scored in the direction of disturbance with 0 for non-depressed or normal responses, 1 for sometimes responses and 2 for depressed or abnormal responses (Birleson). The clinical cut-off point of 15 and above on the DSRS-C indicates the child may have depression or dysthymia. The test-

retest reliability of the scale shows a satisfactory stability 0.80. The Scale's corrected split-half reliability was 0.86 showing good internal consistency (Birleson 1981).

The International Personality Item Pool - 20. The Mini IPIP- 20 (Donnellan et al., 2006) is a 20-item short form of the 50 item IPIP-NEO (Goldberg et al., 2006), and was created so that personality could be reliably assessed, while considerably reducing the lengthy administration time. The Mini IPIP- 20 contains four items that correspond to one of the big five personality traits, which include neuroticism, extraversion, agreeableness, conscientiousness, and openness to experience. Only the neuroticism, extraversion and conscientiousness subscales were used in the Beasley (2013) study. Using a five-point Likert scale participants are asked to rate the extent to which they agree with each statement (1 = strongly disagree to 5 = strongly agree). A number of studies have shown the Mini IPIP- 20 to be a psychometrically sound measure with acceptable internal consistency (Cronbach's α =/<.60) and good test-retest reliability values of extraversion: α = .77, *r* = .87; agreeableness: α = .70, *r* =.62; conscientiousness: α = .69, *r* = .75; neuroticism: α = .68, *r* = .80; and openness: α = .65, *r* = .77 (Baldasaro, Shanahan, & Bauer, 2013).

Table 8 lists correlations between the MEPQ-25's total scores and the measures used to establish convergent and discriminant validity. These included convergent measures that assess attitudes towards eating (e.g. EAT-26), body image concerns (MBSRQ-AS), and psychological distress (e.g. DSRS-C), and a divergent measure that assesses personality (Mini IPIP-20).

Table 8

Pearson Product-Moment Correlations between MEPQ-25 and other scales

Variable	MEPQ-26 (total score)
EAT-26 (total score)	.81**
MBSRQ-AS (overweight preoccupation subscale).	.59**
MBSRQ-AS (appearance evaluation subscale).	-.51**
DSRS-C (total score)	.71**
Mini IPIP-20 (conscientiousness subscale)	-.34**
Mini IPIP-20 (neuroticism subscale)	.26**
Mini IPIP-20 (extraversion subscale)	.10

** Correlations significant at the $p < .01$ level (two-tailed).

All correlations in the Beasley (2013) study outlined here were significant at the p<.001 (two-tailed), except between the MEPQ-25 and the Mini IPIP-20 extraversion subscale. There were strong positive correlations between total scores for the MEPQ-25 and the EAT-26 *r* (90) = 0.81, and the DSRS-C *r* (90) = .71, respectively. There was a moderate negative correlation between the total score on the MEPQ-25 and the MBSRQ-AS appearance evaluation subscale *r* (224) =-0.51, and a moderate positive correlation between the total score on the MEPQ-25 and the MBSRQ-AS overweight preoccupation subscale *r* (224) =0.59. The weakest observed relationships was between the total score on MEPQ-25 and the Mini IPIP-20's neuroticism *r* (224) = 0.26 and conscientiousness *r* (224) = 0.34 subscales. See Appendix D for additional SPSS output relevant to Study 1.

Discussion

This current study sought to develop and validate a new assessment tool for the early detection of the *risk* of eating disorders in children. The main hypothesis of this study was

that the MEPQ-25 would reveal a five-factor structure reflective of Williamson et al., (2004) Integrated Cognitive-Behavioural theory of eating disorders important in assessing maladaptive eating. This was achieved through the development of a new, psychometrically sound measure, where domains identified were reflective of Williamson et al. (2004) model. Consistent with this hypothesis, five reliable factors were obtained from an oblique (direct oblimin) rotation that accounted for 60.7% of the variance with factor 1 accounting for the largest percentage of variance 29.45% factor 2 contributing 14.15% of the variance and factor 3 accounting for 6.57% of the variance, factor 4 accounting for 5.71% of the variance and factor 5 accounting for 4.78% of the variance, resulting in a 25 item measure. Given the measure was designed for young children a 25-item measure was suitable for the audience intended. Each domain comprised between 4 to 6 items, providing adequate coverage to assess each domain that constitutes the construct of interest (Comrey & Lee, 1992).

Factors 1, 2 and 3 correspond to the Williamson et al. (2004) cognitive, emotional and social domains and represent the *internal expressions* of eating dysfunction. In the factor solution factor 1 represented the cognitive domain and accounted for the largest percentage of variance. This factor assessed dysfunctional thoughts about food and consisted of six items (3, 4, 8, 9, 33 and 35) that sought to identify one's poor sense of identity relative to others, potential body dissatisfaction and other body image concerns (Malson et al., 2008). These items are in line with previous research pertaining to key stimulus characteristics found to activate cognitive biases such as body or food related information, ambiguous stimuli and situations that require a person to reflect on themselves, especially their body and eating practices in a maladaptive way (Fairburn et al., 2009; Griffiths et al., 2010; Jacobi et al., 2004; Smolak, 2004).

Factor 2 corresponded to the emotional domain and accounted for second largest percentage of variance in the factor solution. This factor consisted of five items (11, 13, 20,

29 and 38) that assessed negative affect and encompasses mood states tied to maladaptive eating such as depression, stress, shame, inadequacy, guilt, and helplessness (Polivy & Herman, 2002; Stice, 2002). These items are in line with the work of a number of theorists that argue both dieting and over eating are used to regulate and alleviate negative affect (Dohnt & Tiggemann, 2008; Rodgers et al., 2009a; Stice, 2003; Wade et al., 2009).

Factor 3 corresponded to the social domain and accounted for third largest percentage of variance in the factor solution. This factor consisted of five items (16, 25, 36, 39 and 40) that related to social perspectives and environmental cues that negatively reinforce, or strengthen, the practice of maladaptive eating (Andersen, 2002; Carey et al., 2014; Fernández-Aranda et al., 2007; Taylor et al., 2012). These items are consistent with previous research that suggested social perspectives identify the idealisation of being thin and the societal disparagement of being overweight as a major contributing factor to one's weight and shape dissatisfaction and related self-disgust (Golan, 2013; Striegel-Moore, 2007).

Factors 4 and 5 corresponded to Williamson et al. (2004) physical and behavioural domains that represent the *externalising problems* of eating dysfunction. Factor 4, the physical domain, consisted of four items (6, 26, 30 and 31) all related to concepts of rigid control over eating behaviours and included adherence to strict food rules, strict weight control, and excessive exercise (Blodgett et al., 2007). Factor 5, the behavioural domain, consisted of five items (10, 12, 21, 42 and 43) all related to secretive behaviours surrounding eating, food refusal, and over sensitivity to references about food, weight or appearance (Andersen, 2002). These items are in keeping with previous research that suggested individuals who are dissatisfied with the way they look, tend to employ a number of destructive physical and behavioural controls as a means to change their appearance such as excessive exercising, eating in rigid, ritualistic ways, refusing to eat around others and

episodic, and unrestrained eating behaviours (Herpertz-Dahlmann, 2009; Jacobi et al., 2004; NEDC, 2010a; Wilksch & Wade, 2009b).

The above results demonstrate a clear benefit in expanding upon the original Thoughts on Eating Questionnaire (ITEQ; Ebenreuter & Hicks, 2013), which had previously proposed three key dimensions: cognitive, affective/emotional, and physical/behavioural domains. The MEPQ-25 proposed five separate domains, two of which had not previously been considered by test authors or been transferred to the test arena (Nicholls & Bryant-Waugh, 2009; Nicholls et al., 2000).

As predicted, the MEPQ-25 also achieved good face validity evidenced by the review panel's responses suggesting that the 25 items adequately reflected characteristics of maladaptive eating. This expands upon the currently accepted eating disorder criteria described in the DMS-5 (APA; 2013).

The results also suggested that the MEPQ-25 has good psychometric properties, as predicted. The internal reliability coefficients for the subscales ranged from .91 (Cognitive) to .59 (Behavioural). Test-retest reliability was found to be high. Results from the mean inter-item correlation indicated low correlations between factors, confirming five separate factors that measure individual ideas derived from the same underlying theory.

The relationship between the MEPQ-25 and measures that assess attitudes toward eating (EAT-26), body image concerns (MBSRQ-AS), psychological distress (DSRS-C) and personality (Mini IPIP-20), were investigated to establish convergent and discriminant validity, with results being in the expected direction, as previously hypothesised. Specifically, the results supported the construct validity of the MEPQ-25 where strong positive relationships were found between measures of eating attitudes, body image concerns and psychological distress. The weak, inverse, relationship observed between the MEPQ-25 and the Mini IPIP-20's conscientiousness subscale, and weak, positive, relationship found

between the MEPQ-25 and Mini IPIP-20 neuroticism subscale, indicated that the MEPQ-25 and subscales of the Mini IPIP-20 were measuring significantly different constructs, thus confirming discriminant validity of the MEPQ-25. These finding were consistent with previous research detailed in Chapter two, which identified a strong relationship between maladaptive eating practices and negative attitudes towards eating (Boone, Braet, Vandereycken, & Claes, 2012; Engel et al., 2009; Green & Pritchard, 2003; Peebles et al., 2006; Rosen, 2010) negative body evaluation and poor body image (Holt & Ricciardelli, 2008) and psychological distress (Blodgett et al., 2007; Enten & Golan, 2009; Jacobi et al., 2004; Matthews, Zullig, Ward, Horn, & Huebner, 2012; Sinton & Birch 2005; Taylor et al., 2012).

The factor analyses of the 25 item MEPQ was satisfactory and gave sound indication of content and construct validity. Low correlations between factors, confirmed five separate factors that measured individual ideas derived from the same underlying theory. A number of strengths as well as limitations to this study allow for future research directions for clinical research work, which will be discussed in detail in Chapter nine.

Chapter 8: Study 2: CBT Prevention Program for Children at Risk

Research Purpose

Study 2 had as its focus the *prevention of maladaptive eating behaviours in children.* The aim of this study was to provide children at risk of an eating disorder with a set of skills that would support healthy eating practices. An evaluation of the efficacy of a modified CBT prevention program for children *at risk* of an Eating Disorder, using the FRIENDS for Life program (Barrett, 2004), was evaluated. It was hoped that findings would add to current eating disorder literature. This study builds upon the previous study that looked at early case identification of childhood maladaptive eating through responses to the new MEPQ instrument developed for this purpose.

The purpose of Study 2 was to investigate the efficacy of the FRIENDS for Life CBT prevention program (Barrett, 2011) modified for use with children with maladaptive eating behaviours. The primary objective was to examine changes in eating behaviour and associated risk factors (e.g. stress, depression, anxiety) and protective factors (e.g. strengths and coping skills) from pre to post-intervention, and at 6 month follow up. The MEPQ-25 was used to assess the changes in eating behaviours among children undergoing the modified CBT based prevention program, along with self report and parent report questionnaires on the changes.

Current eating disorders treatment research suggests there are improved outcomes for children with eating disorders when their family are included in the treatment process (Eisler et al., 2010; Fisher et al., 2010; Pasold et al., 2010; Sanders & Dadds, 1993; Smith & Cook-Cottone, 2011; Truby et al., 2010). Therefore, a secondary objective was to examine if there was a greater benefit for children when their parental carers were actively involved in the FRIENDS for Life program, compared with children's groups where no parental carers were present.

Research Rationale

As previously indicated in chapter four most children *at* risk will not receive treatment until their eating disorder is diagnosable. The literature as detailed in chapters three and four underpins the argument that these children face significant barriers to being treated early in the course of their illness (APA, 2010; VGDHS, 2007; NEDC, 2010b; Spear et al., 2007; Yeo & Hughes, 2011). One of the difficulties previous researchers have faced is deciding where to best intervene in the life course of an eating disorder. Research detailed in chapters one to five supports the use of the spectrum or linear progression of maladaptive eating. It was suggested that an intervention, strategically placed along the path, at the sub-syndrome or early caseness stage, could change the outcome by stopping maladaptive eating practices from moving along a trajectory path from mild to severe. Study 2 sought to evaluate the efficacy of a modified CBT prevention program for children *at risk* of an eating disorder, using the FRIENDS for Life program, and thereby support the prevention of eating disorders in the early phase.

Research Aims

This research included children aged 8 to 12 and their parents, recruited from eating disorder groups across Australia. The researcher assessed whether children, as measured by child self- report measures, who received the modified CBT FRIENDS for Life program would experience reductions in maladaptive eating practices and the associated risk factors of stress, depression, anxiety while experiencing increases in protective factors such as strengths and coping skills. The MEPQ-25 was included in these measures to assess changes in eating practices. Outcomes from self-report questionnaires were recorded post-treatment, and at a 3 months follow-up.

It was hypothesized that, when compared with the active waitlist control group, those who participated would show reduced maladaptive eating practices, stress, anxiety and

depression, and would show growth in strengths and coping skills. It was hypothesized that when compared with the active waitlist control group expected gains, experienced post-intervention for participants who received the intervention, would also be maintained at the three-month follow-up.

A secondary focus of study 2 was to examine if there was a greater benefit for children, when their parental carers were actively involved in the CBT FRIENDS for Life program (i.e., parent present in the group), when compared with children's groups where no parental carers were present. It was hypothesized that when reduced maladaptive eating practices, stress, anxiety and depression, and increased protective factors of strength and coping skills would occur. In addition, it was hypothesized that when compared with groups where no parental cares were present expected gains experienced post-intervention would be maintained at the three-month follow-up for children whose parents were actively involved their program.

Research Design

Table 9

The Design of the Current Research Study 2

Design study 2	Treatment group (FRIENDS for Life)	Comparison Group (FRIENDS for Life + Parent participation)	Active Wait-list Control Group (No Intervention)
Time 1	Pre Assessment	Pre Assessment	Pre Assessment
Time 2	FRIENDS for Life intervention then post Assessment	FRIENDS for Life + Adult participation intervention then post assessment	No intervention but assessment after 8 weeks have passed from pre assessment time
Time 3	Follow-up assessment at 3 months after intervention	Follow-up assessment at 3 months after intervention	Follow-up assessment at 3 months after post assessment

Table 9 outlines the design of the current research. For the modified FRIENDS for Life intervention there was a treatment group (children participating in the FRIENDS program), a comparison group (children and a parental caregiver participating in the FRIENDS program), and an active wait-list control group (children participating in individual therapy sessions). The active wait-list group received individual therapy that includes psycho-education around healthy eating habits, weight management and body image issues. In consideration of the serious nature of eating disorders in both child and adolescent populations, the researcher will not recruit a non-active wait-list.

The treatment group, the comparison group and active wait-list group's participant numbers was the same. Each condition was given exactly the same measures, completing measurements at the same time at pre-intervention, post-intervention and three-month follow-up time points. Test administration took approximately 30 to 40 minutes. At the three month mark, study 2 was completed and the active wait-list control group was invited to enrol in the modified FRIENDS for Life program.

Ethical approval was gained for study 2 through the Bond University Research Ethics Committee, BUHREC protocol number RO-1538 (including a small amendment) and via board approval from key stakeholders from participating eating disorder organisations, and affiliated community clinics (Appendix B) prior to the commencement of testing. These organisations included; Psychology Central, the Pathways Health and Research Centre and PRA Consulting. The researcher presented the proposed research and submitted a written proposal outlining the research, target population, test protocols and materials pertinent to the research, prior to board approval being gained from each organisation. Permission was granted via written gateway permission from all three organisations. In order to increase participant numbers a small amendment was sent to BUHREC and approved (Appendix B) to include the Butterfly Institute of Eating Disorders in the recruitment process. Participants derived from the Butterfly Institute of Eating Disorders as well as participants from community clinics not running the FRIENDS program, were administered the program at the Bond University Counselling Clinic (see permission letter attached, Appendix B).

Method

Procedure

Six phases comprise the current research and include: pre-program recruitment, pre-intervention screening, pre-intervention measures, the intervention, post-intervention screening, and three-month follow-up screening.

Phase 1: Pre-Program Recruitment. The researcher or a staff psychologist at each of the participating community clinics assisted in the recruitment of participants. The researcher recruited all participants from the Butterfly Institute and the eating disorder Foundation (which was advertised on each organisation's website).

Interested parents were emailed written information about the research purpose the process and an outline of the benefits of the FRIENDS program (Appendix B). A written Explanatory Statement and consent from was added as an email attachment (Appendix B). The email stipulated the following inclusion criteria: a) child participants must be aged between 8 years 0 months, to 12 years 11 months, b) one parent must be available for a pre-interview phone call and testing c) neither child nor parent had previously attended a FRIENDS program, d) all child and parent participants (mother) must be available to attend an 8 week program, plus be available for additional testing at 3 and 6 month time points, and e) all child and parent participants must be able to commute to Brisbane and/or the Gold Coast to participant in the study. Altogether 206 inquiries were received in regards to this study, via phone (n=32) and email (n=174). Following this process 105 participants were selected for pre-intervention screening.

Phase 2: Pre-intervention Screening. The recruiters telephoned the family at an arranged time in the first week of sessions, to conduct the pre-screening interview that included the Modified Mini Screen - parent rated (MMS; Spotts, 2008), and the Children's Eating Behaviour Inventory -parent rated (CEBI; see measures section). This was to ensure participant suitability for the research project. Test time was approximately 60 minutes. One parent from each family nominated himself or herself as the primary informant and responded to the interview concerning their child.

During this phase participants were excluded on the following bases: a) child or parent participants were currently attending CBT or another evidence based treatment b)

child participants were currently seeking treatment for an eating disorder or other serious mental health disorder, and c) parents who reported that their child does not currently engage in a range of maladaptive eating practices. This process resulted in 90 participants being selected for the current study. Each participant was randomly assigned into one of three conditions, the treatment group, the comparison group, or the active wait-list control group.

Phase 3: Pre-intervention Measures (first session). Participants from all three conditions completed the pre-intervention measures. Pre-intervention measures were handed out in the first session (child and parent carer forms) and collected by the researcher.

Phase 4: The Intervention. The intervention phase for participants in the treatment and comparison conditions commenced approximately one week following the pre-intervention screening phase. There was some variation in start dates between interventions run in Brisbane and the Gold Coast.

For the treatment and control groups, the modified FRIENDS for Life CBT intervention was run on a weekly basis in a clinic setting, with all program sessions presented in chronological order and facilitated by a registered psychologist. A program adherence checklist was completed for each session to ensure that the program was consistent as possible across all 8 sessions and locations (See Appendix B). Parent participants from the comparison group attended the last 15 minutes of each of their child's session.

The same procedure was followed with the active wait-list control group with the exception that they were offered individual therapy that included psycho-education around healthy eating habits, weight management and body image issues, without parent involvement.

Phase 5: Post-intervention Measures. Post-intervention measures for all three conditions were handed out in the final session of each intervention and collected by the researcher. Child and parent participants were reminded again that all responses on the

questionnaires were confidential, that participants were free to withdraw at any time, and the researcher would only view questionnaire responses. The researcher also offered a 10 to 15 minute group debriefing session after conducting all post-intervention screening sessions. This provided a forum for families to discuss their experience during the program and give feedback. Participants were invited to ask questions about the research and a detailed explanation of the research aims were provided to interested participants.

Phase 6: Three Month Follow-up Measures. At the three-month time point child participants in all three conditions once again completed the questionnaire package (see Appendix B). This allowed for assessment of the impact of the intervention after this period and for the researcher to ascertain whether the gains from the program had been maintained. A large proportion of families reported that they could not attend the pre-arranged, three month follow-up screening in person, thus the final questionnaire package was sent to a mailing address nominated by the child participants' parent. The follow-up screening procedure was identical to that used in both the pre-intervention measures and the post intervention measures. Each participant was provided with a stamped, self-address envelope, so that the questionnaire package could be returned to the researcher at Bond University Robina campus. The researcher liaised with the Bond University mail centre to ensure all returned packages were delivered to the researcher on campus. Once the study was completed the active wait-list control group was offered the opportunity to attend the modified FRIENDS for Life intervention to be held at the Bond University Counselling Clinic.

Measures

Pre-screening Measures. Pre-screening measures included the MMS (Spotts, 2008), and the CEBI (Archer et al., 1991) parent rated form. These were administered to one nominated parent during the pre-screening telephone interview.

The Modified Mini Screen. The MMS (Spotts, 2008) is a 22-item scale designed to identify individuals in need of an assessment in the domains of Mood Disorders, Anxiety Disorders and Psychotic Disorders. In the current study, the MMS (Spotts, 2008) was administered using the parent reports of their child's symptomology. The MMS has been used successfully in child-adolescent samples 12-17 years (US Department of Health and Human Services [DHHS], 2012) and with adolescent and young adult populations 13-21 years (Ogebe et al., 2011). The questions are based on gateway questions and threshold criteria derived from clinical diagnostic criteria and structured clinical interviews (Spotts, 2008). The scale is divided into three sections and correspond to Mood Disorders, Anxiety Disorders and Psychotic Disorders, respectively. The scale is scored by adding the total number of yes responses from each section. A total score of yes responses greater than 10 denote that further diagnostic assessment is required, while a score yes responses less than 5 require no action by the administrator. In addition to this, a yes response and score of 1 on question 4 and a yes response and score of 2 on question 14 and 15 also calls for further assessment for the test taker. The MMS takes approximately 15 minutes to administer. The internal consistency of the 22 items of the MMS has been reported to be high (Cronbach's alpha = 0.90), and test-retest reliability has been shown to be consistent at the $p<.001$ level at around 0.71 (Spotts, 2008).

The Children's Eating Behaviour Mealtime Inventory. The CEBI (Archer, Rosenbaun, & Striener, 1991) is a parent-rated report instrument, which measures childhood eating and mealtime behaviours for children aged between 2-12 (Archer et al., 1991). The tool measures eating and mealtime behaviours across two major domains, the child domain and the parental domain. The CEBI measures two main constructs within each domain. The parental domain comprises maternal attitudes and feelings about mealtimes and the child domain comprises manual/oral motor development and child behaviour compliances. A score

range from 15 to 95 and the clinical cut-off point of 41 indicates that the child may have significant eating and mealtime behaviour problems. The CEBI has 19 items version is reported as having high internal reliability Cronbach's α coefficient > 0.70 for both domains, and validity 0.88, (Archer et al., 1991).

Child Measures

Measures administered to child participants at the pre-intervention, post-intervention and three-month follow-up phase included: the Strengths and Difficulties Questionnaire (SDQ; Goodman 1997, 2001), Birleson Depression Scale (Birleson 1981) and the MEPQ-25.

The Strengths and Difficulties Questionnaire. The SDQ (Goodman 1997, 2001) is a 25-item self-report measure designed to assess the psychological adjustment of children aged between 3 to 16 years. The SDQ comprises five scales and includes; emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and pro-social behaviour. Higher scores indicate a greater problem for each subscale except for pro-social behaviour. A 3-point Likert scale offered participants the opportunity to quantify their preferences with “not true” (0), “somewhat true” (1), or “certainly true” (2) in response to each statement. The SDQ has been shown to have good internal reliability with Chronbach’s alpha of .73 for the full scale 0.78 emotional symptoms, 0.77 conduct problems, 0.81 hyperactivity/inattention, 0.60 peer relationship problems, and 0.77 pro-social behaviour sub scales (Goodman 1997, 2001; Vostanis, 2006).

Depression Self-rating Scale for Children. The DSRS-C (Birleson 1981) is a brief 18-item self-rating scale developed for children between the ages of 8 and 14 years of age (Birleson 1981). See chapter six for a full description of the DSRS-C.

Maladaptive Eating Practices Questionnaire. The MEPQ-25 is a 25-item self-report measure intended for the early detection of the *risk* of eating disorders in children, aged between 8 and 12. See chapter six for a full description of the MEPQ-25.

In addition to the above tests the EAT-26 was added to the test battery, at the pre-intervention phase (Phase 3), to assess the psychometric properties of the 25-item MEPQ in the context of its relationship to other tests, in children aged 8 to 12. The results were utilised in Study 1 only (see Chapter one).

For each test administered in the measures section of study 2, see Appendix B.

The Intervention

For the treatment and comparison groups, the modified FRIENDS for Life program (that included a modified addition of psycho-education around healthy eating habits, weight management and positive body image), was run over eight weeks, with each group session lasting 60 minutes. Ten participants were assigned to each group. Negotiating time constraints of the young participants, the researcher condensed the original 10 sessions into 8 and withdrew the booster sessions from the current study. Parent participants assigned to the comparison groups were asked to join their child's session in the final 15 minutes of each session.

The active wait-list group received individual therapy session of 30 minutes over an 8 week period. Sessions included psycho-education around healthy eating habits, weight management and positive body image information created by the Nourish Interactive group, as detailed below (LaBarbera, 2012).

The Modification

The FRIENDS programs have demonstrated efficacy when run concurrently with supplementary dietary and healthy living advice (Lim et al., 2009), which supports the adoption of healthy eating practices (LaBarbera, 2012).

Therefore, the current study added a modification to the FRIENDS for Life program administered to the treatment and comparisons groups, which included information about healthy eating habits, weight management and positive body image, created by health care

professionals from the Nourish Interactive group (LaBarbera, 2012). Their educational worksheets are currently endorsed by the Queensland Government (see Appendix B for a copy of each worksheet). The active wait-list group received individual therapy session based on the added modification.

Table 10 displays sessions 1 to 4 and Table 11 displays sessions 5 to 8. Both tables include content and important learning objectives for the treatment and comparison group's sessions. All sessions were conducted by the researcher who was occasionally assisted by a co-psychologist, trained for this purpose by the researcher. Continuity was assured via the use of an adherence check list (see Appendix B).

Table 10

FRIENDS for Life components delivered for sessions 1 to 4 for each condition

Session Number	Treatment Group - Session Content and Important Learning Objectives
1	**Treatment & Comparison Group**: Rapport building and introduction of group participants. Establishing group guidelines. Introduction on mood and individual differences in mood. **Comparison group only:** Parent participants to attend the last 15 minutes of their child's session and review content of session. **Added Modification (both conditions)**: Meet the five food groups learning sheet for children age 3 to 13.
2	**Treatment & Comparison Group**: Affective education and identification of various emotions. Introducing the relationship between thoughts and feelings. **Comparison group only:** Parent participants to attend the last 15 minutes of their child's session and review content of session. **Added Modification (both conditions)**: Estimating the five food groups' servings – portion sizes using household items learning sheets for children aged 4 to 13.
3	**Treatment & Comparison Group**: **F**: Feelings. Identifying physiological symptoms of worry. **R**: Remember to relax. Have quiet time. Relaxation activities. **Comparison group only:** Parent participants to attend the last 15 minutes of their child's session and review content of session. **Added Modification (both conditions)**: My pyramid food group healthy serving size sheet for children aged 9 to 13.
4	**Treatment & Comparison Group**: **I**: I can do it! I can try my best. Identifying self-talk, introducing helpful green thoughts and unhelpful red thoughts. **Comparison group only:** Parent participants to attend the last 15 minutes of their child's session and review content of session. **Added Modification (both conditions)**: The junk food tree – writing activity to replace junk food with healthy foods that grow on trees for children aged 4+.

Table 11

FRIENDS for Life components delivered for sessions 5 to 8 for each condition

Session Number	Treatment Group - Session Content and Important Learning Objectives
5	**Treatment & Comparison Group**: Attention training - looking for positive aspects in all situations. Challenging unhelpful red thoughts. **E**: Explore solutions and coping step plans. Coping step plans and setting goals. **Comparison group only:** Parent participants to attend the last 15 minutes of their child's session and review content of session. **Added Modification (both conditions)**: Balancing healthy foods with exercise (for children aged 3 to 13).
6	**Treatment & Comparison Group**: Problem-solving skills (6 stage problem-solving plan). Coping Role models. Social support plans. **Comparison group only:** Parent participants to attend the last 15 minutes of their child's session and review content of session. **Added Modification (both conditions)**: What is being active – worksheet (for children aged 4+).
7	**Treatment & Comparison Group**: **N:** Now reward yourself. You've done your best! **Comparison group only:** Parent participants to attend the last 15 minutes of their child's session and review content of session. **Added Modification (both conditions)**: Being active is fun – a healthy goal agreement (for children aged 3 to 13).
8	**Treatment & Comparison Group**: **D**: Don't forget to practice. **S**: Smile. Stay calm for life. Reflect on ways to cope in difficult situations. **Comparison group only:** Parent participants to attend the last 15 minutes of their child's session and review content of session. **Added Modification (both conditions)**: Limiting TV time - a healthy goal agreement (for children aged 7 to 13).

Results

Hypothesis 1. Hypothesis 1 of study 2, that maladaptive eating practices, stress, anxiety and depression, would decrease in participants who received the prevention program, at the end of the program and at the three-month follow-up for participants who received the intervention, was supported.

Hypothesis 2. Hypothesis 2 of study 2, that there would be a greater benefit for children when their parental carers were actively involved in the CBT FRIENDS for Life program was supported. Improvements occurred at the end of the program and were maintained at three-month follow-up.

A description of the sample and the measures is provided, then the multivariate approach to repeated measures (i.e., profile analysis) used to analyse these data is described. The results of the multivariate analysis are reported. Finally, a series of custom contrasts were created and tested in order to examine the specific hypotheses of study 2. These were first examined multivariately, and then at the level of the individual measures. The overall alpha level of .05 was adjusted using the Bonferroni method within each family of tests in order to control the Type I error rate. The chapter concludes with a brief summary of the findings. All analyses were conducted using IBM SPSS v. 20.0 (IBM Corp., 2011). Figures were created using the Minitab software, v. 16.1.1 (Minitab Inc., 2010).

Participants and Description of the Sample. This sample comprised 90 participants in total (70 girls and 30 boys), aged between 8 and 12 years of age (M= 9.92 years, SD =1.45) and 30 female parental carers aged between 23 and 45 years of age (M= 30.57 years, SD = 5.96), which made up the three intervention groups; an active waitlist control group, a FRIENDS alone group (e.g. child only group), and a FRIENDS with Parent group (e.g. child with parent group). Table 12 summarizes the descriptive characteristics of the intervention groups.

Table 12

Descriptive Characteristics of the Intervention Groups

		Active Waitlist (n = 30)	FRIENDS Alone (n = 30)	FRIENDS with Parents (n = 30)	Statistical Comparison
Age	*M*	9.73	10.00	10.07	$F(2, 87) = .44$,
	(SD)	(1.44)	(1.44)	(1.48)	$p = .64$
Gender	Female	26	23	21	$\chi^2(2) = 2.44$,
	n (%)	(86.7%)	(76.7%)	(70.0%)	$p = .34$ (exact)
Ethnicity	Australian	22	22	25	$\chi^2(8) = 7.26$,
	n (%)	(73.3%)	(73.3%)	(83.3%)	$p = .55$ (exact)
	European	4	3	3	
	n (%)	(13.3%)	(10.0%)	(10.0%)	
	Indian	2	1	0	
	n (%)	(6.7%)	(3.3%)	(--)	
	American	0	3	2	
	n (%)	(--)	(10.0%)	(6.7%)	
	Asian	2	1	0	
	n (%)	(6.7%)	(3.3%)	(--)	

A one-way analysis of variance (ANOVA) was used to compare the mean age per group, and chi-square tests were used to compare the distribution of gender and ethnicity. The Fisher's exact tests were used to compute significance levels for the chi-square statistics, as these provide a method for obtaining accurate results when the data fail to meet any of the underlying assumptions required for the asymptotic method (IBM Corp., 2011). In this case, the data (for the ethnicity comparison) failed to meet the assumption of the chi-square test of expected cell frequencies greater than 5. This is, there were significantly more Australian participants, as expected.

The mean age of participants was approximately 10 years, with no significant differences in age observed between the intervention groups ($p = .64$). The gender

composition was predominantly female, with no differences between group (p = .34, exact). Approximately three-quarters of participants identified their ethnicity as Australian. The ethnicity composition did not differ between the three intervention groups (p = .55, exact).

Description of Measures

Several child self-report measures was used to assess the children's eating practices and associated risk factors. Measures were administered at baseline, post-treatment, and at 3 months follow-up. The newly developed MEPQ-25 was used to assess maladaptive eating practices. Measures of anxiety, depression, and strengths and difficulties were administered to assess risk factors. Lower scores on each measure were indicative of lower negative symptoms. For a more detailed description of each measure refer to the Measures section above.

Descriptive statistics for the various measures by time and intervention group are provided in Tables 13-16.

Table 13

Descriptive Statistics of MEPQ Scores by Time and Intervention Group

		MEPQ Scores				
Time	Intervention Group	*M*	*SD*	*Mdn*	Min	Max
Pre-test	Active Waitlist	64.03	(12.21)	64	33	90
	FRIENDS Alone	77.13	(10.89)	81	50	98
	FRIENDS with Parents	77.83	(14.16)	79	49	98
	Overall	73.00	(13.90)	76	33	98
Post-test	Active Waitlist	66.23	(10.11)	66	43	84
	FRIENDS Alone	56.60	(9.68)	57	36	82
	FRIENDS with Parents	60.00	(9.63)	61	35	80
	Overall	60.94	(10.50)	62	35	84
3-Mth Follow-up	Active Waitlist	67.07	(11.31)	69	39	87
	FRIENDS Alone	69.47	(12.60)	72	36	91
	FRIENDS with Parents	58.63	(14.00)	59	34	89
	Overall	65.06	(13.38)	66	34	91
Overall	Active Waitlist	65.78	(10.97)	65.33	38.33	87.00
	FRIENDS Alone	67.73	(9.59)	69.83	46.00	86.67
	FRIENDS with Parents	65.49	(9.17)	66.50	43.33	78.67
	Overall	66.33	(9.88)	68.00	38.33	87.00

Note. n = 30 in each intervention group. MEPQ = Maladaptive Eating Practices Questionnaire.

Table 14

Descriptive Statistics of Anxiety Scores by Time and Intervention Group

		Anxiety Scores				
Time	Intervention Group	*M*	*SD*	*Mdn*	Min	Max
Pre-test	Active Waitlist	4.93	(2.73)	6	0	10
	FRIENDS Alone	6.10	(2.88)	6	1	10
	FRIENDS with Parents	5.47	(2.52)	6	1	10
	Overall	5.50	(2.72)	6	0	10
Post-test	Active Waitlist	5.37	(2.97)	5	0	10
	FRIENDS Alone	3.53	(1.76)	4	0	6
	FRIENDS with Parents	2.93	(1.66)	3	1	7
	Overall	3.94	(2.42)	4	0	10
3-Mth Follow-up	Active Waitlist	5.10	(2.58)	6	0	9
	FRIENDS Alone	4.53	(2.56)	5	0	10
	FRIENDS with Parents	3.03	(1.50)	3	0	7
	Overall	4.22	(2.41)	4	0	10
Overall	Active Waitlist	5.13	(2.66)	5.50	.00	9.00
	FRIENDS Alone	4.72	(2.09)	4.83	1.00	7.33
	FRIENDS with Parents	3.81	(1.40)	3.83	1.33	6.67
	Overall	4.56	(2.16)	4.33	.00	9.00

Note. $n = 30$ in each intervention group.

Table 15

Descriptive Statistics of Depression Scores by Time and Intervention Group

		Depression Scores				
Time	Intervention Group	*M*	*SD*	*Mdn*	Min	Max
Pre-test	Active Waitlist	19.93	(5.87)	21	8	29
	FRIENDS Alone	22.07	(5.18)	23	10	30
	FRIENDS with Parents	21.10	(5.94)	21	6	34
	Overall	21.03	(5.68)	22	6	34
Post-test	Active Waitlist	21.17	(5.29)	23	9	28
	FRIENDS Alone	14.23	(3.28)	15	8	20
	FRIENDS with Parents	15.40	(4.49)	17	7	23
	Overall	16.93	(5.34)	17	7	28
3-Mth Follow-up	Active Waitlist	21.07	(5.59)	22	10	29
	FRIENDS Alone	19.93	(6.53)	22	5	28
	FRIENDS with Parents	13.57	(5.74)	12	5	29
	Overall	18.19	(6.77)	19	5	29
Overall	Active Waitlist	20.72	(5.26)	22.33	9.67	28.33
	FRIENDS Alone	18.74	(3.77)	19.83	9.33	23.67
	FRIENDS with Parents	16.69	(4.04)	16.67	11.67	26.00
	Overall	18.72	(4.66)	19.33	9.33	28.33

Note. $n = 30$ in each intervention group.

Table 16

Descriptive Statistics of SDQ Scores by Time and Intervention Group

		SDQ Scores				
Time	Intervention Group	*M*	*SD*	*Mdn*	Min	Max
Pre-test	Active Waitlist	14.73	(3.72)	15	7	23
	FRIENDS Alone	17.53	(4.59)	17	10	26
	FRIENDS with Parents	16.17	(5.58)	17	3	28
	Overall	16.14	(4.78)	16	3	28
Post-test	Active Waitlist	14.93	(3.47)	15	9	25
	FRIENDS Alone	12.00	(3.16)	12	6	19
	FRIENDS with Parents	10.37	(4.24)	9	4	19
	Overall	12.43	(4.08)	12	4	25
3-Mth Follow-up	Active Waitlist	16.03	(3.73)	15	9	24
	FRIENDS Alone	14.43	(4.85)	15	5	27
	FRIENDS with Parents	10.90	(5.62)	10	3	25
	Overall	13.79	(5.21)	14	3	27
Overall	Active Waitlist	15.23	(3.39)	15.00	9.33	22.33
	FRIENDS Alone	14.66	(3.52)	14.50	8.67	24.00
	FRIENDS with Parents	12.48	(4.11)	11.33	6.67	23.33
	Overall	14.12	(3.83)	14.00	6.67	24.00

Note. n = 30 in each intervention group. SDQ = Strengths and difficulties Questionnaire.

A general pattern can be observed whereby overall scores decreased between pre-test and post-test, and then increased slightly at the three-month follow-up assessment. To supplement the numerical data, fitted normal distributions of scores are provided in Figures 4 to 7 to provide visualization of location and spread by time and group.

The MEPQ-25 showed relatively similar distribution shapes by group at each time point (Figure 4). At pre-test, the mean of the active waitlist appeared lower than the two intervention groups, but slightly higher than the intervention groups at post-test. There was considerable overlap of the active waitlist and FRIENDS alone groups at the three-month follow-up assessment, whereas the FRIENDS with parents group had a lower mean (and a somewhat wider spread of scores).

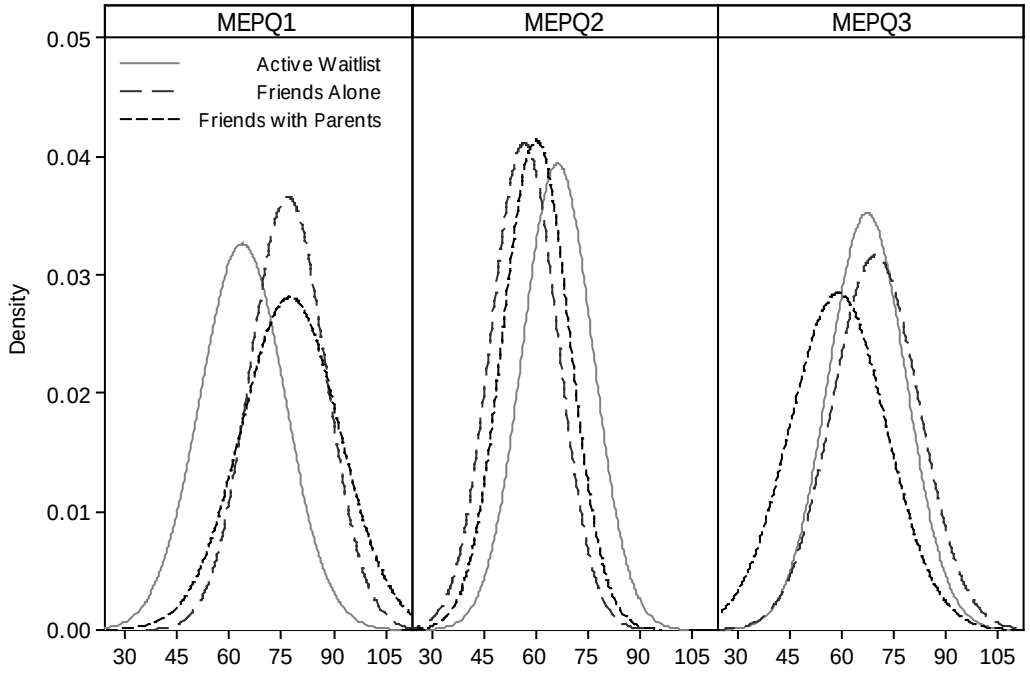

Figure 4. Fitted normal distributions of MEPQ scores by time and group. MEPQ1 = pre-test, MEPQ2 = post-test, MEPQ3 = 3-mth follow up.

The distribution of anxiety scores of all three groups was very similar at pre-test (Figure 5). At post-test, the FRIENDS alone and FRIENDS with parents groups showed lower means and smaller variances compared with the active waitlist. At the three-month follow-up, the active waitlist and FRIENDS alone groups showed similar patterns, whereas the FRIENDS with parents group had a more peaked distribution with a lower mean.

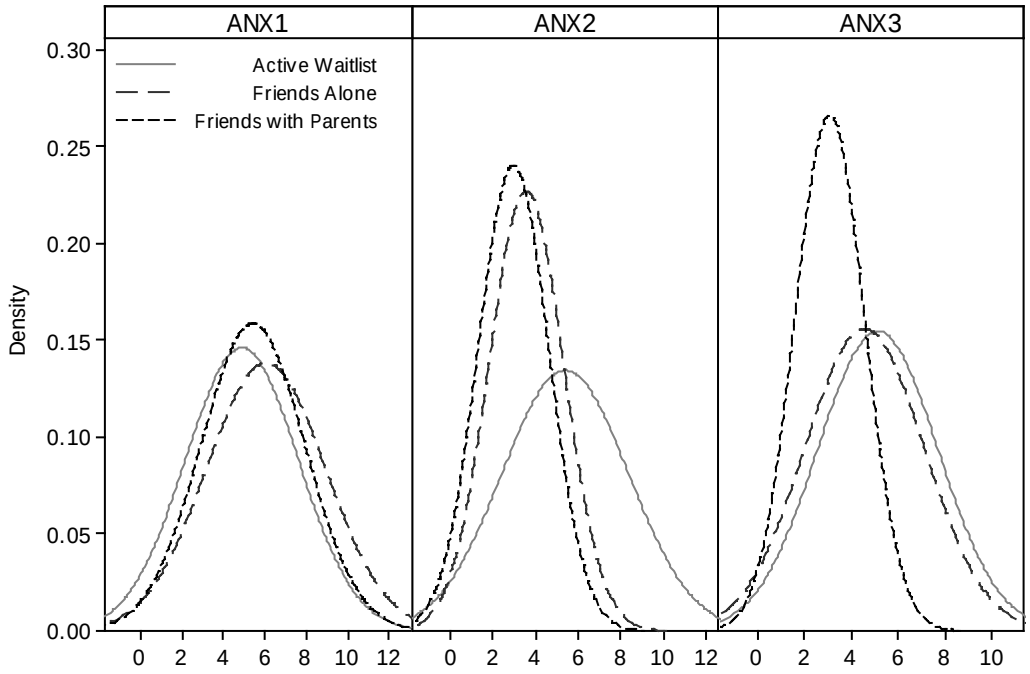

Figure 5. Fitted normal distributions of anxiety scores by time and group. ANXI = pre-test, ANX2 = post-test, ANX3 = 3-mth follow up.

Depression scores were similar for all three groups at pre-test (Figure 6). Peaked distributions with lower means and lower variances were seen for the FRIENDS alone group, and to a lesser extent for the FRIENDS with parents group, as compared with the active waitlist. At the three-month follow-up, the variances of the scores were similar across groups yet the mean of the FRIENDS with parents group was shifted downward compared with the other groups.

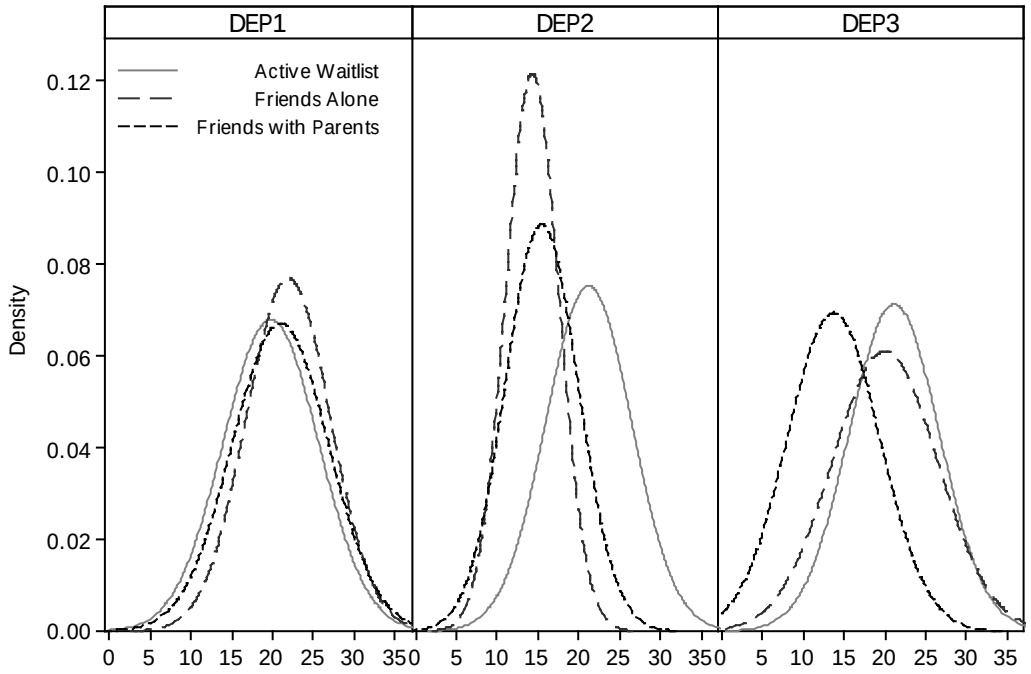

Figure 6. Fitted normal distributions of depression scores by time and group. DEP1 = pre-test, DEP2 = post-test, DEP3 = 3-mth follow up.

SDQ scores were relatively similar at pre-test, although the active waitlist had a slightly lower mean and variance compared with the other two groups (Figure 7). At post-test and three-month follow-up, the FRIENDS with parents group had lower means and higher variances than the other two groups. Furthermore, the mean of the FRIENDS alone group appeared lower than the active waitlist at both follow-up time points.

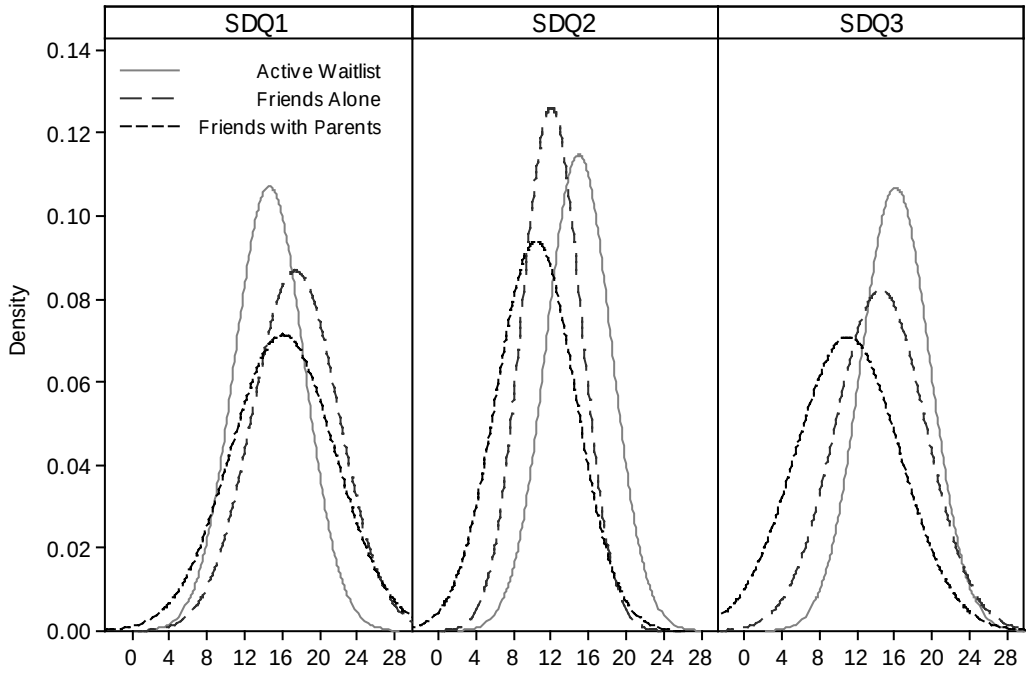

Figure 7. Fitted normal distributions of SDQ scores by time and group. SDQ1 = pre-test, SDQ2 = post-test, SDQ3 = 3-mth follow up.

Although inspection of numerical and graphical data provides useful descriptive information regarding the pattern of scores observed by time and group, formal statistical analysis is required to determine whether differences are reliable, and to address the specific hypotheses of this study. Accordingly, analysis of time, group, and time by group differences was conducted by use of repeated measures multivariate analysis of variance (MANOVA) as described in the following section.

Multivariate Analysis of Variance for Repeated Measures

The approach used to analyse these data was profile analysis, or the multivariate approach to repeated measures, as detailed in Tabachnick and Fidell (2013). This method offers an alternative to the univariate repeated-measures ANOVA, and is widely used for multivariate designs whereby several dependent variables (DVs), not all measured on the same scale, are measured repeatedly (Tabachnick & Fidell, 2013). Thus, it offers a sound

approach to analyse the data in the current study design. Profile analysis precludes the assumption of sphericity necessary in the univariate approach, for which violations are common (Tabachnick & Fidell, 2013). The multivariate approach requires more cases than the univariate repeated-measures ANOVA (more cases than DVs in the smallest group), and has a number of statistical assumptions (detailed below). However, these assumptions are less likely to be violated than the sphericity assumption.

Evaluation of Assumptions. The use of profile analysis carries the assumptions of multivariate normality, the absence of outliers, homogeneity of variance-covariance matrices, linearity, and the absence of multicollinearity and singularity. These assumptions are addressed in turn.

Profile analysis is robust to violations of normality. Unless there are fewer cases than DVs in the smallest group or highly unequal *n* between groups, deviation from normality of the sampling distributions is not expected (Tabachnick & Fidell, 2013). Given the equal group sizes in this study ($n = 30$ per group), and the sufficiently large sample to ensure more cases per group than DVs (3 time points x 4 measures = 12 DVs), violation of the assumption of multivariate normality was not expected.

MANOVA is highly sensitive to univariate and multivariate outliers. Data were screening for univariate outliers by computing standardized (Z) scores for each DV within each group and comparing them to the criterion of ± 3.29 ($p < .001$) for a two-tailed test (Tabachnick & Fidell, 2013). No cases exceeded this criterion. Computing Mahalanobis distances assessed multivariate outliers. Outliers were identified as cases with too large a Mahalanobis D^2 for their own group, evaluated as χ^2 with degrees of freedom equal to the number of predictors (Tabachnick & Fidell, 2013). Criterion χ^2 with 12 *df* at $p < .001$ is 32.91. By this criterion, no cases were determined to be a multivariate outlier. The largest D^2 in any group was 20.29.

If sample sizes are equal (as is the case here), evaluation of homogeneity of variance-covariance matrices is not necessary (Tabachnick & Fidell, 2013). Univariate homogeneity of variance is also assumed, but ANOVA is robust to all but the grossest violations. With relatively equal sample sizes, it is recommended that the ratio between the largest and smallest variances across groups is no greater than 10:1. None of the between-group variance ratios came close to exceeding this limit (the standard deviations for each variable by group are presented in Tables 2 to 5).

Linearity of the relationships among the DVs is assumed for the within-subjects tests (i.e., parallelism and flatness tests) of the profile analysis (Tabachnick & Fidell, 2013). Linearity was evaluated by examining scatterplots between all pairs of DVs to ensure no gross violations. It was observed that the linear regression lines and smoother curves generally overlapped, without excessive non-linear curvature between any pair of variables.

Highly correlated DVs provide logical difficulties in non-repeated measures MANOVA. Thus, only statistical multicollinearity (tolerance < .001 for the measures combined over groups) poses difficulties (Tabachnick & Fidell, 2013). The lowest tolerance value obtained for the 12 DVs combined over groups was 0.11.

Multivariate Analysis Results. A multivariate repeated-measures analysis of variance was conducted to assess the impact of three different interventions (active waitlist, FRIENDS alone, FRIENDS with parents) on participants' study scores across three time periods (pre-test, post-test, and 3-mth follow-up). Four dependent variables were administered at each time point: the MEPQ, a test of anxiety, a test of depression, and the SDQ. Prior to conducting the analysis, the dependent variable scores were standardized by creating Z-scores (over all times and groups). This procedure was conducted since all the measures were scored on different scales and transformation to a common metric facilitates interpretation (Tabachnick & Fidell, 2013). Furthermore, this makes the custom contrast

estimates in mean standard deviation units, which are inherently more understandable. The multivariate effects of the analysis are reported in Table 17.

There was a strong time by group interaction (deviation from parallelism), multivariate $F(16, 160) = 10.66$, $p < .001$. Thus, there was a multivariate interaction effect present, whereby changes in scores over time differed for the different intervention groups. There was also a significant main effect of group (i.e., levels) ($p = .002$), meaning that the multivariate scores of the three groups differed when averaged over time. The main effect of time (i.e., flatness) ($p < .001$) indicated that the scores at each time point differed (averaged across groups). However, these main effects are of less relevance in light of the significant interaction effect.

Table 17

Multivariate Tests of Group, Time and their Interaction

Effect	Wilks' λ	*F*	*df1*	*df2*	*p*	partial η^2
Group	.75	3.20	8	168	.01	.13
Time	.26	28.27	8	80	<.01	.74
Time * Group	.23	10.66	16	160	<.01	.52

Figure 8 provides the mean scores (Z-scores) for each test, at each time point and for each intervention group. Examination of this figure identifies where the interaction effects occurred. It can be observed that the test scores for the active waitlist group remained relatively unchanged over time. The scores of the FRIENDS alone group showed a 'V' pattern on the four measures; scores decreased between pre-test and post-test, and then showed a subsequent increase at the 3-mth follow-up (although not up to baseline levels). Finally, the FRIENDS with parents group appeared to show a relatively consistent 'L' pattern

on the four measures. Scores decreased from baseline to post-test, and remained at similar to post-test levels upon the three-month follow up assessment.

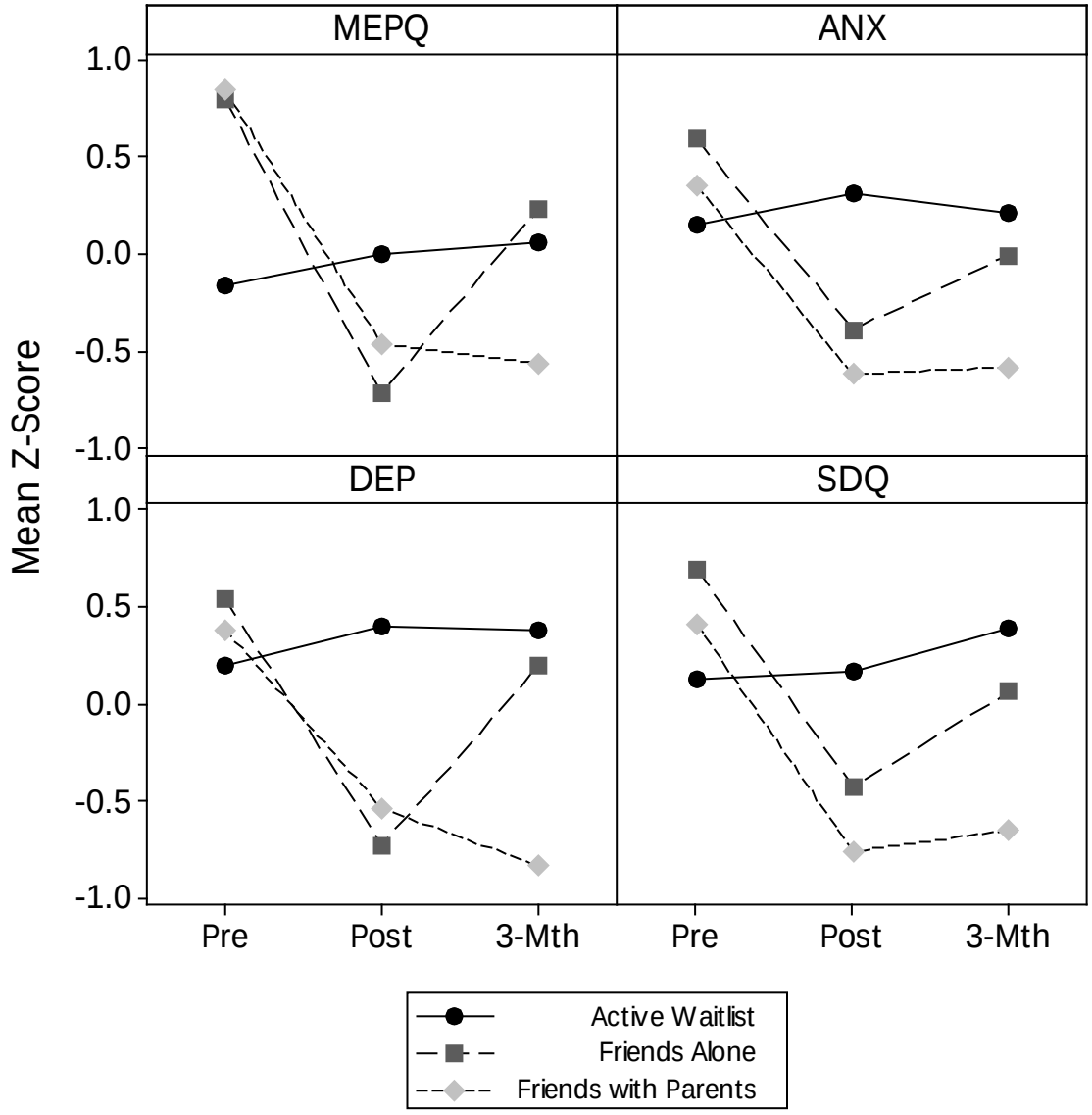

Figure 8. Mean Z-Scores by test, time, and intervention group.

Custom Hypothesis Tests

The results of the multivariate analysis indicate significant interaction between groups in terms of differences in scores over time, and the graphical examination of means

suggested wherein such differences occurred. However, single degree-of-freedom custom contrasts were necessary to provide specific information about the differences between score segments by group, in order to address the specific hypotheses of this study (Tabachnick & Fidell, 2013). Table 18 list the custom hypotheses 1, 2, 2a, 3, 4 & 4a which are number for ease of review and are accompanied by their corresponding custom contrast specifications and the obtained results.

Table 18

Custom Hypothesis Tests – Study 2

	Hypothesis
1.	When compared with the active waitlist control group, maladaptive eating practices, and associated risk factors (anxiety, depression, and behavioural difficulties), would decrease in participants who received the prevention program.
2 & 2a	When compared with the active waitlist control group expected gains, experienced post-intervention, would be maintained at the three-month follow-up for participants who received the intervention.
3.	When compared with groups where no parental carers are present, direct parental involvement in the group interventions would result in a reduction in maladaptive eating practices and reduce associated risk factors (stress, anxiety, depression, and behavioural difficulties).
4 & 4a	When compared with groups where no parental carers were present expected gains experienced post-intervention would be maintained at the three-month follow-up for children whose parents were actively involved their program.

Custom Hypotheses 1. When compared with the active waitlist control group, maladaptive eating practices, and anxiety, depression, and behavioural difficulties, would decrease in participants who received the prevention program.

In order to examine this hypothesis, the differences between pre-test and post-test multivariate scores were compared between the active waitlist and both intervention groups (FRIENDS alone and FRIENDS with parents). The results indicated a significant contrast estimate of -5.20 ($p < .01$). Thus, this hypothesis was confirmed. When compared with the active waitlist, the participants whom received the intervention showed a significantly greater decrease in scores between pre-test and post-test.

Custom Hypotheses 2 & 2a. When compared with the active waitlist control group expected gains, experienced post-intervention, would be maintained at the three-month follow-up for participants who received the intervention.

Two contrasts were specified to examine this hypothesis. First, the active waitlist was compared with the intervention groups on the differences between their pre-test and three-month follow-up scores. The results indicated a significant contrast of -4.12 ($p < .01$). Thus, the intervention groups showed significantly greater decrease in scores between pre-test and the three-month follow-up than did the active waitlist group. The second comparison involved examining the differences between post-test and the three-month follow up in the same groups. This contrast estimate of 1.08 was not statistically significant ($p = .02$). Thus, when comparing differences between post-test scores and three-month follow up scores, the waitlist and intervention groups did not differ. However, this contrast does not contradict the hypothesis, since it is comparing the *difference* between the two time points. The results of the contrast indicate that the differences between post-test scores and 3-mth follow-up scores were relatively consistent for both groups.

Custom Hypothesis 3. When compared with groups where no parental carers are present, direct parental involvement in the group interventions would result in a reduction in maladaptive eating practices and reduce associated risk factors (stress, anxiety, depression, and behavioural difficulties).

In order to examine this hypothesis, difference scores between pre-test and post-test were compared between the FRIENDS alone and FRIENDS with parents groups. The contrast estimate of 0.50 was not statistically significant ($p = .42$). Therefore, this hypothesis was not supported. Both groups showed statistically similar reductions in scores between pre-test and post-test.

Custom Hypotheses 4 & 4a. When compared with groups where no parental carers were present expected gains experienced post-intervention would be maintained at the three-month follow-up for children whose parents were actively involved their program.

Firstly, the two intervention groups were compared on the differences between pre-test and three-month follow up scores. A significant contrast estimate was obtained (contrast = -2.49, $p = .01$). The FRIENDS with parents group showed significantly greater decrease in scores between pre-test and three-month follow-up than did the FRIENDS alone group.

Secondly, the differences between post-test and three-month follow-up were compared between the two intervention groups. A statistically significant estimate of -3.0 was obtained ($p < .01$). The FRIENDS alone group showed an increase (deterioration) in scores between post-test and follow-up, whereas the scores at follow-up for the FRIENDS with parents group remained at post-test levels. In sum, these hypotheses were confirmed. When compared with the group with no parental carers present, expected gains obtained post-intervention were maintained for the group with parents actively involved in the program.

The multivariate results of the custom hypotheses tests are provided in Table 19. Evaluations of the individual measures were run separate to the main analysis are reported in

Tables 20 and 21. In order to protect against excessive Type I error, adjustments to the alpha levels were made to keep the family wise error rate at .05 according to the number of comparisons (Tabachnick & Fidell, 2013).

Table 19

Multivariate Results of Custom Hypothesis Tests

Hyp	Group Comparison	Time Comparison	Contrast Estimate	*SE*	95% CI for the difference	*F*	*df*	*p*	partial η^2
1	Waitlist v. Both Intervention Groups	Pre-test - Post-test	-5.20	.54	(-6.28, -4.13)	92.67	1, 87	< **.01**	.52
2	Waitlist v. Both Intervention Groups	Pre-test – 3-mth follow- up	-4.12	.70	(-5.51, -2.72)	34.50	1, 87	< **.01**	.28
2a	Waitlist v. Both Intervention Groups	Post-test – 3 mth follow-up	1.08	.02	(.19, 1.98)	5.78	1, 87	.02	.06
3	FRIENDS Alone v. FRIENDS with Parents	Pre-test - Post-test	0.50	.62	(-.74, 1.74)	0.65	1, 87	.42	.01
4	FRIENDS Alone v. FRIENDS with Parents	Pre-test – 3-mth follow- up	-2.49	.81	(-4.10, -.88)	9.48	1, 87	**.00**	.10
4a	FRIENDS Alone v. FRIENDS with Parents	Post-test – 3-mth follow-up	-3.00	.52	(-4.03, -1.96)	33.26	1, 87	< **.01**	.28

Note. α = .008. Hyp = Hypothesis. *SE* = Standard error. CI = Confidence interval.

Custom hypotheses tests – analysis of individual measures. Although the hypotheses of this study pertained to the multivariate changes in scores, it was of interest to the researcher to examine whether results were consistent across measures. Thus the custom hypothesis tests reported above were repeated on each measure individually. To account for the number of comparisons, the alpha level was reduced to .002 (.05/24).

Table 20 summarises the comparisons between the active waitlist and both intervention groups. Differences between pre-test-post-test, pre-test-three-month follow-up, and post-test-three-month follow up were each examined. The results obtained multivariately were consistent across all the individual measures. When compared with the active waitlist group, the intervention groups showed significantly greater decreases between pre-test and post-test, and between pre-test and the three-month follow-up assessment for all individual measures. Similarly, none of the difference scores between post-test and three-month follow-up differed between the active waitlist and intervention groups.

Table 20

Custom Hypothesis Tests – Active Waitlist v. Both Intervention Groups, Individual Measures

Time Comparison	Measure	Contrast Estimate	*SE*	95% CI for the Difference	*F*	*df*	*P*	Partial η^2
Pre-test-Post-test	MEPQ	-1.57	.15	(-1.87, -1.28)	111.02	1, 87	< **.01**	.56
	ANX	-1.15	.18	(-1.50, -.79)	41.83	1, 87	< **.01**	.32
	DEP	-1.29	.18	(-1.65, -.94)	52.73	1, 87	< **.01**	.38
	SDQ	-1.19	.21	(-1.60, -.77)	32.67	1, 87	< **.01**	.27
Pre-test – 3mth	MEPQ	-1.21	.22	(-1.66, -.77)	29.26	1, 87	< **.01**	.25
	ANX	-.83	.19	(-1.22, -.45)	18.44	1, 87	<**.01**	.17
	DEP	-.96	.23	(-1.43, -.50)	17.28	1, 87	< **.01**	.17
	SDQ	-1.11	.20	(-1.52, -.70)	29.54	1, 87	< **.01**	.25
Post-test – 3 mth	MEPQ	.36	.15	(.06, .66)	5.82	1, 87	.02	.06
	ANX	.31	.03	(.03, .59)	4.99	1, 87	.03	.05
	DEP	.33	.17	(-.01, .67)	3.72	1, 87	.06	.04
	SDQ	.08	.15	(-.23, .38)	.26	1, 87	.61	.01

Note. α = .002. *SE* = Standard error. CI = Confidence interval.

The comparisons between the FRIENDS alone and FRIENDS with parents groups are reported in Table 21. As noted in the multivariate result, there were no differences between groups in their decreases between pre-test and post-test. Comparison of pre-test to three-month follow-up scores indicated significantly greater decreases on the MEPQ and the depression measure, for the FRIENDS with parents group compared with the FRIENDS alone group. The differences for anxiety and SDQ scores were not statistically significant. As

seen in Figure 10, the MEPQ and depression scores for the FRIENDS alone group increased (deteriorated) quite substantially at three-month follow-up, almost to baseline measures. The deterioration in anxiety and SDQ scores was less marked. Finally, post-test to three-month follow-up comparisons also indicated significant differences for the MEPQ and depression scores only. Table 21 displays the large increases from post-test to follow-up in these scores for the FRIENDS alone group, whereas the FRIENDS with parents groups actually showed small decreases *(*further improvement) between post-test and three-month follow up. The post-test to three-month follow-up segments were relatively parallel on the anxiety and SDQ measures (although, again some deterioration in scores for the FRIENDS alone group was observed that was not apparent in the FRIENDS with parents group). See Appendix D for SPSS output relevant to Study 2.

Table 21

Custom Hypothesis Tests; FRIENDS Alone v. FRIENDS with Parents – Individual Measures

Time Comparison	Measure	Contrast Estimate	SE	95% Confidence Interval for the Difference	F	df	p	Partial η^2
Pre-test-Post-test	MEPQ	.20	.17	(-.14, .54)	1.33	1, 87	.25	.01
	ANX	.01	.20	(-.39, .42)	.01	1, 87	.95	.00
	DEP	.34	.21	(-.06, .75)	2.81	1, 87	.10	.03
	SDQ	-.05	.24	(-.53, .42)	.05	1, 87	.82	.00
Pre-test – 3mth	MEPQ	-8.48	.26	(-1.36, -.33)	10.76	1, 87	**.00**	.11
	ANX	-.33	.22	(-.78, .11)	2.21	1, 87	.14	.02
	DEP	-.87	.27	(-.14, -.34)	10.62	1, 87	**.00**	.11
	SDQ	-.44	.24	(-.91, .03)	3.46	1, 87	.07	.04
Post-test – 3 mth	MEPQ	-1.05	.17	(-1.39, -.70)	36.60	1, 87	< **.01**	.30
	ANX	-.35	.16	(-.67, -.02)	4.54	1, 87	.04	.05
	DEP	-1.22	.20	(-1.61, -.83)	38.31	1, 87	< **.01**	.31
	SDQ	-.38	.18	(-.74, -.03)	4.71	1, 87	.03	.05

Note. α = .002. *SE* = Standard error. CI = Confidence interval.

Discussion

The purpose of this study was to see how well the FRIENDS for Life program operated for children at risk of an eating disorder. The researcher found that children who received the modified CBT FRIENDS for Life program experienced reductions in

maladaptive eating practices and associated risk factors, as measured by child self- report measures. Three intervention groups took part in the study; an active waitlist group, a FRIENDS alone group, and a FRIENDS with Parents group. Outcomes were assessed at baseline, following completion of the program, and at a 3-mth follow-up.

The first set of hypotheses of the study was achieved. These results suggest that the modified CBT FRIENDS for Life intervention supported these children directly by reducing maladaptive eating behaviours, increasing strength and coping, through the reduction of behavioural difficulties and increased psychological well-being, over time, when compared with the active waitlist control group.

These outcomes are consistent with preliminary studies. These have shown some promise in the treatment of sub-threshold children and adolescents with disordered eating when using CBT prevention programs (Lim et al., 2009; Schmidt et al., 2007; Stice et al., 2009). These prevention interventions are also useful in the treatment of maladaptive eating, in particular over eating, when run concurrently with supplementary dietary advice (Lim et al., 2009).

Findings also mirror previous successes in using CBT group prevention programs with children diagnosed with an eating disorder, in particular anorexia nervosa (Bulik, Berkman, Brownley, Sedway, & Lohr, 2007; NEDC, 2010b) and bulimia nervosa (Agras et al., 2000; Chui et al., 2007; Fairburn et al., 2009; Fairburn & Cooper, 2011). Although CBT treatment and preventative interventions have been validated on individuals with acute eating disorders limited research is available on those who display early warning signs (Alexander & Treasure, 2012; Le Grange & Lock, 2011). These findings help rectify this shortfall.

Study 2 also examined whether there was a greater benefit for children, when their parental carers were actively involved in the intervention, compared with children where no parental carer was present. This focused on the FRIENDS with Parents group (e.g. parent

present in the group), when compared with children's groups where no parental carers were present, the FRIENDS alone group. Current eating disorders treatment research suggests there are improved outcomes for children with eating disorders when their family are included in the treatment process (Rhodes et al., 2008; Wallis et al., 2007; Wallis et al., 2012; Turby et al., 2010). Outcomes were assessed at baseline, following completion of the program, and at three-month follow-up.

Comparison of the FRIENDS alone and FRIENDS with Parents group showed statistically similar reductions in symptoms between pre-test and post-test. Therefore, the hypothesis was not supported. These results suggest that there was no additional benefit for children whose parents attended their intervention, when compared with those who participated in an intervention alone. While it is good to find improvement, it is difficult to interpret its meaning when no group differences are found (Baranowski & Hetherington, 2001; Stice et al., 2003).

Keel (2005) has documented the challenge prevention programs come from finding similar improvements in treatment and control groups. For example, improvements could reflect nonspecific benefits of increased attention, group membership, encouragement of healthy eating, or that individuals with problems sometimes improve naturally over time. Improvements may also reflect a phenomenon known as regression to the mean, in which participants with more extreme scores on a measure of disordered eating would be expected to score closer to the mean when retested (Keel).

However, significant differences between the two intervention groups became apparent at three-month follow-up, confirming the hypothesised expected gains would be maintained at the three-month follow-up for children whose parents were actively involved in their program was confirmed. Specifically, the FRIENDS alone group showed deterioration of scores between post-test and follow-up, whereas the FRIENDS with Parents group

maintained their post-test improvements at follow-up. The differences between intervention groups were particularly apparent for the MEPQ-25 and depression measures. Therefore the second set of hypotheses was partially confirmed, with the long term benefits evident.

The significant findings at long-term follow-up are consistent with previous studies utilising the FRIENDS programs (Barrett, 2004, 2010) that include both child and parents in the treatment process (Rapee & Jacobs, 2002; Rapee, Kennedy, Ingram, Edwards, & Sweeney, 2005), indicating a possible delayed prevention effect. In the current study outcomes were not assessed at the six-month time point, thus it is unknown whether significant differences would have been maintained between conditions over a longer period of time. Nevertheless, the positive improvements in eating and behavioural difficulties, mood and anxiety at the three-month mark indicate a possible preventative impact of the modified CBT FRIENDS for Life (Barrett, 2010) intervention when parents take an active role in their child's intervention. A number of strengths as well as limitations to this study allow for future research directions for clinical research work, which will be discussed in detail in Chapter ten.

Chapter 9: Study 3: CBT Prevention Program for Parental Carers

Research Purpose

Study 3 had as its focus the *parental carers* of children displaying early warning signs of maladaptive eating. This study built upon the previous two studies that looked at the early case identification (assessment) of childhood maladaptive eating (see chapters seven) and the early intervention via the application of a CBT prevention program for children *at risk* of an eating disorder (see chapter eight). The literature reviewed in Chapters four and five identified that parental carer distress and lack of strategies to effectively manage their child's eating behaviour may contribute to the maintenance of maladaptive eating (AED, 2011). Given that parents play an essential role in their child's return to healthy eating behaviours, there is a need to more formally investigate interventions that may reduce parental carer burden, and protect the mental health of parents. The extent to which CBT based interventions may help to protect the mental health of parental carers and assist them to enact change are examined in this current study. For the purposes of this study the term *parental carers* was be used to represent all combinations of carers involved with a child's eating behaviour. This includes parents and guardians as well as other carers.

The purpose of this study was to investigate the efficacy of the CBT prevention program using the adult CBT FRIENDS for Life program (Barrett, 2011), when utilised by parental carers of children with maladaptive eating behaviours. As in previous studies the primary outcome measures of risk and protective factors identified in eating disorder literature will be used to evaluate short and long-term effects of this CBT group intervention. This will demonstrate parental improvements and improvements in outcomes for their children.

Research Rationale

Research suggests that *parental carers* of children with maladaptive eating behaviours tend to lack strategies to effectively manage this behaviour in their children. This poor management may contribute to the development and maintenance of their child's maladaptive eating and place them at risk of developing an eating disorder (AED, 2011; Haigh & Treasure, 2003). Most parental carers tend to perceive themselves as helpless in promoting recovery and are perplexed about the cause of the contributing factors of their child's maladaptive eating (Alexander & Treasure, 2012; Treasure et al., 2001). As a result many parental carers often report difficulties maintaining their own equilibrium and mental health (Nishizono-Maher et al., 2010; Wearden et al., 2000; Whitney et al., 2005), whereas parents who develop effective coping strategies to manage their child's maladaptive eating behaviours experience less distress (AED, 2011).

Parents often report having a limited understanding of the skills required to help their child develop healthy attitudes and behaviours towards eating (Russell & Ryder, 2001), as well as difficulty when implementing and reinforcing new skills taught to their children during treatment (Alexander & Treasure, 2012). This is in part because prevention programs, which target disordered eating practices, have traditionally left parents out of the treatment process (Alexander & Treasure, 2012; Treasure et al., 2002). Therefore, an increase in resilience and coping strategies for parents is a necessary first step to addressing the treatment of their child's maladaptive eating (Whitney et al., 2005).

The current study aimed to rectify these deficits by providing effective prevention intervention strategies that will improve the effectiveness of parental carers as moderators of treatment outcomes (Alexander & Treasure, 2012) and to also ease the stress on these carers by increasing their resilience and assisting with coping strategies (AED, 2011). CBT based prevention programs will be utilised to meet these deliverables as considerable evidence

points to the effectiveness of CBT based prevention programs in reducing carer burden for carers of individuals with anorexia nervosa (Coomber & King, 2012; Hoyle, Slater, Williams, Schmidt, & Wade, 2013) and bulimia nervosa (Zitarosa, de Zwaan, Pfeffer, & Grapp, 2012).

Research Aims

The aim of study 3 was to investigate the efficacy of a CBT prevention program for *parental carers* of children with maladaptive eating behaviours. This objective was to be achieved using the adult CBT FRIENDS for Life program. Primary outcome measures of risk and protective factors identified in eating disorder literature were used to evaluate if there was a greater benefit for parental carers who participated in a CBT group intervention, when compared with parents who did not (wait-list control group).

It was hypothesized that, when compared with the waitlist control group the parental carer participants enrolled in a CBT group intervention would experience decreases in stress, anxiety and depression, and increases in the protective factors including coping and resiliency. It was also hypothesized that when compared with the active waitlist control group expected gains, experienced post-intervention, would be maintained at the six-month follow-up for the parental carer participants enrolled in a CBT group intervention.

A secondary focus of study 3 was to examine if there was a greater benefit for children of parental carers who participated in a CBT group intervention, when compared with parental carers that did not (wait-list control group). A parent-rated report measure of mealtime eating behaviours was used to evaluate short and long-term changes in their children's eating outcomes. It was hypothesized that when compared with the wait-list control group, expected gains experienced post-intervention would be maintained at the six-month follow-up for children whose parental carer participated in a CBT group intervention.

Research Design

Table 22 outlines the design of the current research. For the adult CBT FRIENDS for Life program there was a treatment group (parental participation in the adult CBT FRIENDS for Life program), and a wait-list control group (no participation in any intervention). The treatment group and a wait-list control group's participant numbers was the same. Each condition was given exactly the same measures, completing measurements at the same time at pre-intervention, post-intervention, three-month and six-month follow-up time points.

Table 22

The Design of the Current Research Study 3

Design study 3	Treatment group (Adult CBT FRIENDS for Life program)	Wait-list Control Group (No Intervention)
Time 1	Pre Assessment	Pre Assessment
Time 2	Adult CBT FRIENDS for Life program	No intervention but assessment after 3 weeks have passed from pre assessment time
Time 3	Follow-up assessment at 3 months after intervention	Follow-up assessment at 3 months after intervention
Time 4	Follow-up assessment at 6 months after intervention	Follow-up assessment at 6 months after intervention

Before testing commenced, ethical approval was gained for each stage of study 3 with the Bond University Research Ethics Committee, BUHREC protocol number RO-1699

(including a small amendment) and via board approval from key stakeholders from participating eating disorder organisations, and affiliated community clinics. These included; Psychology Central, the Butterfly Institute and the Eating Disorder Foundation (Appendix C). The researcher presented the proposed research and submitted a written proposal outlining the research, target population, test protocols and materials pertinent to the research, prior to board approval being gained from each organisation. Permission was granted via written gateway permission from all three organisations. All participants were administered the CBT FRIENDS for Life program at the Bond University Counselling Clinic (see permission letter attached, Appendix C).

Method

Procedure

Six phases comprise the current quantitative research and include: pre-program recruitment, pre-intervention screening, pre-intervention measures, the intervention, post-intervention screening, and six month follow-up screening.

Phase 1: Pre-program recruitment. The researcher recruited all participants from the Butterfly Institute and the eating disorder Foundation from advertisements on each organisation's website while the senior psychologist at Psychology Central recruited all participants from this community clinic.

Altogether 96 inquiries were received in regards to this study, via phone (n=2) and email (n=84). Interested parents were emailed written information about the research purpose and process and an outline of the benefits of the adult CBT FRIENDS for Life program (Barrett, 2011), was given (Appendix C). A written Explanatory Statement and a participation consent form was added as an email attachment (Appendix C). The email stipulated the following inclusion criteria: a) participants must be over the age of 18 years, b) participants must be available for a pre-interview phone call and testing c) participants must

not have previously attended a FRIENDS program, d) participants must be available to attend three, three hour sessions, plus be available for additional testing at the three and six-month time point, and e) all participants must be able to commute to the Gold Coast to participant in the study. Lastly the email stipulated that the participant's child's age must fall between 2 years 0 months, to 12 years 11 months. Initially the inclusion criteria included children aged between 8 to 12 however the majority of enquiries fell between the ages 2 to 16, and as high 25 years. The CEBI (Archer et al., 1991) was used to provide a natural cut-off. Following this process 87 participants were selected for pre-intervention screening.

Phase 2: Pre-intervention screening. To ensure participant suitability for the current research project, in the first week of sessions the researcher conducted a pre-screening interview over the telephone at a pre-arranged time. At the pre-intervention screening phase the caller was asked to answer a series of interview questions regarding their experience and concerns about their child's eating behaviours and complete the Modified Mini Screen (MMS; Spotts, 2008) (see measures section). Test time was approximately 30 minutes. During this phase participants were excluded on the following bases: a) participants and/or their child were currently seeking treatment for a mental health disorder, and b) parents who reported that their child engaged in eating practices that were not maladaptive in nature (e.g. children considered to have poor table manners). This process resulted in 80 participants being selected for the current study. Each participant was randomly assigned into one of two conditions, the treatment group and the active wait-list control group.

Phase 3: Pre-intervention measures (first session). Participants from each condition completed the pre-intervention measures. Pre-intervention measures were handed out in the first session and collected by the researcher.

Phase 4: The intervention. The intervention phase for participants in the treatment condition commenced approximately one week following the pre-intervention screening

phase. For the treatment and control groups, the adult CBT FRIENDS for Life program was run on a weekly basis, in a clinic setting, with all program sessions presented in chronological order and facilitated by a registered psychologist. A program adherence checklist was completed for each session to ensure that the program was as consistent as possible across all three sessions (See Appendix C).

Phase 5: Post-intervention screening. Post-intervention measures for each condition was handed out in the final session of each intervention and collected by the researcher. Participants were reminded again that all responses on the questionnaires were confidential, that participants were free to withdraw at any time, and that the questionnaire responses would only be viewed by the researcher. The researcher also offered a 10 to 15 minute debriefing session after conducting all post-intervention screening. This provided a forum for participants to discuss their experience during the program and give feedback. Participants were invited to ask questions about the research and a detailed explanation of the research aims were provided to interested participants.

Phase 6: Six month follow-up screening. In order for the researcher to ascertain whether the gains from the program had been maintained at the six-month time point, participants in each condition were asked once again to complete the questionnaire package. The final questionnaire package was mailed to an address nominated by each participant. It was identical to the questionnaire package used in both the pre-intervention measures and the post intervention measures screenings. Each participant was provided with a stamped, self-address envelope, so that the questionnaire package could be returned to the researcher at Bond University Robina campus. The researcher liaised with the Bond University mail centre to ensure all returned packages were delivered straight to the researcher on campus. Once the study was completed the wait-list control group was offered the opportunity to attend the adult CBT FRIENDS for Life program.

Table 23 displays the three session's content and important learning objectives for the treatment and comparison groups.

Table 23

The adult CBT FRIENDS for Life components delivered per session for each condition (Barrett, 2011).

Session Number	Session Content and Important Learning Objectives
1	**Treatment Group**: Introduction to the Group **Learn to be Mindful:** developing awareness, of body language and signals, self-regulation. **Feeling Relaxed:** Attention and relaxation training. **Inner Helpful Thoughts:** the Thought-Feeling-Behaviour Pathway, using thoughts to change feelings. **Wait-list Group:** No intervention.
2	**Treatment Group**: **Feeling Like a Resilient Person:** Being resilient, developing resilience and use of safety cues. **Role Models, Support Teams and Helping Others:** Identifying role models and creating support networks. **Improving Your Communication Skills:** dealing with conflict in a positive way, managing anger and handling conflict. **Wait-list Group:** No intervention.
3	**Treatment Group**: **Coping Step Plans:** 6-stage problem solving plan. **Exercise and Eat Healthy:** becoming mindful about your health and healthy living practices. **Be Prepared for Challenges:** brainstorming ways to cope and facing challenging situations in your life. **Wait-list Group:** No intervention.

Measures - Parental Carer Pre-Screening

Measures administered to participants at the pre-intervention screening phase included the MMS (Spotts, 2008). The MMS (Spotts, 2008) is a 22-item scale designed to identify individuals in need of an assessment in the domains of Mood Disorders, Anxiety Disorders and Psychotic Disorders. The questions are based on gateway questions and threshold criteria derived from clinical diagnostic criteria and structured clinical interviews (Spotts, 2008). The scale is divided into three sections and correspond to Mood Disorders, Anxiety Disorders and Psychotic Disorders, respectively, the scale is scored by adding the total number of yes responses from each section. A total score of yes responses greater than 10 denote that further diagnostic assessment is required, while a score yes responses less than 5 require no action by the administrator. In addition to this, a yes response and score of 1 on question 4 and a yes response and score of 2 on question 14 and 15 also calls for further assessment for the test taker. The MMS takes approximately 15 minutes to administer. The internal consistency of the 22 items of the MMS has been reported to be high (Cronbach's alpha = 0.9) and test-retest reliability has shown to be consistent at the $p<.001$ level, 0.71 (Spotts, 2008).

Measures - Parental Carer Outcomes Measures

Measures relevant to parental carer outcomes included the Depression, Anxiety and Stress Scale-Short Form (DASS-21; Lovibond & Lovibond, 1995) and the 14-item Resilience Scale (RS-14; Wagnild, 2009), which was administered at the three time points (pre and post intervention and at a six-month follow up).

The DASS-21 (Lovibond & Lovibond, 1995) is a 21-item questionnaire with three subscales assessing adult symptoms of Depression, Anxiety and Stress. Test participants' use a 4-point Likert scale to rate the extent to which they have experienced each state over the past week with scores for Depression, Anxiety and Stress calculated by summing the scores

for the relevant items and then doubling the total score for each subscale. High scores on the DASS-21 warrant further analysis to confirm the presence of a psychopathology (Brown, Chorpita, Korotitsch, & Barlow, 1997). The DASS-21 has been shown to have high internal consistency, with the reliability scores of the scales in terms of Chronbach's alpha being 0.91 for the Depression scale, 0.84 for the Anxiety scale and 0.90 for the Stress scale (Lovibond & Lovibond, 1995).

The 14-item Resilience Scale (RS-14; Wagnild, 2009) is a 14-item questionnaire designed to measure the ability to cope with, and respond successfully to, various life stressors. Scores are summed to produce a total scale score - with a higher score corresponding to higher resilience. The RS-14 has been shown to have high internal consistency, with the reliability score in terms of Chronbach's alpha being = 0.93. It takes about half the time to complete when compared with the 25-item RS, which has been used for about 20 years with solid reliability and validity data Chronbach's alpha being 0 =.97.

Child Outcomes Measures

Measures relevant to child outcomes include the parent-rated Children's Eating Behaviour Mealtime Inventory questionnaire (CEBI; Archer et al., 1991), which was also administered at three time points (pre and post intervention and at a six-month follow up).

The CEBI (Archer et al., 1991) is a parent-rated report instrument, which measures childhood eating and mealtime behaviours for children aged between 2 to 12 (Archer). See chapter seven for a full description of the CEBI.

For each test administered in the measures section of study 3, see Appendix B.

The Intervention

The adult CBT FRIENDS for Life program (Barrett, 2011) was run over three weeks for the treatment and comparison groups, with each group session lasting three hours. Ten participants were assigned to each group. To accommodate the time constraints of the

parental participants, the researcher condensed the original two-week program over three weeks and the optional refresher session was included. At three months after completion the wait-list control group was invited to enrol in the adult CBT FRIENDS for Life program (Barrett, 2011), by mail as this group will not be required to complete any further tests.

Results

Study 3 investigated the efficacy of a CBT prevention program for parental carers of children with significant eating difficulties, using the adult FRIENDS for Life program. Primary outcome measures of risk and protective factors identified in Eating Disorder literature were used to evaluate short and long-term effects of this adult CBT intervention. Outcomes were recorded at baseline, post-intervention, and at three-month and six-month follow-ups. A waitlist group served as a control.

Hypothesis 1. Hypothesis 1 of study 3, that parents who engaged in the adult CBT FRIENDS for Life program (Barrett, 2011), would experience reductions in associated risk factors, and increases in the protective factors between pre-test and post-test, and a six-month follow-up, was supported.

Hypothesis 2. Hypothesis 2 of study 3, that children's eating patterns would improve, following the intervention, was not supported. However, there was a significantly greater improvement between pre-test and the six-month follow-up for children whose parents participated in the intervention.

The overall alpha level of .05 was adjusted using the Bonferroni method within each family of tests in order to control the Type I error rate. The chapter concludes with a brief summary of the findings. All analyses were conducted using IBM SPSS v. 20.0 (IBM Corp., 2011). Figures were created using the Minitab software, v. 16.1.1 (Minitab Inc., 2010).

Participants and Description of the Sample

This sample comprised 60 female parental carers aged between 22 and 46 years of age (*M*= 32.83 years, *SD* =5.96), which made up two intervention groups; a) an adult FRIENDS intervention group and, b) a waitlist control group. In addition to this, a parent-rated report measure of childhood mealtime eating behaviours was used to evaluate short and long-term changes in their children's eating. Sixty children (50 girls and 10 boys), aged between 2 and 12 years of age (*M*= 7.73 years, *SD* =3.23), meal time eating behaviours were recorded by their parents as part of this study. Tables 24 and 25 summarize the descriptive characteristics of the intervention groups in terms of parental and child characteristics, respectively. Independent samples t-tests were used to compare the mean ages per group, and chi-square tests were used to compare the distribution of gender and ethnicity. Exact tests were used to compute significance levels for the chi-square statistics, as these provide a method for obtaining accurate results when the data fail to meet any of the underlying assumptions required for the asymptotic method (IBM Corp., 2011). In this case, the data (for the ethnicity comparison) failed to meet the assumption of the chi-square test of expected cell frequencies greater than 5.

All parents participating in the program were females, and their mean age was 32.3 years, with no differences between the groups (p = .61). Parents primarily identified as Australian or European, with no differences in ethnicity composition between the waitlist and intervention groups (p = .73, exact). The children of parents participating in the program were on average between the ages of 7 and 8 years, with no differences between the groups (p = .63). Twenty-five of the 30 participants within each group had female children. The ethnic composition of the children in the waitlist and intervention groups did not differ significantly (p = .46, exact).

Table 24

Parental Characteristics of the Intervention Groups

		Waitlist (n = 30)	Adult FRIENDS (n = 30)	Statistical Comparison
Parent Age	*M*	32.30	33.03	$t(58) = .44$,
	(SD)	(5.30)	(7.40)	$p = .66$
Parent Gender	Female	30	30	n/a
	n (%)	(100.0%)	(100.0%)	
Parent Ethnicity	Australian	17	19	$\chi^2(5) = 3.40$,
	n (%)	(56.7%)	(63.3%)	$p = .73$ (exact)
	European	6	5	
	n (%)	(20.0%)	(16.7%)	
	Indian	3	1	
	n (%)	(10.0%)	(3.3%)	
	American	1	1	
	n (%)	(3.3%)	(3.3%)	
	African	0	2	
	n (%)	(--)	(6.7%)	
	Asian	3	2	
	n (%)	(10.0%)	(6.7%)	

Table 25

Child Characteristics of the Intervention Groups

		Waitlist (n = 30)	Adult FRIENDS (n = 30)	Statistical Comparison
Child Age	*M*	7.53	7.93	$t(58) = .48$,
	(SD)	(2.93)	(3.52)	$p = .63$
Child Gender	Female	25	25	$\chi^2(1) = .00$, $p =$
	n (%)	(83.3%)	(83.3%)	1.00
Child Ethnicity	Australian	24	18	$\chi^2(4) = 3.89$,
	n (%)	(80.0%)	(60.0%)	$p = .46$ (exact)
	European	3	5	
	n (%)	(10.0%)	(16.7%)	
	Indian	1	2	
	n (%)	(3.3%)	(6.7%)	
	American	0	2	
	n (%)	(--)	(6.7%)	
	Asian	2	3	
	n (%)	(6.7%)	(10.0%)	

Description of Measures

This study assessed a number of parent-rated child outcomes. Parent outcomes included measures of depression, anxiety, stress, and resiliency. Lower scores on the measures of depression, anxiety, and stress, and higher scores on the measure of resiliency indicated improvements. The CEBI was used to evaluate child eating behaviours as assessed by parent-report. Higher scores on the CEBI indicated more problematic eating. Measures were administered at baseline, post-treatment, at three-month follow-up and at six-month

follow-up. For a more detailed description of each measure refer to the Measures section above.

Descriptive statistics for the various measures by time and intervention group are provided in Tables 26 to 30. For the parent measures, a general pattern was observed whereby overall scores improved between pre-test and post-test. Scores between post-test and the follow-up assessments remained consistent or deteriorated slightly. Overall scores on the CEBI did not appreciably decrease between pre-test and post-test, but at follow-up the overall means appeared to show improvement. Fitted normal distributions of scores are provided in Figures 10 to 14 to provide visualization of location and spread by time and group.

Table 26

Descriptive Statistics of Parent Depression Scores by Time and Intervention Group

		Parent Depression Scores				
Time	Intervention Group	*M*	*SD*	*Mdn*	Min	Max
Pre-test	Waitlist	6.73	(3.76)	6	1	14
	Adult FRIENDS	11.13	(4.24)	11	3	20
	Overall	8.93	(4.55)	9	1	20
Post-test	Waitlist	6.97	(3.97)	6	0	14
	Adult FRIENDS	4.03	(2.67)	4	0	11
	Overall	5.50	(3.67)	5	0	14
3-Mth Follow-up	Waitlist	7.47	(4.43)	8	0	16
	Adult FRIENDS	3.03	(2.51)	2	0	10
	Overall	5.25	(4.21)	4	0	16
6-Mth Follow-up	Waitlist	7.87	(4.19)	7	0	17
	Adult FRIENDS	4.80	(3.88)	4	0	13
	Overall	6.33	(4.29)	6	0	17
Overall	Waitlist	7.26	(3.49)	7.25	.75	13.50
	Adult FRIENDS	5.75	(1.97)	6.00	2.00	11.50
	Overall	6.50	(2.91)	6.50	.75	13.50

Note. $n = 30$ in each intervention group.

The mean parent depression scores at baseline were slightly higher for the intervention group than the waitlist group, but the latter was reversed at later time periods (Table 26). The Adult FRIENDS group showed lower means and reduced variance of scores at post-test, and three-month follow-up, and to a lesser extent at 6-mth follow up.

Table 27

Descriptive Statistics of Parent Anxiety Scores by Time and Intervention Group

		Parent Anxiety Scores				
Time	Intervention Group	*M*	*SD*	*Mdn*	Min	Max
Pre-test	Waitlist	3.87	(4.25)	2	0	15
	Adult FRIENDS	4.60	(3.52)	4	0	13
	Overall	4.23	(3.89)	3	0	15
Post-test	Waitlist	3.70	(4.25)	2	0	15
	Adult FRIENDS	2.20	(2.37)	2	0	9
	Overall	2.95	(3.50)	2	0	15
3-Mth Follow-up	Waitlist	4.63	(3.58)	4	0	16
	Adult FRIENDS	2.63	(2.41)	2	0	9
	Overall	3.63	(3.19)	3	0	16
6-Mth Follow-up	Waitlist	4.60	(3.00)	4	0	11
	Adult FRIENDS	2.80	(3.07)	1	0	10
	Overall	3.70	(3.14)	3	0	11
Overall	Waitlist	4.20	(3.22)	3.00	.50	13.00
	Adult FRIENDS	3.06	(1.95)	2.75	.00	7.25
	Overall	3.63	(2.70)	3.00	.00	13.00

Note. $n = 30$ in each intervention group.

Parent anxiety scores of both groups at baseline appeared similar (Table 27). At post-test and three-month follow up, the intervention group had lower means with reduced spread as compared with the waitlist. At 6 month follow up the distributions of anxiety scores in the groups were similar.

Table 28

Descriptive Statistics of Parent Stress Scores by Time and Intervention Group

		Parent Stress Scores				
Time	Intervention Group	*M*	*SD*	*Mdn*	Min	Max
Pre-test	Waitlist	8.20	(3.12)	8	2	14
	Adult FRIENDS	10.77	(2.99)	11	4	16
	Overall	9.48	(3.30)	10	2	16
Post-test	Waitlist	8.50	(3.70)	9	2	17
	Adult FRIENDS	5.90	(2.56)	6	3	13
	Overall	7.20	(3.42)	7	2	17
3-Mth Follow-up	Waitlist	9.03	(3.01)	9	1	15
	Adult FRIENDS	5.10	(2.60)	5	0	10
	Overall	7.07	(3.42)	7	0	15
6-Mth Follow-up	Waitlist	9.40	(2.94)	10	4	15
	Adult FRIENDS	5.90	(3.11)	7	0	11
	Overall	7.65	(3.48)	8	0	15
Overall	Waitlist	8.78	(2.16)	8.50	4.50	13.00
	Adult FRIENDS	6.92	(1.50)	7.13	4.00	10.75
	Overall	7.85	(2.07)	7.75	4.00	13.00

Note. $n = 30$ in each intervention group.

Parent stress scores were higher on average in the intervention group than the control group at pre-test (Table 28). However, follow-up appointments at post-test, three-months, and six-months showed lower mean parental stress for the intervention group than the control group.

Table 29

Descriptive Statistics of Parent Resiliency Scores by Time and Intervention Group

		Parent Resiliency Scores				
Time	Intervention Group	*M*	*SD*	*Mdn*	Min	Max
Pre-test	Waitlist	62.33	(12.73)	64	36	89
	Adult FRIENDS	50.47	(11.87)	48	30	83
	Overall	56.40	(13.59)	56	30	89
Post-test	Waitlist	62.53	(13.47)	64	37	90
	Adult FRIENDS	65.73	(8.87)	66	46	83
	Overall	64.13	(11.42)	66	37	90
3-Mth Follow-up	Waitlist	61.20	(12.87)	61	30	84
	Adult FRIENDS	67.30	(7.29)	68	47	81
	Overall	64.25	(10.82)	67	30	84
6-Mth Follow-up	Waitlist	63.07	(13.40)	63	34	88
	Adult FRIENDS	66.07	(10.42)	68	41	83
	Overall	64.57	(11.99)	66	34	88
Overall	Waitlist	62.28	(12.70)	63.25	34.50	87.00
	Adult FRIENDS	62.39	(7.68)	60.88	47.00	79.75
	Overall	62.34	(10.41)	61.50	34.50	87.00

Note. $n = 30$ in each intervention group.

Parent resilience scores were higher on average in the intervention group than the control group at post-test (Table 29). At 3 and 6 month follow up these scores were maintained for the intervention group.

Child eating behaviours appeared similar for both groups at pre-test and post-test (Table 30). However, at three-month and six-month follow-up, the means of the intervention group appeared lower than those of the waitlist group.

Table 30

Descriptive Statistics of Child Eating Behaviour Scores by Time and Intervention Group

		CEBI Scores				
Time	Intervention Group	*M*	*SD*	*Mdn*	Min	Max
Pre-test	Waitlist	48.67	(6.59)	49	37	65
	Adult FRIENDS	49.33	(8.52)	47	41	76
	Overall	49.00	(7.56)	47	37	76
Post-test	Waitlist	50.27	(6.65)	49	41	65
	Adult FRIENDS	48.73	(8.26)	46	41	76
	Overall	49.50	(7.48)	48	41	76
3-Mth Follow-up	Waitlist	50.40	(6.65)	51	41	65
	Adult FRIENDS	45.03	(6.59)	44	34	63
	Overall	47.72	(7.10)	47	34	65
6-Mth Follow-up	Waitlist	52.13	(7.74)	51	41	67
	Adult FRIENDS	42.77	(6.66)	43	33	62
	Overall	47.45	(8.57)	46	33	67
Overall	Waitlist	50.37	(6.26)	49.50	41.50	65.00
	Adult FRIENDS	46.47	(6.57)	45.75	38.00	66.00
	Overall	48.42	(6.66)	47.00	38.00	66.00

Note. $n = 30$ in each intervention group.

See Figures 9 to 12 for the fitted normal distributions of parents' depression, anxiety, stress and resiliency scores by time and intervention, and Figure 13 for the fitted normal distributions of child eating behaviour scores by time and intervention.

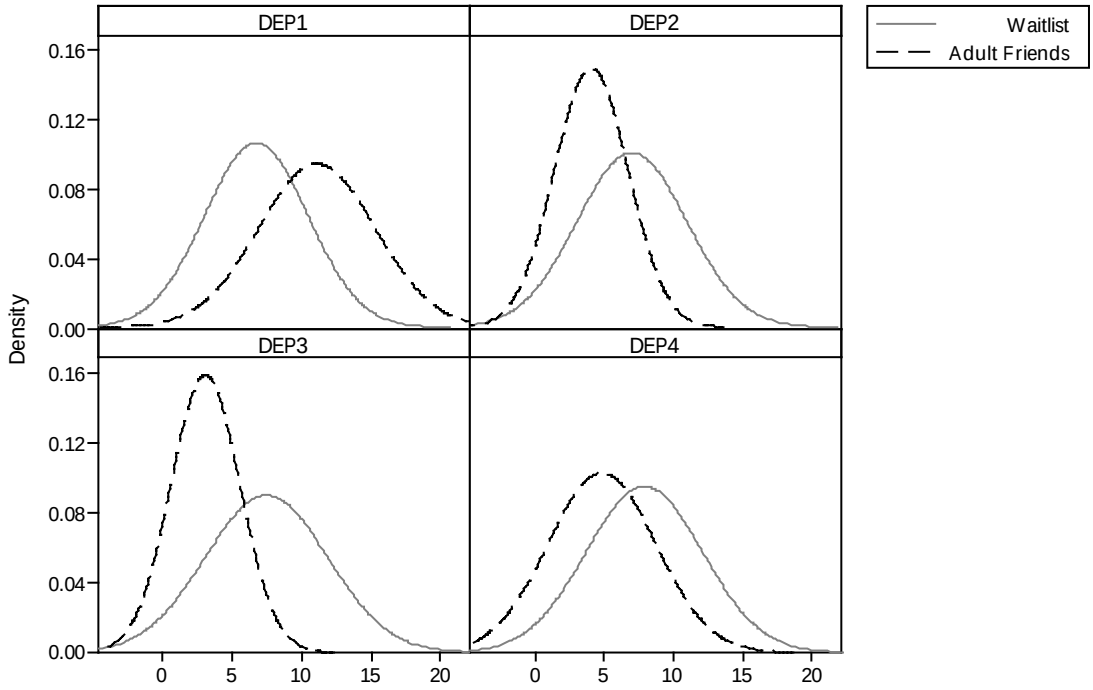

Figure 9. Fitted normal distributions of Parent Depression scores by time and group. DEP1 = pre-test, DEP2 = post-test, DEP3 = 3-mth follow-up, DEP4 = 6-mth follow-up.

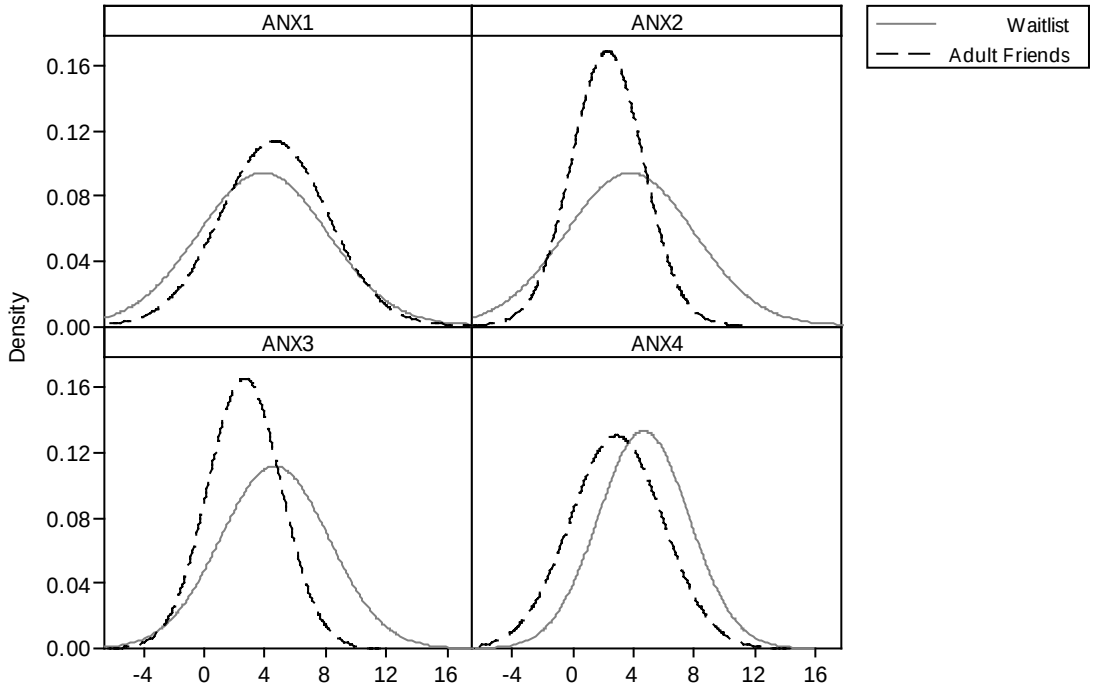

Figure 10. Fitted normal distributions of Parent Anxiety scores by time and group. ANX1 = pre-test, ANX2 = post-test, ANX3 = 3-mth follow-up, ANX4 = 6-mth follow-up.

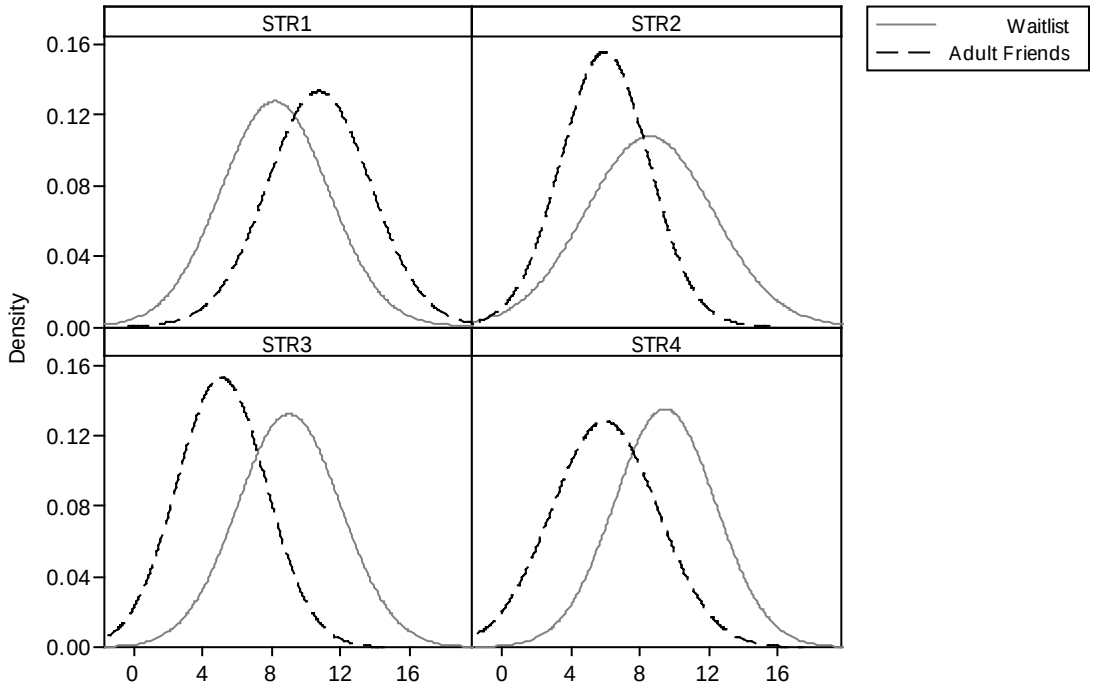

Figure 11. Fitted normal distributions of Parent Stress scores by time and group. STR1 = pre-test, STR2 = post-test, STR3 = 3-mth follow-up, STR4 = 6-mth follow-up.

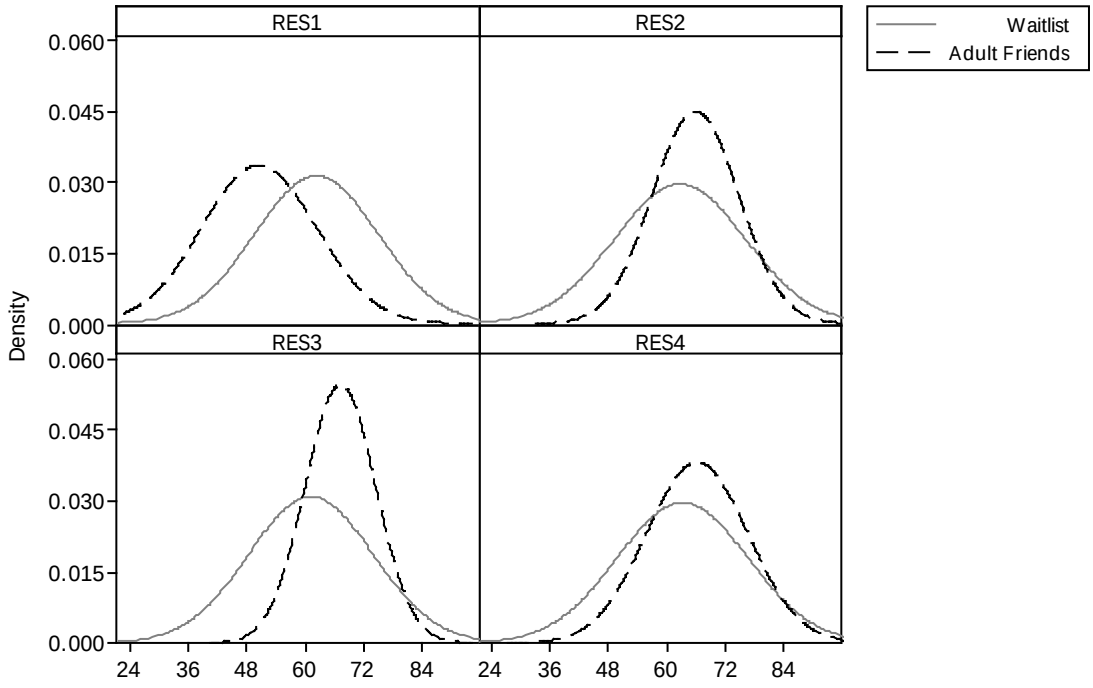

Figure 12. Fitted normal distributions of Parent Resiliency scores by time and group. RES1 = pre-test, RES2 = post-test, RES3 = 3-mth follow-up, RES4 = 6-mth follow-up.

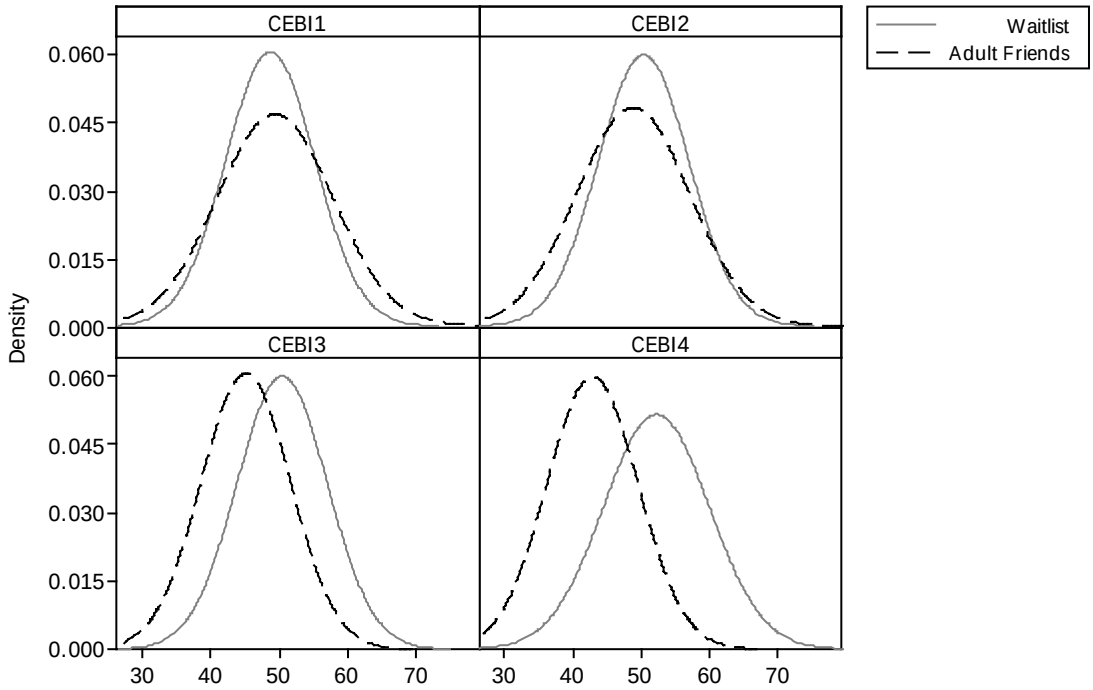

Figure 13. Fitted normal distributions of Child Eating Behaviour scores by time and group. CEBI1 = pre-test, CEBI2 = post-test, CEBI3 = 3-mth follow-up, CEBI4 = 6-mth follow-up.

Although these numerical and graphical data provide useful descriptive information regarding the pattern of scores observed by time and group, formal statistical analysis was required to determine whether differences are reliable, and to address the specific hypotheses of this study. Accordingly, analyses of time, group, and time by group differences were conducted by use of repeated measures MANOVA as described in the following section.

Multivariate Analysis of Variance for Repeated Measures

Profile analysis, or the multivariate approach to repeated measures (Tabachnick & Fidell, 2013), was used to analyse these data as has been previously described in study 2 (see chapter eight).

Evaluation of Assumptions. The statistical assumptions of profile analysis include multivariate normality, the absence of outliers, homogeneity of variance-covariance matrices, linearity, and the absence of multicollinearity and singularity.

Profile analysis is robust to violations of normality. Unless there are fewer cases than DVs in the smallest group or highly unequal *n* between groups, deviation from normality of the sampling distributions is not expected (Tabachnick & Fidell, 2013). Given the equal group sizes in this study (*n* = 30 per group), and the sufficiently large sample to ensure more cases per group than DVs (4 time points x 5 measures = 20 DVs), violation of the assumption of multivariate normality is not expected.

MANOVA is highly sensitive to univariate and multivariate outliers. Data were screened for univariate outliers by computing standardized (Z) scores for each DV within each group and comparing them to the criterion of ± 3.29 ($p < .001$) for a two-tailed test (Tabachnick & Fidell, 2013). One case in the intervention group narrowly exceeded this criterion, with a Z score of +3.30 on the CEBI at post-test. Multivariate outliers were assessed by computing Mahalanobis distances. Outliers were identified as cases with too large a Mahalanobis D^2 for their own group, evaluated as χ^2 with degrees of freedom equal to the number of predictors (Tabachnick & Fidell, 2013). Criterion χ^2 with 20 *df* at $p < .001$ is 45.32. By this criterion, no cases were determined to be a multivariate outlier. The largest D^2 in any group was 26.55. The decision was made to retain the univariate outlier since the subtest score of 76 was within acceptable limits and trial analyses with and without the outlier removed made no difference in the results.

If sample sizes are equal (as is the case here), evaluation of homogeneity of variance-covariance matrices is not necessary (Tabachnick & Fidell, 2013). Univariate homogeneity of variance is also assumed, but ANOVA is robust to all but the grossest violations. With relatively equal sample sizes, it is recommended that the ratio between the

largest and smallest variances across groups is no greater than 10:1. None of the between-group variance ratios came close to exceeding this limit (the standard deviations, representing the square root of the variances, are presented in Tables 26 to 30).

Linearity of the relationships among the DVs is assumed for the within-subjects tests (i.e., parallelism and flatness tests) of the profile analysis (Tabachnick & Fidell, 2013). Violation of linearity results in loss of power; thus, with large sample sizes and relatively symmetrically distributed DVs, the assumption is safely ignored. Linearity was evaluated by examining scatterplots between all pairs of DVs to ensure no gross violations. Although it was certainly difficult to visualize the pattern between 20 pairs of variables, no gross violations of linearity that would be expected to impede the analysis was observed.

Highly correlated DVs provide logical difficulties in non-repeated measures MANOVA. However, in profile analysis correlations amongst DVs are expected to be quite high, given they are scores on the same measure taken from the same cases over time. Thus, only statistical multicollinearity (tolerance < .001 for the measures combined over groups) poses difficulties (Tabachnick & Fidell, 2013). The lowest tolerance value obtained for the 20 DVs combined over groups was .104.

Multivariate Analysis Results

A multivariate repeated-measures analysis of variance was conducted to assess the impact of the two different groups (waitlist, adult FRIENDS) on participants' study scores across four time periods (pre-test, post-test, 3-mth follow-up, and 6-mth follow-up). Five dependent variables were administered at each time point: parent measures of depression, anxiety, stress, and resiliency, and a parent-reported measure of child eating behaviours. Prior to conducting the analysis, the dependent variable scores were standardized by creating Z-scores (over time and groups), to facilitate interpretation. Furthermore, the scores on the

resiliency measure were inverted such that higher scores indicated more negative symptoms for all measures. The multivariate effects are reported in Table 31.

There was a strong time by group interaction (deviation from parallelism), multivariate $F(15, 44) = 11.728$, $p < .001$. Thus, changes in scores over time differed for the different intervention groups. There were also significant main effects of group (i.e., levels) ($p < .001$), and of time (i.e., flatness) ($p < .001$), although these are less useful in light of the significant interaction effect.

Table 31

Multivariate Tests of Group, Time and their Interaction

Effect	Wilks' λ	*F*	*df1*	*df2*	*p*	partial η^2
Group	.63	6.29	5	54	<.01	.37
Time	.24	9.33	15	44	<.01	.76
Time * Group	.20	11.73	15	44	<.01	.80

The mean Z-scores by test, time, and group are provided in Figure 14 providing an indication of the interaction effect. The waitlist group scores appeared relatively stable (or even slightly increasing) over the four time points. The Adult FRIENDS group had higher scores than the waitlist group at pre-test. However, on the four parent measures, the Adult FRIENDS group appeared to show a significant reduction in symptoms between pre-test and post-test (note. resiliency scores have been inverted so lower scores indicate greater resiliency). There appeared to be only slight variation in scores from post-test to 6-mth follow up. A different pattern emerged for the CEBI scores appeared relatively stable between pre-test and post-test, but then appeared to decrease over the follow-up assessments.

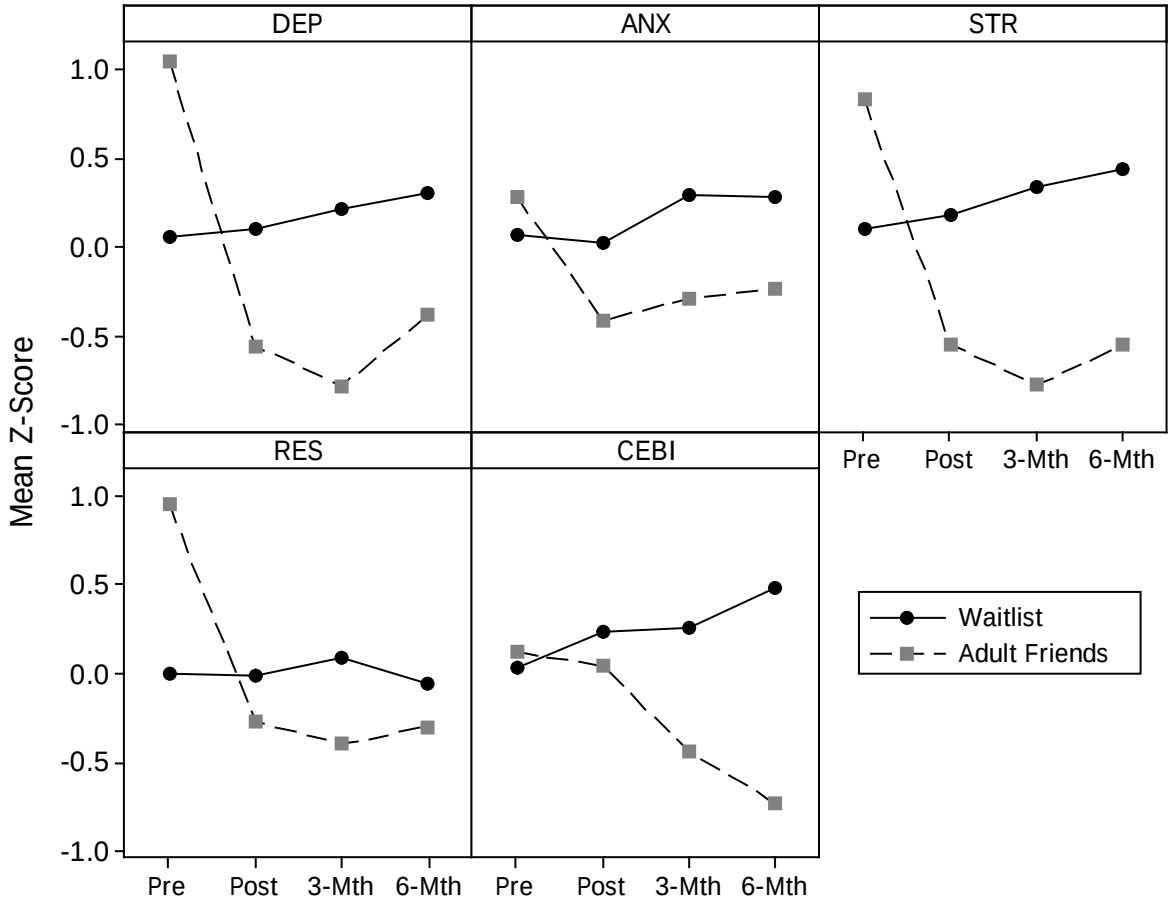

Figure 14. Mean Z-Scores by test, time, and intervention group. Note. Resiliency (RES) scores have been inverted.

Custom Hypothesis Tests

Single degree-of-freedom custom contrasts were conducted in order to address the hypotheses of this study. Table 32 list these hypotheses. The multivariate results for the parent measures are reported in Table 33, and the results for the individual measures are reported in Table 34. Results for the CEBI are reported in Table 35. Bonferroni correction to the alpha level was conducted within each family of tests to protect against excessive type I error.

Table 32

Custom Hypothesis Tests – Study 3

	Hypothesis
1.	When compared with the waitlist control group, stress, anxiety and depression, would decrease and the protective factors including strengths and resiliency, would increase in participants enrolled in a CBT group intervention.
2.	When compared with the active waitlist control group expected gains, experienced post-intervention, would be maintained at the six-month follow-up for participants enrolled in a CBT group intervention
3.	When compared with the waitlist control group, children's eating outcomes as assessed by parent-report would improve for children of parents enrolled in the CBT group intervention.
4.	When compared with the wait-list control group, expected gains experienced post-intervention in children's eating patterns would be maintained at the six-month follow-up for children whose parental carer participated in a CBT group intervention.

Custom Hypothesis 1. When compared with the waitlist control group, stress, anxiety and depression, would decrease and the protective factors including strengths and resiliency, would increase in participants enrolled in a CBT group intervention.

To examine this hypothesis, the difference between pre-test and post-test scores as a whole was compared between the waitlist and the intervention groups. A significant contrast estimate was obtained, -4.99, $p < .01$. Therefore, this hypothesis was confirmed, participants

enrolled in the CBT intervention showed significantly greater overall reductions in symptoms between pre-test and post-test than did the waitlist control group.

Custom Hypothesis 2. When compared with the active waitlist control group expected gains, experienced post-intervention, would be maintained at the six-month follow-up for participants enrolled in a CBT group intervention.

A custom contrast was conducted to compare the pre-test to six-month follow-up scores between the waitlist and intervention groups (table 33). Significantly greater decreases in scores from pre-test to six-month follow-up were obtained for the intervention group than the waitlist group, with a contrast estimate of -5.35 ($p < .01$). Therefore, this hypothesis was confirmed.

Table 33

Multivariate Results of Custom Hypothesis Tests; Parent Measures

Hyp	Group Comparison	Time Comparison	Contrast Estimate	*SE*	95% CI for the difference	*F*	*df*	*p*	partial η^2
1	Waitlist v. Intervention	Pre-test - Post-test	-4.99	.53	(-6.05, -3.93)	89.31	1, 58	**< .01**	.61
2	Waitlist v. Intervention	Pre-test – 6-mth follow- up	-5.35	.73	(-6.80, -3.89)	53.81	1, 58	**< .01**	.48

Note. α = .025. Hyp = Hypothesis. *SE* = Standard error. CI = Confidence interval.

Contrasts were also performed on the individual measures to examine whether the patterns were consistent for all parent variables. The results are shown in Table 34. It can be observed that the pre-test-post-test differences were greater for the intervention group than the waitlist group for all four measures. The intervention group showed greater improvement

of symptoms between pre-test and 6-mth follow up on the depression, stress, and resiliency scales, but not on the measure of anxiety.

Table 34

Custom Hypothesis Tests – Waitlist vs. Intervention, Individual Parent Measures

Time Comparison	Measure	Contrast Estimate	*SE*	95% CI for the Difference	*F*	*df*	*p*	Partial η^2
Pre-test-Post-test	DEP	-1.66	.19	(-2.04, -1.28)	76.69	1, 58	< **.01**	.57
	ANX	-.65	.17	(-.98, -.31)	15.00	1, 58	< **.01**	.20
	STR	-1.47	.22	(-1.91, -1.02)	43.84	1, 58	< **.01**	.43
	RES	-1.21	.13	(-1.48, -.95)	82.68	1, 58	< **.01**	.59
Pre-test-6mth	DEP	-1.69	.26	(-2.22, -1.16)	41.38	1, 58	< **.01**	.42
	ANX	-.73	.30	(-1.34, -.13)	5.95	1, 58	.02	.09
	STR	-1.72	.31	(-2.35, -1.10)	30.26	1, 58	< **.01**	.34
	RES	-1.20	.19	(-1.57, -.83)	41.47	1, 58	< **.01**	.42

Note. α = .006. *SE* = Standard error. CI = Confidence interval.

Custom Hypothesis 3. When compared with the waitlist control group, children's eating outcomes as assessed by parent-report would improve for children of parents enrolled in the CBT group intervention.

Pre-test to post-test differences on the CEBI were compared between the waitlist control and the intervention groups. The results revealed no significant difference, with a contrast estimate of -.29, $p = .050$. Thus, this hypothesis was not confirmed. Children of

parents in both groups showed similar changes in eating patterns between pre-test and post-test.

Custom Hypothesis 4. When compared with the wait-list control group, expected gains experienced post-intervention in children's eating patterns would be maintained at the six-month follow-up for children whose parental carer participated in a CBT group intervention.

To examine this hypothesis, differences between pre-test and the six-month follow-up were compared between the two groups. A statistically significant estimate of -1.30 ($p < .01$) was obtained. As can be seen in Table 35, scores on the CEBI were similar for both groups at pre-test and post-test, but the intervention group showed decrease (improvement) in scores over time. See Appendix D for SPSS output relevant to Study 3.

Table 35

Results of Custom Hypothesis Tests for the CEBI

Hyp	Group Comparison	Time Comparison	Contrast Estimate	*SE*	95% CI for the difference	*F*	*df*	*p*	partial η^2
4	Waitlist v. Intervention	Pre-test – 6-mth follow- up	-1.30	.22	(-1.74, -.87)	35.53	1, 58	**<.01**	.38

Note. α = .025. Hyp = Hypothesis. *SE* = Standard error. CI = Confidence interval.

Discussion

The purpose of this study was to efficacy of the adult FRIENDS for Life program for parental carers of children with significant eating difficulties. The researcher investigated whether parents who engaged in the intervention would experience reductions in risk factors, increases in protective factors, and whether their children's eating patterns would

improve, following the intervention. A waitlist group was also assessed to provide a comparison group for the intervention.

Findings of the statistical analysis indicated that parents who received the intervention showed significantly greater decreases in symptoms between pre-test and post-test than did the waitlist control. In the intervention group, measures of depression, anxiety, and stress decreased from pre-test to post-test while resiliency increased, in comparison with the control group. Therefore the first set of hypotheses was met. These results suggest that CBT FRIENDS for Life program (Barrett, 2011) supported the parental carers' directly by increasing their sense of resiliency and psychological well-being in comparison with the waitlist control group.

Few randomised clinical trials (of CBT interventions directed towards family caregivers of children with eating disorders or disordered eating) have been conducted or published (Sorensen et al., 2002). However, our outcomes are consistent with the limited studies that have shown group interventions, which include CBT style psycho-education around managing a number of problematic behaviours in children as well as supportive counselling significantly reduce caregiver burden, when compared with individual talking therapy (Acton & Kang, 2001; Brodaty et al., 2003; Sorensen et al., 2002). Our significant findings are also consistent with previous studies utilising CBT based prevention programs in reducing carer burden for carers of adolescent diagnosed with diagnosable eating disorders such as anorexia nervosa (Coomber & King, 2012; Hoyle, Slater, Williams, Schmidt, & Wade, 2013) and bulimia nervosa (Zitarosa et al., 2012).

Previous research has recommended the use of *multicomponent*, rather than a s*ingle component* intervention, which offers only one treatment option, as these reduce individual risk and protective factors and offer skill based approaches to improve social-cognitive problem solving (Barrett, 2011; Gitlin et al., 2003; NICE, 2004). Thus, the decision to use a

multicomponent adult CBT FRIENDS for Life program (Barrett, 2011) may have also contributed to the positive outcomes, as those who received the intervention reported a reduction in overall burden and distress, when compared with the waitlist control group. Because of this further studies that compare multicomponent with single component interventions designed for parental carers of children with maladaptive eating behaviours are warranted.

In addition to the above results, statistical analyses were also conducted to compare the pre-test to six-month follow-up scores of the waitlist and intervention groups. Significantly greater decreases in scores from pre-test to six-month follow-up were obtained for the intervention group when compared with the waitlist group. Contrasts were also performed on the individual measures to examine whether the patterns were consistent for all parent variables. While the results showed that the pre-test and post-test differences were greater for the intervention group when compared with the waitlist group for all the four measures of depression, anxiety, and stress, and resiliency, the intervention group showed greater improvement of symptoms between pre-test and six-month follow up on the depression, stress, and resiliency scales, but not on the measure of anxiety.

Previous research by Given and Given (1996) and Given et al. (2003) may help explain these results. They found that changes in carer demands, in the long-term, either increased or decreased, often resulted in renewed carer distress. This is because change requires constant adaptation and adjustment by the carers. For example, changes may include having to adapt to different schedules and routines, which may impact on other roles for which family carers are responsible. Carers who report more confidence in managing their child's symptoms report less depression, anxiety, and fatigue (Campbell et al., 2004; Given & Given, 1996). Therefore, carers who have access to concrete information about tests, treatments, and resources in relation to their child's maladaptive eating behaviour may help

mitigate stress. For example, psycho-education around their child's disordered eating may help relieve cares distress and anxiety arising from uncertainties about their child's mental and physical health and the care they may need (Northouse, Mood, Templin, Mellon and George, 2000).

Additional findings of the statistical analysis indicated that children's eating behaviours did not significantly ameliorate at post-test for the intervention group compared with the control group. However, the intervention group showed significant improvement over time, and there was a significantly greater improvement between pre-test and the six-month follow-up for the intervention group compared with the waitlist control. Therefore the second hypothesis of the study was partially met. The results suggest that the intervention did not have an immediate effect in helping the parental caregivers become more competent and confident in providing assistance in their child's maladaptive eating behaviours. However, given over time positive improvements in behavioural eating difficulties at the six-month mark may indicate a possible impact of the FRIENDS program (Barrett, 2011) on carer competency. These outcomes are consistent with studies conducted by Sorensen et al. (2002), focusing on the effectiveness of caregiver interventions around the seventh-month mark. As few studies are funded for longer than six months additional data on long-term impacts are not currently available (Kelly, Reinhard, & Brooks-Danso, 2008).

These results may be further explained by the fact that the parental carers' reported an overall increase in their psychological wellbeing as their child's eating improved. Similar results have been reported with interventions designed to improve competence and confidence of carers across a number of settings (Teri et al., 2005). For example, not being able to sleep at night is a serious problem for carers of people with Alzheimer's disease, as the carers become fatigued and exhausted, which can have an adverse effect on both the physical and emotional health of the carer. Teaching carers how to improve their family

members' night-time insomnia through daily walks and exposure to light can improve sleep time for both the carer and care recipient.

Several strengths as well as limitations to this study allow for future research directions for clinical research work; these will be discussed in detail in Chapter ten.

Chapter 10: Summary and Overall Discussion

Introduction

The aim of this thesis was first to develop and validate a scale that would help with the early identification of children at risk of an eating disorder, and second to evaluate the effectiveness of intervention strategies for these children and for their carers. To meet these goals investigations for this thesis comprised three studies.

Study 1 developed a psychometrically sound screening tool for detection of the risk of eating disorders. Responses for the development of the Maladaptive Eating Practices Questionnaire initially were from a sample aged 16 to 25. Preliminary to study 2 the researcher became aware of the growing emergence of children *at risk* of eating disorders. Little research has occurred with 8 to 12 year olds and further testing of the MEPQ was done with this group in study 2, where children were to undergo a CBT-based eating healthy program. The developed assessment tool, the MEPQ-25 was used to identify children in this age bracket who were *at risk* of worsening development and to identify changes in eating practices over the course of the intervention and later. The Williamson et al. (2004) Integrated Cognitive-Behavioural theory of eating disorders was used as a basis for the development of the MEPQ-25, and the CBT based FRIENDS for Life program as the basis for the interventions.

The FRIENDS for Life program was modified for use with children at risk of an eating disorder and included their parents for the purposes of study 2. The researcher used child self-report measure to assess whether children who received this modified program experienced reductions in maladaptive eating practices and risk factors and increases in protective factors. Including parents in the program proved helpful to the child's long-term learning outcomes. The MEPQ-25 was included in these measures. Outcomes were recorded post-treatment and at three months post-treatment.

The researcher broke new ground in study 3 by investigating the efficacy of a CBT prevention program for parental carers of children with significant eating difficulties. No previous studies have been identified of carers of children at risk of an eating disorder (Alexander & Treasure, 2012; Treasure et al., 2001). Primary outcome measures of risk and protective factors identified in eating disorder literature were used to evaluate the short and long-term effect of this adult CBT intervention on parental carers. Outcomes were recorded post-treatment and at three and six months post-treatment. The outcomes showed that the program was of strong personal benefit to the parental carers' by increasing their sense of resiliency and psychological well-being and the program also had a carry-over effect to their children in continued improvements in eating behaviours at the six-month mark. The findings of the above studies are summarised along with limitations, clinical implications and future research direction.

Summary of Findings

The primary hypothesis of study 1, that the MEPQ-25 would reveal a factor structure consistent with the domains of the Williamson et al. (2004) Integrated Cognitive-Behavioural theory of eating disorders, was achieved. Consistent with this hypothesis, five reliable factors were obtained from an oblique (direct oblimin) rotation that accounted for 60.7% of the variance, resulting in a 25 item measure. Each domain comprised 4 to 6 items, providing adequate coverage to assess each domain constituting the construct of interest (Comrey & Lee, 1992). The 25-item questionnaire was deemed by the expert panel as being suitable for children aged 8 to 12, for whom brevity is likely to be important (Burke et al., 2010; Schneider, 2009). The MEPQ-25 also achieved good face and content validity via a panel review. The expert panel reviewers suggested that the 25 items adequately reflected characteristics of maladaptive eating in young people that expanded upon the currently

accepted eating disorder criteria described in the DMS-5 (APA; 2013) and was consistent with the Williamson et al. (2004) Integrated Cognitive-Behavioural theory of eating disorders.

Convergent and discriminant validity were important to measuring the MEPQ-25's suitability for use with children *at risk* of an eating disorder by displaying the questionnaire's ability to (1) perform in a similar way to established scales that measure similar constructs (e.g. convergent validity) and (2) differently to scales designed to measure other constructs (e.g. discriminant validity; Tabachnick & Fidell, 2013). Accordingly, convergent validity of the MEPQ-25 was determined by examining the relationship between the MEPQ-25 and measures that assess attitudes toward eating (EAT-26) and body image concerns (MBSRQ-AS), while discriminant validity was established between the MEPQ-25 and measures of psychological distress (DSRS-C) and personality (Mini IPIP-20). The MEPQ-25 also demonstrated a strong positive relationship with the two measures of attitudes and concerns towards eating (EAT-26 and MBSRQ-AS). Correlations between the MEPQ-25 and divergent measures of personality (Mini IPIP-20) and psychological distress (DSRS-C) produced weak, inverse, relationships. This supports the hypothesis that the MEPQ-25 would demonstrate convergent and discriminant validity in the context of its relationships to other tests. These results support the premise that the MEPQ-25 is a valid scale as a pre-screener for eating disorder risk and would be suitable as an inclusion in a test battery with similar measures.

In terms of reliability, the results suggested that the MEPQ-25 had reliability in the form of internal consistency (Catell, 1978; Field, 2005; Tabachnick & Fidell, 2013) meaning that similar test items were responded to consistently. Overall, item consistency was high (Cronbach's $\alpha = 0.86$). Furthermore, test scores remained stable between testing periods, indicating good test re-test reliability $r\ (205) = 0.93$, $p < .01$ (two-tailed) for those not participating in a intervention program.

While alternative domains for the classification of eating disorders in children have been previously proposed to better reflect the range of eating issues seen (Nicholls & Bryant-Waugh, 2009; Nicholls et al., 2000), this knowledge has not been transferred to the test arena. The current study offered a wider view of the latent constructs underlying maladaptive eating and a new interpretation of what constitutes maladaptive eating practices, which have been successfully incorporated into the MEPQ-25.

Study 2 had as its focus *children with maladaptive eating behaviours*. The purpose of this study was to investigate the efficacy of the FRIENDS for Life CBT prevention program (Barrett, 2011), modified for use with children who engage in eating behaviours that place them *at risk* of an eating disorder. Given the considerable evidence that points to the effectiveness of CBT based programs in reducing diagnosable eating disorders in children (Alexander & Treasure, 2012; Le Grange & Lock, 2011) CBT based programs were identified as being appropriate for children *at risk* of these disorders. The modification included information about healthy eating habits, weight management and positive body image, which were created by health care professionals from the Nourish Interactive group (LaBarbera, 2012).

As maladaptive eating practices first appear in the 8 and 12 age group, the researcher focused on this group when seeking to examine the prevention of eating disorders in children (NEDC, 2010a). Parental carers were invited to take part in their child's intervention. Three intervention groups took part in study 2 over six phases; an active waitlist control group, a FRIENDS alone group (e.g. child only group), and a FRIENDS with Parent group (e.g. child with parent group).

Study 2 utilised self-report measures with their participants. The first objective of this study was to assess changes in maladaptive eating practices and associated risk factors and protective factors of participants who received the modified CBT FRIENDS for Life

program. Outcomes were assessed at baseline, following completion of the program, and at three-month follow-up.

Findings of the analysis indicated that children who received the intervention showed statistically significant reductions in maladaptive eating practices and the associated risk factors of anxiety, depression, and behavioural difficulties between pre-test and post-test, when compared with the active waitlist control group. Furthermore, the statistically significant differences between the active waitlist and intervention groups were evident at three-month follow-up. Therefore the first set of hypotheses of the study was achieved, with the modified CBT FRIENDS for Life intervention having an impact on these children directly: by reducing maladaptive eating behaviours, increasing strength and coping, reducing behavioural difficulties, and increasing psychological well-being. The active waitlist control group in comparison failed to show any of these changes.

These outcomes are consistent with other preliminary studies on the treatment of individuals with sub-threshold disordered eating where CBT prevention programs were used with children and adolescents (Lim et al., 2009; Schmidt et al, 2007; Stice et al., 2009). Our findings add to the research available on validated CBT interventions for individuals who display early warning signs of eating disorders (Alexander & Treasure, 2012; Le Grange & Lock, 2011; Lim et al., 2009).

A current challenge common to prevention research is that improvements demonstrated immediately after interventions dissipate over the course of follow-up (Cororve Fingeret, Warren, Cepeda-Benito, & Gleaves, 2006; Keel, 2005). One of the reasons for this is because the duration of programs is limited, with many programs providing as few one to three (Buddeberg-Fischer & Reed, 2001; Rocco, Ciano, & Balestrieri, 2001) or up to just five sessions (Baranowski & Hetherington, 2001; Paxton, 1993; Wade et al., 2003). Improvements for the current study at the three-month follow up point in time may be

attributed to the fact that the modified CBT FRIENDS for Life intervention ran for eight sessions. This gave children the time to absorb and practice what they had learned.

The second objective of study 2 was to examine if there was a greater benefit for children when their parental carers were actively involved in their intervention. Children who attended the intervention alone had a similar outcome to those whose parents attended with them between pre-test and post-test. Therefore, the hypothesis was not supported. After three months, however, a different picture emerged. Children whose parents attended their intervention maintained healthy eating behaviours. As previously discussed current eating disorders treatment research suggests there are improved outcomes for children with eating disorders when their family are included in the treatment process (Rhodes et al., 2008; Wallis et al., 2007; Wallis et al., 2012; Turby et al., 2010).

Our significant findings at long-term follow-up are also consistent with previous studies utilising the FRIENDS programs (Barrett, 2011) that include both child and parents in the treatment process, whereby a significant effect was found at the follow-up rather than immediately following the intervention (Rapee & Jacobs, 2002; Rapee et al., 2005), indicating a possible delayed prevention effect.

In addition to the above results, the MEPQ-25 was used among child participants undergoing the modified CBT FRIENDS for Life program to assess changes in their eating behaviours. In study 1 the researcher defined maladaptive eating as a subjective phenomenon that involves an appraisal of five domains of eating dysfunction which exist along a continuum of no or minimal eating difficulties to high levels of maladaptive eating or eating disorder *risk* (Le Grange & Loeb, 2007). This continuum is useful for revealing high scoring individuals who report significant pre-diagnostic indicators of an eating disorder. Defining maladaptive eating practices in this manner permitted the development of the scale that assessed changes occurring in eating practices. In Study 2 this theory was tested. From the

results it was clear that the MEPQ-25 was able to assess changes in children's eating behaviours over time from pre-test to post-test and at a three-month time point.

Study 3 examined the efficacy of an adult CBT FRIENDS for Life program (Barrett, 2011), when utilised by parental carers of children with maladaptive eating behaviours. This study built upon the previous two studies. The extent to which CBT based interventions may help to protect the mental health of parental carers and assist them to enact change was examined in this study.

The first objective of study 3 was to investigate whether parents who engaged in an adult CBT FRIENDS for Life program (Barrett, 2011), would benefit from the program (experiencing reductions in associated risk factors, and increases in protective factors), and whether their children's eating patterns would improve, following the intervention, for the parental carers. A waitlist group was also assessed to provide a comparison group for the intervention. The outcomes of study 3 were achieved via a six-phase process and included pre-program recruitment, pre-intervention screening, pre-intervention measures, the intervention, post-intervention screening, and three and six-month follow-up screening assessments.

Findings of the analysis indicated that parents who received the intervention showed significantly greater decreases in symptoms between pre-test and post-test than did the waitlist control. In the intervention group, measures of depression, anxiety, and stress decreased from pre-test to post-test while resiliency increased, in comparison with the control group. Differences from pre-test to six-month follow up also indicated greater reductions in symptoms for the intervention group compared with the control group long-term. Therefore the first set of hypothesis was met. These results suggest that CBT FRIENDS for Life program (Barrett, 2011) supported the parental carers directly by increasing their sense of resiliency and psychological well-being in comparison with the waitlist control group. These

positive gains were maintained in the treatment group over a six-month period, except on measures of anxiety, suggesting that the intervention may have a preventative effect on depression, stress and resiliency.

Few randomised clinical trials of CBT interventions directed towards family caregivers of children with eating disorders or disordered eating have been conducted or published. However, our outcomes are consistent with the limited studies that have shown group interventions significantly reduce caregiver burden, when compared with individual talking therapy (Acton & Kang, 2001; Brodaty et al., 2003). Our significant findings are also consistent with previous studies utilising CBT based prevention programs in reducing carer burden for carers of adolescent diagnosed with eating disorders such as anorexia nervosa (Coomber & King, 2012; Hoyle, Slater, Williams, Schmidt, & Wade, 2013) and bulimia nervosa (Zitarosa et al., 2012).

Additional findings for study 3 indicated that children's eating behaviours did not significantly ameliorate at post-test for the intervention group compared with the control group. However, the intervention group showed a greater improvement between pre-test and the six-month follow-up for the intervention group compared with the waitlist control. The results suggest that the intervention did not have an effect, directly following the intervention, in helping the parental caregivers become more competent and confident in providing assistance in their child's maladaptive eating behaviours. However, given the positive improvements in behavioural eating difficulties at the six-month mark, indicates a possible impact of the FRIENDS program (Barrett, 2011) on carer competency. Parents reported an overall increase in psychological well-being as their child improved and this outcome may also explain some of these improvements. These outcomes are consistent with studies conducted by Sorensen et al. (2002) which have shown effectiveness of caregiver interventions around the seventh-month mark. Few studies are funded for longer than six

month, thus additional data on long-term impacts are not currently available (Kelly et al., 2008).

Limitations to the Studies

A number of limitations of each study allow for future research directions. Limitations of study 1 included some shortcomings with the initial test sample, scale construction and lack of multiple informants. In regards to the test sample, the MEPQ-25 was designed to be administered to children aged 8 to 12, however an older sample of 16 to 25 year olds was used in the initial phases of the MEPQ's development. This may have potentially affected the validity of the scale (Slack & Draugalis, 2001). Nevertheless, a large part of this sample consisted of individuals invited to participate as part of their association with an eating disorder foundation. These participants were similar to the target population for whom the scale was intended and the MEPQ-25 was administered to a sample of 8 to 12 year olds in study 2. To mitigate this initial problem items were written in simple English structure, expert panel reviewers were used, and careful attention of the operation of the MEPQ-25 in study 2 by the 8 to 12 year olds occurred.

Replication of the factor structure of the MEPQ-25 is required in further research with a larger sample size of children aged 8 to 12. The sample of tests against which to compare the MEPQ-25 was also small: there is currently a lack of similar pre-diagnostic screeners on the market for the MEPQ-25 to be tested against.

Limitations of study 2 included relatively limited responses for the data collection at the six-month time point. In addition, the inclusion of only mothers in the intervention process in both study 2 and 3 is also a limitation of this thesis, and research involving both parents and father only, is needed.

The prearranged data collection at the six-month time point proved to be difficult during study 2, with limited roll-out for six-month follow-up screening in person (thus the

final questionnaire package was sent to a mailing address nominated by the child participants' parent). At six months there was the high proportion of missing data (around 70%). This resulted in the researcher not being able to run a final data analysis at the end of six-months in study 2. The researcher worked hard to obtain numbers for the six-month follow up, making follow up calls and offering assistance with completion of the questionnaire package. To minimise these problem in the future, it is suggested that the researcher obtains multiple contact details (e.g. phone, email and mailing address), conduct a follow-up calls in between testing, and creates a shorter assessment package or possibly offers the assessments to be completed online (Hogan, 2007).

For study 2 the researcher modified the FRIENDS for Life program (Barrett, 2010) with the addition of supplementary dietary and healthy living advice (Lim et al., 2009), which supported the adoption of healthy eating practices. However, the combination of numerous cognitive-behavioural techniques made it difficult to determine which specific strategies were most effective and which ones have the most impact in the short and long-term. Studies need to be run using both programs separately so the researcher may determine if there was a separate or synergistic effect.

Findings from Study 2 and 3 of this thesis highlighted the important role parental carers play in the aetiology and prevention of their child's maladaptive eating. While the inclusion of parents was a strength of study 2 and 3 fathers and extended family such as siblings were not included. This was because the majority of male parental carers as well as extended family members were not available to participate in the intervention due to conflicting work, school or other commitments. Bögels and Phares (2008) conducted CBT interventions with fathers and found them to be effective change agents. They recommended that a proportion of CBT training should focus on promoting skills in the father, which would be a significant alteration to current clinical practice where mothers, due to family

commitments, often participate in parent training groups alone. Strategies for engaging fathers many include calling them personally to discuss participation and inviting them to information sessions to educate them regarding their unique role in the prevention of childhood eating disorders and disordered eating (Phares, Fields, & Binitie, 2006). Current research suggests that both parents be involved in the intervention process (Eisler et al., 2010; Geist et al., 2000; Robin et al., 1999; Smith & Cook-Cottone, 2011) to maximise benefits such as coping skills, stress relief and management styles of both parents to better manage their child's eating. Mothers and fathers have been known to equally support and protect their child during their eating disorder illness (Damiano et al., 2015; Haigh & Treasure, 2003; Perkins et al., 2004; Whitney et al., 2005) and offer different ideas on how to manage their child's significant weight loss (Martin et al., 2002).

Clinical Implications and Directions for Future Research

There is a tendency when using pre-screeners to over diagnosis, or under diagnose – e.g. in not detecting individuals at risk in the long term (perhaps because the condition could resolve itself without treatment) (McDowell & Newell, 1996; Moynihan, Henry, & Moons, 2014). Therefore, there is need to examine more broadly scales such as the MEPQ-25 as a screening instrument, which includes determining accurate cut-off scores as an index of identifying pre-diagnostic levels of an eating disorder. Receiver Operating Curve (ROC) analyses on data collected from screening a child population for a range of maladaptive eating practices (Tabachnick & Fidell, 2013) could be run to obtain accurate cut-off scores that meet the desired balance of sensitivity, specificity and predictive values (Tabachnick & Fidell, 2013). Running these analyses would also help identify the capacity of the MEPQ-25 to distinguish between groups, and confirm contrasted groups validity (Tabachnick & Fidell, 2013).

Further research could be conducted: (1) by comparing the qualitative results of a semi-structured interview against the quantitative results of MEPQ-25, (2) by recruiting a cross-cultural validation sample in order to further investigate the MEPQ-25's sensitivity to cultural differences (Carey et al., 2014; Hogan, 2007; Taylor et al., 2012; Wilksch et al., 2008) and (3) by using the MEPQ-25 as an online, computerised, questionnaire. Computerised questionnaires are more efficient in terms of data collection and data entry and may be accessed anywhere, at any time (Rickwood, Mazzer, & Telford, 2015; Shapiro et al., 2010). The online version (via survey monkey) of the MEPQ-25 used for the initial factor analyses was a strength of study 1 and further research is warranted in the use of web-based assessment for children.

At the time of study 2 and 3 an online version of the FRIENDS program was not available however, using Internet-based interventions for prevention of childhood eating disorders has advantages over traditional face-to-face interventions, such as cost-effectiveness, accessibility and widespread dissemination (Graff Low et al., 2006; Gollings & Paxton, 2006). A review of eating disorder research has demonstrated the superiority of Internet-based preventive interventions for child-adolescents (Aardoom, Dingemans, Spinhoven, & Van Furth, 2013; Bauer, Moessner, Wolf, Haug, & Kordy, 2009; Berger et al., 2011; Beintner, Jacobi, & Taylor, 2011; Lindenberg, 2011; Winzelberg et al., 2000). Further investigation as to the benefits of computer based technology in the prevention of eating disorders in younger children is needed.

Study 2 and 3 of this thesis demonstrated the contribution of mothers and/or female parental carers, but did not include fathers and/or or male parental carers or extended family in the process. Future studies may build on these findings by investigating the role fathers and extended family play in the development and maintenance of maladaptive eating practices in children as well as how interactional patterns may be important in the assessment,

conceptualisation and treatment of children with significant eating difficulties. Clinicians may also encourage parental carers to help support one another, thereby increasing their abilities to take on the challenges of eating disorders (Rhodes et al., 2008; Rhodes, Brown, & Madden, 2009). Making these relationships work is the next key step in moving forward in advocacy, research and access to prevention and treatment interventions for children both with and at risk of an eating disorder (Krautter & Lock, 2004).

Further research is required into how families and patients can be advocates for the prevention of maladaptive eating (Darcy et al., 2010; Krautter & Lock, 2004; Le Grange et al., 2010). The stigma that is associated with eating disorders has prevented potential advocates from speaking out (Alexander & Treasure, 2012; Silverman, 1997). In study 2 and 3 clinicians worked together with parental carers and affected individuals to promote awareness and research, encourage treatment and decrease stigma.

Final Note

In order to slow the progression of eating disorders in childhood more research and resources are required to detect early indicators, in the form of maladaptive eating, as well as provide effective interventions for these considered to be *at risk* of an eating disorder (Abraham et al., 2009; AED, 2011; Madden et al., 2009). Children with maladaptive eating practices together with their carers face ongoing barriers to being identified and treated early in the course of their illness (Engel et al., 2009; Slane et al., 2009; Yeo & Hughes, 2011). This thesis examined assessment tools for early detection of the risk of eating disorders for children who were *at risk* and developed one instrument; it also then used that instrument in an intervention strategy for these children. Intervention strategies were also given to their carers.

The development of a new assessment tool to enable the early detection of the *risk* of eating disorders has met a gap in understanding and identifying the eating practices of

those *at risk*. We already know that children who appear to be at a higher risk of developing an eating disorder exhibit more pre-diagnostic psychopathology than their more chronic and stable sub-syndromal counterparts (Le Grange & Loeb 2007; Levine & Smolak, 2006). It is now possible to identify behaviours, attitudes and beliefs associated with maladaptive eating practices. Using the MEPQ as a preliminary screening tool will also increase the probability of determining sub-clinical eating disorders, thus increasing the search for and use of early intervention schemes as a prevention strategy.

One of the criteria for determining if pre-screening should be conducted for a particular disorder relates to whether or not an effective intervention is available (Garner et al., 1982). Accordingly this thesis also investigated the efficacy of the FRIENDS for LIFE program implemented as a prevention intervention for children *at risk* of an eating disorder. Results from Study 1 and 2 of this thesis indicate that risk factors for maladaptive eating can be identified at an early age and can be integrated into effective preventative programs for young children. The ability to help children with maladaptive eating difficulties has implications for practicing clinicians, in that children can be assessed early and specific psychological interventions implemented which help prevent maladaptive eating, reduce anxiety and mood states and increase coping skills and abilities.

This thesis in study 3 demonstrated the value of educating and up skilling parental carers of children with maladaptive eating behaviours. Supporting literature had highlighted a need to provide parental carers with tools that would help them bring about positive changes to their child's eating behaviours (Le Grange & Lock, 2011) as well as reduce their own carer distress and burden (AED, 2011; Treasure et al., 2001; Treasure, 2012).

Overall this thesis has completed the early steps in developing a valid measure of maladaptive eating practices in an age group that is vulnerable. And it has indicated how the targeted CBT based FRIENDS intervention programs can be useful and effective with both

children with eating difficulties and their carers. More research on maladaptive eating practices and interventions is needed but hopefully the basis has been laid for addressing in more depth, the health issues faced today.

References

Aardoom, J., Dingemans, A., Spinhoven, P., & Van Furth, E. (2013). Treating eating disorders over the internet: A systematic review and future research directions. *International Journal Of Eating Disorders*, *46*(6), 539-552. doi:10.1002/eat.22135

Abraham, S.F. (2003). Dieting, body weight, body image and self-esteem in young women: doctors' dilemmas. *Medical Journal of Australia*, *178*(12), 607-611. Retrieved from https://www.mja.com.au/journal/2003/178/12

Abraham, S., Boyd, C., Lal, M., Luscombe, G., & Taylor, A. (2009). Time since menarche, weight gain and body image awareness among adolescent girls: onset of eating disorders? *Journal of Psychosomatic Obstetrics and Gynecology*, *30*(2), 89-94. doi:10.1080/01674820902950553

Academy of Eating Disorders (2011). *AED Report on the Critical points for early recognition and medical risk management in the care of individuals with eating disorders* (2nd ed.). Retrieved from http://eatingdisorders.ucsd.edu/ed101/pdfs/AED%20Report.pdf

Ackard, D., Fulkerson, J., & Neumark-Sztainer, D. (2007). Prevalence and utility of DSM-IV eating disorder diagnostic criteria among youth. *International Journal Of Eating Disorders*, *40*(5), 409-417. doi:10.1002/eat.20389

Acton, G., & Kang, J. (2001). Interventions to reduce the burden of caregiving for an adult with dementia: A meta-analysis. *Researching in Nursing & Health*, *24*(5), 349-360. doi:10.1002/nur.1036

Adambegan, M., Wagner, G., Nader, I., Fernandez-Aranda, F., Treasure, J., & Karwautz, A. (2011). Internalizing and externalizing behaviour problems in childhood contribute to the development of anorexia and bulimia nervosa – a study comparing sister pairs. *European Eating Disorders Review*, *20*(2), 116-120. doi:10.1002/erv.1152

Agency for Healthcare Research and Quality (2009). *Eating Disorders Sending More Americans to the Hospital* (AHRQ Report 040109). Retrieved from U.S Department of Health and Human Services website: http://archive.ahrq.gov/news/newsroom/news-and-numbers/040109.html

Agras, W.S, Walsh, B.T., Fairburn, C.G., Wilson, G.T., & Kraemer, H.C. (2000). A multicenter comparison of cognitive-behavioral therapy and interpersonal psychotherapy for bulimia nervosa. *Archives of General Psychiatry*, *57*(5), 459-466. doi:10.1001/archpsyc.57.5.459

Alexander, J., & Treasure, J. (2012). *A collaborative approach to eating disorders*. New York, NY: Routledge.

Allen, K., Byrne, S., La Puma, M., McLean, N., & Davis, E. (2008). The onset and course of binge eating in 8- to 13-year-old healthy weight, overweight and obese children. *Eating Behaviors*, *9*(4), 438-446. doi:10.1016/j.eatbeh.2008.07.008

Allison, P. D. (2001). *Missing data*. Thousand Oaks, CA: Sage Publications.

Alpert, P. (2009). Obesity: A Worldwide Epidemic. *Home Health Care Management & Practice*, *21*(6), 442-444. doi:10.1177/1084822309334688

American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington DC: Author

American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., text revision). Washington DC: Author

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington, DC: Author

American Psychiatric Association (2010). *APA practice guidelines for treatment of patients with eating disorders* (3rd ed.). Retrieved from http://www.psychiatryonline.com /content.aspx?

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed). Washington, DC: Author

Andersen A.E. (2002). Eating disorders in males. In C. Fairburn, K. Brownell (Eds), *Eating disorders and obesity: A comprehensive handbook* (2nd ed.; p. 181-191). New York, NY: Guilford Press.

Anderson, D. (2004). Assessment of Eating Disorders: Review and Recommendations for Clinical Use. *Behavior Modification*, *28*(6), 763-782. doi:10.1177/0145445503259851

Andersen, A., Bowers, W., & Watson, T. (2001). A slimming program for eating disorders not otherwise specified. *Psychiatric Clinics of North America*, *24*(2), 271-280. doi:10.1016/s0193-953x(05)70223-9

Anderson, C., & Bulik, C. (2004). Gender differences in compensatory behaviors, weight and shape salience, and drive for thinness. *Eating Behaviors*, *5*(1), 1-11. doi:10.1016/j.eatbeh.2003.07.001

Anton, S., Han, H., Newton, R., Martin, C., York-Crowe, E., Stewart, T., & Williamson, D. (2006). Reformulation of the Children's Eating Attitudes Test (ChEAT): Factor structure and scoring method in a non-clinical population. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity*, *11*(4), 201-210. doi:10.1007/bf03327572

Archer, L., Rosenbaum, P., & Streiner, D. (1991). The Children's Eating Behavior Inventory: Reliability and Validity Results. *Journal of Paediatric Psychology*, *16*(5), 629-642. doi:10.1093/jpepsy/16.5.629

Arthur, M., Hawkins, J., Pollard, J., Catalano, R., & Baglioni Jr., A. (2002). Measuring risk and protective factors for substance use, delinquency, and other adolescent problem behaviors: The communities that care youth survey. *Evaluation Review*, *26*(6), 575-601. doi:10.1177/019384102237850

Austin, S.B. (2000). Prevention research in eating disorders: theory and new directions. *Psychological Medicine, 30*(6), 1249-1262. doi:10.1017/s0033291799002573

Baldasaro, R. E., Shanahan, M. J., & Bauer, D. J. (2012). Psychometric properties of the Mini-IPIP in a large, Nationally representative sample of young adults. *Journal of Personality Assessment, 95(1),* 74-84. doi: 10.1080/00223891.2012.700466

Ball, J., & Mitchell, P. (2004). A randomized controlled study of cognitive behavior therapy and behavioral family therapy for anorexia nervosa patients. *Eating Disorders, 12*(4), 303-314. doi:10.1080/10640260490521389

Ball, K., & Lee, C. (2000). Relationships between psychological stress, coping and disordered eating: A review. *Psychology & Health, 14*(6), 1007-1035. doi:10.1080/08870440008407364

Baranowski, M.J., & Hetherington, M.M. (2001). Testing the efficacy of an eating disorder prevention program. *International Journal of Eating Disorders*, *29*(2), 119-124. doi:10.1002/1098-108x(200103)29:2<119::aid-eat1001>3.0.co;2-u

Bardone-Cone, A.M., Sturm, K., Lawson, M.A., Robinson, D., & Smith, R. (2009). Perfectionism across stages of recovery from eating disorders. *International Journal Of Eating Disorders*, *43*, 139-148. doi:10.1002/eat.20674

Barrett, P.M. (1998). Evaluation of cognitive-behavioral group treatments for childhood anxiety disorders. *Journal of Clinical Child Psychology, 27*(4), 459-468. doi:10.1207/s15374424jccp2704_10

Barrett, P.M. (2004). *FRIENDS for life program - Participant workbook for children*. Brisbane, QLD: Australian Academic Press.

Barrett, P.M. (2010). *FRIENDS for life: Activity book for children* (4th ed.). Brisbane, QLD: Australian Academic Press.

Barrett, P.M. (2011). *RESILENCE FOR LIFE Adult Program*. Brisbane, QLD: Pathways Health and Research Centre

Barrett, P.M., Lowry-Webster, H.M., & Holmes, J.M. (2010). *FRIENDS for Life children group leader*. Brisbane, QLD: Australian Academic Press.

Barrett, P.M., Rapee, R.M, Dadds, M.M, & Ryan, S.M. (1996). Family enhancement of cognitive style in anxious and aggressive children. *Journal of Abnormal Child Psychology*, *24*(2), 187-203. doi:10.1007/bf01441484

Barrett, P.M., Sonderegger, R., & Sonderegger, N.L. (2001). Evaluation of an anxiety prevention and positive-coping program (FRIENDS) for children and adolescents of non- English-speaking background. *Behaviour Change, 18*(2), 78-91. doi:10.1375/bech.18.2.78

Barrett, P.M., Sonderegger, R., & Xenos, S. (2003). Using FRIENDS to combat anxiety and adjustment problems among young migrants to Australia: A national trial. *Clinical Child Psychology and Psychiatry, 8*(2), 241-260. doi:10.1177/1359104503008002008

Barrett, P.M., & Turner, C.M. (2004). Prevention Strategies. In: T.L. Morris, & J.S March (Eds.), *Anxiety disorders in children and adolescents* (2nd ed.) (pp.371-386). New York: Guilford Press.

Barry, D., Grilo, C., & Masheb, R. (2001). Gender differences in patients with binge eating disorder. *International Journal of Eating Disorders, 31*(1), 63-70. doi:10.1002/eat.1112

Bauer, S., Moessner, M., Wolf, M., Haug, S., & Kordy, H. (2009). ES[S]PRIT – an Internet-based programme for the prevention and early intervention of eating disorders in college students. *British Journal of Guidance & Counselling, 37*(3), 327-336. doi:10.1080/03069880902957049

Baumrind, D. (1991). Parenting styles and adolescent development. *In* J. Brooks-Gunn, R. Lerner, & A. C. Petersen (Eds.), *The encyclopedia of adolescence* (pp. 746–758). *New York: Garland.*

Baumrind, D. (1971). Current patterns of parental authority. Developmental Psychology, 4(1, Pt.2), 1-103. doi:10.1037/h0030372

Beasley, A. (2013). An exploration of the MEPQ: A new measure of maladaptive eating. Unpublished fourth year honours thesis, Bond University.

Becker, C. (2011). *Prevention of Eating Disorders: A top 10 list of things we should not do.* (Summer edition). Retrieved from the National Eating Disorder Collaboration website: http://www.nedc.com.au/files/pdfs/Appendix%20References.pdf

Beintner, I., Jacobi, C., & Taylor, C. (2011). Effects of an internet-based prevention programme for eating disorders in the USA and Germany: a meta-analytic review. *European Eating Disorders Review*, *20*(1), 1-8. doi:10.1002/erv.1130

Ben-Tovim, D., Walker, K., Gilchrist, P., Freeman, R., Kalucy, R., & Esterman, A. (2001). Outcome in patients with eating disorders: A 5-year study. *The Lancet, 357*(9264), 1254-1257. doi:10.1016/s0140-6736(00)04406-8

Berger, T., Caspar, F., Richardson, R., Kneubühler, B., Sutter, D., & Andersson, G. (2011). Internet-based treatment of social phobia: A randomized controlled trial comparing unguided with two types of guided self-help. *Behaviour Research and Therapy, 49*(3), 158-169. doi:10.1016/j.brat.2010.12.007

Bergh, C., Brodin, U., Lindberg, G., & Sodersten, P. (2002). Randomized controlled trial of a treatment for anorexia and bulimia nervosa. *Proceedings of the National Academy of Sciences*, *99*(14), 9486-9491. doi:10.1073/pnas.142284799

Berkman, N.D., Lohr, K.N., & Bulik, C.M. (2007). Outcomes of eating disorders: A systematic review of the literature. *International Journal of Eating Disorders*, *40*(4), 293-309. doi:10.1002/eat.20369

Bernat, D.H., & Resnick, M.D. (2006). Healthy youth development. *Journal of Public Health Management and Practice, 12*, S10-S16. doi:10.1097/00124784-200611001-00004

Bernstein, G. A., Layne, A. E., Egan, E. A., & Tennison, D. M. (2005). School-based interventions for anxious children. *Journal of the American Academy of Child & Adolescent Psychiatry, 44*(11), 1118-1127. doi: 10.1097/01.chi.0000177323.40005.a1

Birleson, P. (1981). The validity of depressive disorders in childhood and the development of a self-rating scale: A research report. *Journal of child psychology psychiatry*, *22*(1), 73-88. doi:10.1111/j.1469-7610.1981.tb00533.x

Birmingham, C., Su, J., Hlynsky, J., Goldner, E., & Gao, M. (2005). The mortality rate from anorexia nervosa. *International Journal of Eating Disorders*, *38*(2), 143-146. doi:10.1002/eat.20164

Blatt, S. (2004). *Experiences of depression*. Washington, DC: American Psychological Association.

Blissett, J., & Haycraft, E. (2008). Are parenting style and controlling feeding practices related? *Appetite, 50*(2-3), 477-485. doi:10.1016/j.appet.2007.10.003

Blodgett, E.H., Gondoli, D.M., Corning, A.F., McEnery, A.M., & Grundy, A.M. (2007). Psychological distress as a mediator of the relation between perceived maternal parenting and normative maladaptive eating among adolescent girls. *Journal of Counseling Psychology*, *54*(4), 434-446. doi:10.1037/0022-0167.54.4.434

Bögels, S., & Phares, V. (2008). Fathers' role in the etiology, prevention and treatment of child anxiety: A review and new model. *Clinical Psychology Review*, *28*(4), 539-558. doi:10.1016/j.cpr.2007.07.011

Bond, L., Toumbourou, J.W., Lyndal, T., Catalano, R.F., & Patton, G. (2005). Individual, family, school, and community risk and protective factors for depressive symptoms in adolescents: A comparison of risk profiles for substance use and depressive symptoms. *Prevention Science, 6,* 73-88. doi:10.1007/s11121-005-3407-2

Boone, L., Braet, C., Vandereycken, W., & Claes, L. (2012). Are maladaptive schema domains and perfectionism related to body image concerns in eating disorder patients? *European Eating Disorders Review, 21,* 45-51. doi:10.1002/erv.2175

Boone, L., Claes, L., & Luyten, P. (2014). Too strict or too loose? Perfectionism and impulsivity: The relation with eating disorder symptoms using a person-centered approach. *Eating Behaviors, 15*(1), 17-23. doi:10.1016/j.eatbeh.2013.10.013

Botta, R., & Dumlao, R. (2002). How do conflict and communication patterns between fathers and daughters contribute to or offset eating disorders? *Health Communication, 14*(2), 199-219. doi:10.1207/s15327027hc1402_3

Boyden, J. & Mann, G. (2005). Children's risk, resilience, and coping in extreme situations. In M. Ungar (Ed.), *Handbook for working with children and youth: Pathways to resilience across cultures and contexts* (pp. 3–26). Thousand Oaks: Sage Publications

Braet, C., Soetens, B., Moens, E., Mels, S., Goossens, L., & Van Vlierberghe, L. (2007). Are two informants better than one? Parent–child agreement on the eating styles of children who are overweight. *European Eating Disorders Review, 15*(6), 410-417. doi:10.1002/erv.798

Bravender T, Bryant-Waugh R, Herzog D, Katzman, D, Kreipe, R.D., & Lask, B. (2007). Classification of child and adolescent eating disturbances. (2007). *International Journal of Eating Disorders, 40*(S3), S117-S122. doi:10.1002/eat.20458

Bravender, T., Bryant-Waugh, R., Herzog, D., Katzman, D., Kriepe, R., & Lask, B. et al. (2010). Classification of eating disturbance in children and adolescents: Proposed

changes for the DSM-V. *European Eating Disorders Review*, *18*(2), 79-89. doi:10.1002/erv.994

Brodaty, H., Green, A., & Koschera, A. (2003). Meta-analysis of psychosocial interventions for caregivers of people with dementia. *Journal of the American Geriatrics Society*, *51*(5), 657-664. doi:10.1034/j.1600-0579.2003.00210.x

Bronfenbrenner, U. (2005). *Making human beings human*. Thousand Oaks: Sage Publications.

Brooks, R., & Goldstein, S. (2001). *Raising resilient children*. Lincolnwood, Illinois: Contemporary Books.

Brown, T.A, Chorpita, B.F., Korotitsch, W., & Barlow, D.H. (1997). Psychometric properties of the Depression Anxiety Stress Scales (DASS) in clinical samples. *Behaviour Research And Therapy*, *35*(1), 79-89. doi:10.1016/s0005-7967(96)00068-x

Bryant-Waugh, R. (2013). Feeding and eating disorders in children. *Current Opinion in Psychiatry*, *26*(6), 537-542. doi:10.1097/yco.0b013e328365a34b

Buckner, J. C., Mezzacappa, E. & Beardslee, W. R. (2003). Characteristics of resilient youths living in poverty: The role of self-regulatory processes. *Development and Psychopathology*, *15*(1), 139-162. doi:10.1017/s0954579403000087

Budd, G. (2007). Disordered eating: Young women's search for control and connection. *Journal of Child and Adolescent Psychiatric Nursing*, *20*(2), 96-106. doi:10.1111/j.1073-6077.2007.00091.x

Buddeberg-Fischer, B., & Reed, V. (2001). Prevention of disturbed eating behaviour: An intervention program in Swiss high school classes. *Eating Disorders*, *9*(2), 109-124. doi:10.1080/10640260127723

Bulik, C.M. (2005). Exploring the gene-environment nexus in eating disorders. *Journal of Psychiatry Neuroscience*, *30*(5), 335-399. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/16151538

Bulik, C.M., Berkman, N., Brownley, K., Sedway, J., & Lohr, K. (2007). Anorexia nervosa treatment: A systematic review of randomized controlled trials. *International Journal of Eating Disorders*, *40*(4), 310-320. doi:10.1002/eat.20367

Bulik, C.M., & Reichborn-Kjennerud, T. (2003). Medical morbidity in binge eating disorder. *International Journal of Eating Disorders*, *34*(S1), S39-S46. doi:10.1002/eat.10204

Bulik, C.M., Sullivan, P.F., Carter, F.A., McIntosh, V.V. & Joyce, P.R. (1998). The role of exposure with response prevention in the cognitive-behavioural therapy for bulimia nervosa. *Psychological Medicine*, *28*(3), 611-623. doi:10.1017/s0033291798006618

Bulik, C., Sullivan, P., Wade, T., & Kendler, K. (2000). Twin studies of eating disorders: A review. *International Journal of Eating Disorders*, *27*(1), 1-20. doi:10.1002/(sici)1098-108x(200001)27:1<1::aid-eat1>3.3.co;2-h

Bulik, C., Thornton, L., Pinheiro, A., Plotnicov, K., Klump, K., & Brandt, H. et al. (2008). Suicide Attempts in Anorexia Nervosa. *Psychosomatic Medicine*, *70*(3), 378-383. doi:10.1097/psy.0b013e3181646765

Bulik, C., Yilmaz, Z., & Hardaway, A. (2015). Genetics and epigenetics of eating disorders. *AGG*, 131. doi:10.2147/agg.s55776

Bushnell, J.A., Wells, J.E., McKenzie, J.M., Hornblow, A.R., Oakley-Browne, M., & Joyce, P. (1994). Bulimia comorbidity in the general population and in the clinic. *Psychological Medicine*, *24*(03), 605. doi:10.1017/s0033291700027756

Button, E., Loan, P., Davies, J., & Sonuga-Barke, E. (1997). Self-esteem, eating problems, and psychological well-being in a cohort of schoolgirls aged 15-16: A questionnaire and interview study. *International Journal of Eating Disorders*, *21*(1), 39-47. doi:10.1002/(sici)1098-108x(199701)21:1<39::aid-eat5>3.3.co;2-x

Byrne, S.M., Fursland, A., Allen, K.L., & Watson, H. (2011). The effectiveness of enhanced cognitive behavioural therapy for eating disorders: An open trial. *Behaviour Research and Therapy*, *49*(4), 219-226. doi:10.1016/j.brat.2011.01.006

Byrne, S.M., & McLean, N. (2001). The cognitive-behavioral model of bulimia nervosa: A direct evaluation. *International Journal Of Eating Disorders*, *31*(1), 17-31. doi:10.1002/eat.10002

Call, C., Walsh, B.T., & Attia, E. (2013). From DSM-IV to DSM-5. *Current Opinion in Psychiatry*, *26*(6), 532-536. doi:10.1097/yco.0b013e328365a321

Campbell, M.A., (2004) Identification of “at-risk” students for prevention and early intervention programs in secondary schools. *Australian Journal of Guidance and Counselling 14*(1):65-77. Retrieved from http://eprints.qut.edu.au/1941/1/1941.pdf

Campbell, L.C., Keefe, K.F., McKee, D., Edwards, C.L., Herman, S.H., & Johnson, L. (2004). Prostate cancer in African Americans: relationship of patient and partner self-efficacy to quality of life. *Journal of Pain and Symptom Management*, *28*(5), 433-444. doi:10.1016/j.jpainsymman.2004.02.020

Caplan, G. (1964). *Principles of preventive psychiatry*. New York: Basic Books.

Carey, R., Donaghue, N., & Broderick, P. (2014). Body image concern among Australian adolescent girls: The role of body comparisons with models and peers. *Body Image*, *11*(1), 81-84. doi:10.1016/j.bodyim.2013.09.006

Carlton, P., & Pyle, R. (2007). A program for parents of teens with anorexia nervosa and eating disorder not otherwise specified. *International Journal of Psychiatry in Clinical Practice*, *11*(1), 9-15. doi:10.1080/13651500600810968

Carter, F., Jordan, J., McIntosh, V., Luty, S., McKenzie, J., & Frampton, C. et al. (2010). The long-term efficacy of three psychotherapies for anorexia nervosa: A randomized,

controlled trial. *International Journal of Eating Disorders*, *44*(7), 647-654. doi:10.1002/eat.20879

Cash, T.F. (2000). *The MBSRQ Users' Manual* (3rd ed.). Unpublished manuscript, Department of Psychology, Old Dominion University, Virginia, USA.

Castro, J., Lazaro, L., Pons, F., Halperin, I., & Toro, J. (2000). Predictors of bone mineral density reduction in adolescents with anorexia nervosa. *Journal of the American Academy of Child & Adolescent Psychiatry*, *39*(11), 1365-1370. doi:10.1097/00004583-200011000-00010

Castro, J., Toro, J., Cruz M. (2000). Quality of rearing practices as predictor of short-term outcome in adolescent anorexia nervosa. *Psychological Medicine*, *30*(1), 61-67. doi:10.1017/s0033291799001385

Cattell, R.B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*, *1*(2), 245-276. doi:10.1207/s15327906mbr0102_10

Catell, R.B. (1978). *Scientific use of factor analysis in the behavioural and life sciences*, New York, NY: Plenum Press.

Chamay-Weber, C., Narring, F., & Michaud, P.A. (2005). Partial eating disorders among adolescents: A review. *Journal of Adolescent Health*, *37*(5), 416-426. doi:10.1016/j.jadohealth.2004.09.014

Charney, D. (2004). Psychobiological Mechanisms of Resilience and Vulnerability. *FOCUS*, *2*(3), 368-391. doi:10.1176/foc.2.3.368

Chen, E., le Grange, D., Doyle, A., Zaitsoff, S., Doyle, P., Roehrig, J., & Washington, B. (2010). A Case Series of Family-Based Therapy for Weight Restoration in Young Adults with Anorexia Nervosa. *Journal of Contemporary Psychotherapy*, *40*(4), 219-224. doi:10.1007/s10879-010-9146-0

Childress, A.C., Jarrell, M.P., & Brewerton, T.D. (1993). The kids' eating disorders survey (KEDS): Internal consistency, component analysis, and reliability. *Eating Disorders*, *1*(2), 123-133. doi:10.1080/10640269308248280

Christenson, S., Sinclair, M., Lehr, C., & Godber, Y. (2001). Promoting successful school completion: Critical conceptual and methodological guidelines. *School Psychology Quarterly*, *16*(4), 468-484. doi:10.1521/scpq.16.4.468.19898

Christie, D., Watkins, B., & Lask, B. (2000). Assessment. In B. Lask, R. Bryant-Waugh (Eds.), *Anorexia nervosa and related eating disorders in childhood and adolescence* (pp. 45-55). East Essex, London: Psychology Press.

Chui, W., Safer, D.L., Bryson, S.,W. Agras, W.S., & Wilson, G.T. (2007). A comparison of ethnic groups in the treatment of bulimia nervosa. *Eating Behaviors, 8*(4), 485-491. doi:10.1016/j.eatbeh.2007.01.005

Cindy, H. (2012, August 22). Child eating disorders on the rise. *Cable News Network.* Retrieved from http://edition.cnn.com/2012/08/22/health/child-eating-disorders

Claes, L., Vandereycken, W., & Vertommen, H. (2004). Family environment of eating disordered patients with and without self-injurious behaviors. *European Psychiatry*, *19*(8), 494-498. doi:10.1016/j.eurpsy.2004.09.001

Collins, L. (2005). *Eating with your anorexic*. New York: McGraw-Hill.

Comrey, A.L., & Lee, H.B. (1992). *A first course in factor analysis*. Hillsdale, N.J.: Erlbaum.

Cooley, M.R., Boyd, R.C., & Grados, J.J. (2004). Feasibility of an anxiety preventive intervention for community violence exposed African-American children. *The Journal of Primary Prevention*, *25*(1), 105-123. doi:10.1023/b:jopp.0000039941.85452.ea

Coomber, K., & King, R. (2012). A longitudinal examination of burden and psychological distress in carers of people with an eating disorder. *Social Psychiatry and Psychiatric Epidemiology*, *48*(1), 163-171. doi:10.1007/s00127-012-0524-7

Cooper, P., & Fairburn, C. (1993). Confusion over the core psychopathology of bulimia nervosa. *International Journal of Eating Disorders*, *13*(4), 385-389. doi:10.1002/1098-108x(199305)13:4<385::aid-eat2260130406>3.0.co;2-w

Cororve Fingeret, M., Warren, C., Cepeda-Benito, A., & Gleaves, D. (2006). Eating disorder prevention research: A meta-analysis. *Eating Disorders*, *14*(3), 191-213. doi:10.1080/10640260600638899

Corson, P., & Andersen, A. (2002). Body image issues among boys and men. In T. Cash & T. Pruzinsky (Eds.), *Body image*: *A handbook of theory*, *research*, *and clinical practice* (pp. 192–199). New York, Guilford.

Cotton, M., Ball, C., & Robinson, P. (2003). Four simple questions can help screen for eating disorders. *J Gen Intern Med*, *18*(1), 53-56. doi:10.1046/j.1525-1497.2003.20374.x

Couturier, J., Isserlin, L., & Lock, J. (2010). Family-based treatment for adolescents with anorexia nervosa: A dissemination study. *Eating Disorders*, *18*(3), 199-209. doi:10.1080/10640261003719443

Cowan, P.A., & Cowan, C.P. (2006). Developmental psychopathology from family systems and family risk factors perspectives: Implications for family research, practice, and policy. In D. Cicchetti & D.J. Cohens, (Eds.), *Developmental Psychopathology* (p.530-587). New York: Wiley.

Criego, A., Crow, S., Goebel-Fabbri, A., Kendall, D., & Parkin, C. (2009). Eating Disorders and Diabetes: Screening and Detection. *Diabetes Spectrum*, *22*(3), 143-146. doi:10.2337/diaspect.22.3.143

Crisp, A. (2006). 1.6. Death, survival and recovery in anorexia nervosa: a thirty five year study. *European Eating Disorders Review*, *14*(3), 168-175. doi:10.1002/erv.704

Crow, S., & Peterson, C. (2009). Refining Treatments for Eating Disorders. *AJP*, *166*(3), 266-267. doi:10.1176/appi.ajp.2008.08121820

Currin, L., & Schmidt, U. (2005). A critical analysis of the utility of an early intervention approach in the eating disorders. *J Ment Health*, *14*(6), 611-624. doi:10.1080/09638230500347939

Dadds, M., Sanders, M., & Boor, B. (1984). Training Children to Eat Independently: Evaluation of Mealtime Management Training for Parents. *Behavioral Psychotherapy*, *12*(04), 356. doi:10.1017/s0141347300011423

D'Souza, C., Forman, S., & Austin, S. (2005). Follow-up evaluation of a high school eating disorders screening program: Knowledge, awareness and self-referral. *Journal of Adolescent Health*, *36*(3), 208-213. doi:10.1016/j.jadohealth.2004.01.014

Damiano, S., Gregg, K., Spiel, E., McLean, S., Wertheim, E., & Paxton, S. (2015). Relationships between body size attitudes and body image of 4-year-old boys and girls, and attitudes of their fathers and mothers. *Journal of Eating Disorders*, *3*(1). doi:10.1186/s40337-015-0048-0

Dancyger, I., Fornari, V., Scionti, L., Wisotsky, W., & Sunday, S. (2005). Do daughters with eating disorders agree with their parents' perception of family functioning? *Comprehensive Psychiatry*, *46*(2), 135-139. doi:10.1016/j.comppsych.2004.07.024

Darby, A., Hay, P., Mond, J., Quirk, F., Buttner, P., & Kennedy, L. (2009). The rising prevalence of comorbid obesity and eating disorder behaviors from 1995 to 2005. *International Journal of Eating Disorders*, *42*(2), 104-108. doi:10.1002/eat.20601

Darcy, A., Katz, S., Fitzpatrick, K., Forsberg, S., Utzinger, L., & Lock, J. (2010). All better? How former anorexia nervosa patients define recovery and engaged in treatment. *European Eating Disorders Review*, *18*(4), 260-270. doi:10.1002/erv.1020

Dare, C., Eisler, I., Russell, G., Treasure, J., & Dodge, L. (2001). Psychological therapies for adults with anorexia nervosa: Randomised controlled trial of out-patient treatments. *The British Journal of Psychiatry*, *178*(3), 216-221. doi:10.1192/bjp.178.3.216

Davey, M., Fish, L.S., Askew, J., & Robila, M. (2003). Parenting practices and the transmission of ethnic identity. *Journal of Marital and Family Therapy, 29*(2), 195-208. doi:10.1111/j.1752-0606.2003.tb01200.x

Davis, L.L., Burgio, L.D., Buckwalter, K.C., & Weaver, M. (2004). A comparison of in-home and telephone-based skill training interventions with caregivers of persons with dementia. *Journal of Mental Health and Aging 10*(1), 31–44. Retrieved from http://psycnet.apa.org/psycinfo/2004-18319-003

Davis, C.L., Delameter, A.M., & Shaw, K.H. (2001). Parenting styles, regimen adherence, and glycemic control in 4- to 10-year-old children with diabetes. *Journal of Pediatric Psychology, 26*(2), 123-129. doi:10.1093/jpepsy/26.2.123

Davison, K., & Birch, L. (2002). Processes linking weight status and self-concept among girls from ages 5 to 7 years. *Developmental Psychology, 38*(5), 735-748. doi:10.1037//0012-1649.38.5.735

Davison, K., Markey, C., & Birch, L. (2003). A longitudinal examination of patterns in girls' weight concerns and body dissatisfaction from ages 5 to 9 years. *International Journal of Eating Disorders, 33*(3), 320-332. doi:10.1002/eat.10142

de León, M., Díaz, J., & Ruiz, E. (2008). A pilot study of the clinical and statistical significance of a program to reduce eating disorder risk factors in children. *Eating and Weight Disorders - Studies On Anorexia, Bulimia And Obesity, 13*(3), 111-118. doi:10.1007/bf03327611

Decaluwé, V., & Braet, C. (2004). Assessment of eating disorder psychopathology in obese children and adolescents: interview versus self-report questionnaire. *Behaviour Research and Therapy, 42*(7), 799-811. doi:10.1016/j.brat.2003.07.008

Decaluwé, V., Braet, C., Moens, E., & Van Vlierberghe, L. (2006). The association of parental characteristics and psychological problems in obese youngsters. *International*

Journal of Obesity, Related Metabolic Disorders, 30(12), 1766-1774. doi:10.1038/sj.ijo.0803336

Delinsky, S., & Wilson, G. (2006). Mirror exposure for the treatment of body image disturbance. *International Journal f Eating Disorders, 39*(2), 108-116. doi:10.1002/eat.20207

Denney-Wilson, E., Hardy, L., Dobbins, T., Okely, A., & Baur, L. (2008). Body mass index, waist circumference, and chronic disease risk factors in Australian adolescents. *Archives of Pediatrics & Adolescent Medicine, 162*(6), 566. doi:10.1001/archpedi.162.6.566

Dohnt, H., & Tiggemann, M. (2008). Promoting positive body image in young girls: an evaluation of 'Shapesville'. *European Eating Disorders Review, 16*(3), 222-233. doi:10.1002/erv.814

Donnellan, M.B., Oswald, F.L., Baird, B.M., & Lucas, R.E. (2006). The mini-IPIP scales: Tiny-yet-effective measures of the Big Five factors of personality. *Psychological Assessment, 18,* 192-203. doi: 10.1037/1040-3590.18.2.192

Durkin, .S. J., Paxton, S. & Wertheim, E. H. (2005). How do adolescent girls evaluate body dissatisfaction prevention messages? *Journal of Adolescent Health, 37*(5), 381-390. doi:10.1016/j.jadohealth.2004.08.006

Durlak, J. (1998). Common risk and protective factors in successful prevention programs. *American Journal of Orthopsychiatry, 68*(4), 512-520. doi:10.1037/h0080360

Ebenreuter, J. L., & Hicks, R. E. (2012). Maladaptive eating practices as precursors to eating disorders: A method of assessment. In L. Ricciardelli & M. Caltabiono (Eds), *The Wiley-Blackwell handbook of applied topics in health psychology* (pp. 278-287). West Sussex, UK: John Wiley & Sons, Ltd.

Eddy, K., Dorer, D., Franko, D., Tahilani, K., Thompson-Brenner, H., & Herzog, D. (2008). Diagnostic Crossover in Anorexia Nervosa and Bulimia Nervosa: Implications for DSM-V. *AJP, 165*(2), 245-250. doi:10.1176/appi.ajp.2007.07060951

Eddy, K., Le Grange, D., Crosby, R., Hoste, R., Doyle, A., Smyth, A., & Herzog, D. (2010). Diagnostic Classification of Eating Disorders in Children and Adolescents: How Does DSM-IV-TR Compare to Empirically-Derived Categories? *Journal of the American Academy of Child & Adolescent Psychiatry*, *49*(3), 277-287. doi:10.1016/j.jaac.2009.10.012

Eisler, I., Dare, C., Hodes, M., Russell, G., Dodge, E., & Le Grange, D. (2005). Family Therapy for Adolescent Anorexia Nervosa: Family therapy for adolescent anorexia nervosa: The results of a controlled comparison of two family interventions. *FOCUS*, *3*(4), 629-640. doi:10.1176/foc.3.4.629

Eisler, I., Lock, J. & Le Grange, D. (2010). Family-based treatments for adolescents with anorexia nervosa: Single-family and multifamily approaches. In C. M. Grilo & J. E. Mitchell, (Eds.) *The Treatment of Eating Disorders: A Clinical Handbook* (p. 350-357). New York: Guilford Press.

Eisler, I., Simic, M., Russell, G. & Dare, C. (2007). A randomised control treatment trial of two forms of family therapy in adolescent anorexia nervosa: a five year follow up. *Journal of Child Psychology and Psychiatry, and allied disciplines, 48*(6), 552-560.

Endicott, R., & Liossis, C. (2009). Australian adolescents' perceptions of their parents: an analysis of parenting styles, communication and feelings towards parents. *Youth Studies Australia, 24*(8), 265-278. Retrieved from http://eprints.qut.edu.au/23542

Engel, S.G., Adair, C.E., Hayas, C.L., & Abraham, S. (2009). Health-related quality of life and eating disorders: A review and update. *International Journal of Eating Disorders*, *42*(2), 179-187. doi:10.1002/eat.20602

Enten, R.S., & Golan, M. (2008). Parenting styles and weight-related symptoms and behaviors with recommendations for practice. *Nutrition Reviews*, *66*(2), 65-75. doi:10.1111/j.1753-4887.2007.00009.x

Enten, R.S., & Golan, M. (2009). Parenting styles and eating disorder pathology. *Appetite*, *52*(3), 784-787. doi:10.1016/j.appet.2009.02.013

Erickson, S., & Gerstle, M. (2007). Developmental considerations in measuring children's disordered eating attitudes and behaviors. *Eating Behaviors*, *8*(2), 224-235. doi:10.1016/j.eatbeh.2006.06.003

Erickson, S.J., Hahn-Smith, A., & Smith, J.E. (2009). One step closer: Understanding the complex relationship between weight and self-esteem in ethnically diverse preadolescent girls. *Journal of Applied Developmental Psychology*, *30*(2), 129-139. doi:10.1016/j.appdev.2008.11.004

Eshkevari, E., Rieger, E., Longo, M., Haggard, P., & Treasure, J. (2013). Persistent body image disturbance following recovery from eating disorders. *International Journal Of Eating Disorders*, *47*(4), 400-409. doi:10.1002/eat.22219

Fairburn, C.G. (1997). Eating disorders. In D. M. Clark & C.G. Fairburn (Eds.), *The science and practice of cognitive behaviour therapy* (pp. 209-242). Oxford, UK: Oxford University Press.

Fairburn, C.G. (2005). Evidence-based treatment of anorexia nervosa. *International Journal of Eating Disorders*, *37*(S1), S26-S30. doi:10.1002/eat.20112

Fairburn, C.G. (2010). "Cognitive behavioral therapy for eating disorders". *Psychiatric Clinics of North America 33*(3): 611–627. doi:10.1016/j.psc.2010.04.004. PMC 2928448. PMID 20599136.

Fairburn, C., & Cooper, Z. (2011). Eating disorders, DSM-5 and clinical reality. *The British Journal of Psychiatry*, *198*(1), 8-10. doi:10.1192/bjp.bp.110.083881

Fairburn, C., Cooper, Z., Doll, H., & Davies, B. (2005). Identifying dieters who will develop an eating disorder: A prospective, population-based study. *American Journal Psychiatry*, *162*(12), 2249-2255. doi:10.1176/appi.ajp.162.12.2249

Fairburn, C., Cooper, Z., Doll, H., O'Connor, M., Bohn, K., & Hawker, D. et al. (2009). Transdiagnostic cognitive-behavioral therapy for patients with eating disorders: A two-site trial with 60-week follow-up. *American Journal Psychiatry*, *166*(3), 311-319. doi:10.1176/appi.ajp.2008.08040608

Fairburn, C., & Harrison, P. (2003). Eating disorders. *The Lancet*, *361*(9355), 407-416. doi:10.1016/s0140-6736(03)12378-1

Fernández-Aranda, F., Krug, I., Granero, R., Ramón, J.M., Badia, A., & Giménez, L. et al. (2007). Individual and family eating patterns during childhood and early adolescence: An analysis of associated eating disorder factors. *Appetite*, *49*(2), 476-485. doi:10.1016/j.appet.2007.03.004

Field, A. (2005). *Discovering statistics using SPSS*. London: Sage Publications.

Field, A.E., Austin, S.B., Taylor, C.B., Malspeis, S., Rosner, B., & Rockett, H. et al. (2003). Relation between dieting and weight change among preadolescents and adolescents. *Pediatrics*, *112*(4), 900-906. doi:10.1542/peds.112.4.900

Fink, E., Smith, A., Gordon, K., Holm-Denoma, J., & Joiner, T. (2009). Psychological correlates of purging disorder as compared with other eating disorders: An exploratory investigation. *International Journal of Eating Disorders*, *42*(1), 31-39. doi:10.1002/eat.20556

Fisher, C. A., Hedrick. S. E., & Rushford, N. (2010). Family therapy for anorexia nervosa. *Cochrane Database of Systematic Reviews, Apr 14*(4), No. CD004780. doi: 10.1002/14651858.CD004780.pub2.

Fisher, M., Schneider, M., Burns, J., Symons, H., & Mandel, F. (2001). Differences between adolescents and young adults at presentation to an eating disorders program. *Journal of Adolescent Health*, *28*(3), 222-227. doi:10.1016/s1054-139x(00)00182-8

Fitzsimmons, E., & Bardone-Cone, A. (2011). Coping and social support as potential moderators of the relation between anxiety and eating disorder symptomatology. *Eating Behaviors*, *12*(1), 21-28. doi:10.1016/j.eatbeh.2010.09.002Flett, G.L., Hewitt, P.L., Oliver, J.M., & McDonald, S. (2002) Perfectionism in children and their parents: A developmental analysis. In G.L. Flett & P.L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 89-132). Washington, DC: APA

Forcano, L., Álvarez, E., Santamaría, J., Jimenez-Murcia, S., Granero, R., & Penelo, E. et al. (2011). Suicide attempts in anorexia nervosa subtypes. *Comprehensive Psychiatry*, *52*(4), 352-358. doi:10.1016/j.comppsych.2010.09.003

Fosson, A., Knibbs, J., Bryant-Waugh, R., & Lask, B. (1987). Early onset anorexia nervosa. *Archives of Disease in Childhood*, *62*(2), 114-118. doi:10.1136/adc.62.2.114

Fox, A., & Leung, N. (2009). Existential well-being in younger and older people with anorexia nervosa-a preliminary investigation. *European Eating Disorders Review*, *17*(1), 24-30. doi:10.1002/erv.895

Francis, L., & Birch, L. (2005). Maternal influences on daughters' restrained eating behavior. *Health Psychology*, *24*(6), 548-554. doi:10.1037/0278-6133.24.6.548

Franko, D.L., Mintz, L.B., Villapiano, M., Green, T.C., Mainelli, D., & Folensbee, L. et al. (2005). Food, mood, and attitude: Reducing risk for eating disorders in college women. *Health Psychology*, *24*(6), 567-578. doi:10.1037/0278-6133.24.6.567

Fraser, K., Norton, L., Morgan, J., & Kirkwood, J. (Eds.). (2002). *Fun not fuss with food: Facilitator's manual*. Brisbane, QLD: Queensland Health.

Freund, K.M., Graham, S.M., Lesky, L.G., & Moskowitz, M. (1993). Detection of bulimia in a primary care setting. *Journal of General Internal Medicine, 8*(5), 236-242. doi:10.1007/bf02600088

Friedman, S. (2002). *Body thieves*. Vancouver, BC: Salal Communications Ltd.

Frost, R., & Marten, P. (1990). Perfectionism and evaluative threat. *Cognitive Therapy And Research, 14*(6), 559-572. doi:10.1007/bf01173364

Gadalla, T. (2008). Psychiatric comorbidity in eating disorders: a comparison of men and women. *Journal of Men's Health, 5*(3), 209-217. doi:10.1016/j.jomh.2008.06.033

Galloway, A.T., Fiorito, L., Lee, Y., & Birch, L.L. (2005). Parental pressure, dietary patterns, and weight status among girls who are “picky eaters”. *Journal of the American Dietetic Association, 105*(4), 541-548. doi:10.1016/j.jada.2005.01.029

Garner, D.M. (1997). *Handbook of Treatment for Eating Disorders*, New York: Guilford Press.

Garner, D.M., & Garfinkel, P. (1979). The eating attitudes test: an index of the symptoms of anorexia nervosa. *Psychological Medicine, 9*(02), 273. doi:10.1017/s0033291700030762

Garner, D.M., Olmsted, M.P., Bohr, Y., & Garfinkel, P.E. (1982). The eating attitudes test: Psychometric features and clinical correlates. *Psychological Medicine, 12*(04), 871. doi:10.1017/s0033291700049163

Geist, R., Heinmaa, M., Stephens, D., Davis, R., & Katzman, D.K. (2000). Comparison of family therapy and family group psychoeducation in adolescents with anorexia nervosa. *Canadian Journal of Psychiatry 45*(2), 173–178. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10742877

Ghaderi, A., & Scott, B. (2001a). Prevalence, incidence and prospective risk factors for eating disorders. *Acta Psychiatrica Scandinavica*, *104*(2), 122-130. doi:10.1034/j.1600-0447.2001.00298.x

Ghaderi, A., & Scott, B. (2001b). The preliminary reliability and validity of the Survey for Eating Disorders (SEDs): A self-report questionnaire for diagnosing eating disorders. *European Eating Disorders Review*, *10*, 61-76. doi: 10.1002/erv.425

Gitlin, L., Belle, S., Burgio, L., Czaja, S., Mahoney, D., & Gallagher-Thompson, D. (2003). Effect of multicomponent interventions on caregiver burden and depression: The REACH multisite initiative at 6-month follow-up. *Psychology and Aging*, *18*(3), 361-374. doi:10.1037/0882-7974.18.3.361

Given, B., & Given, C. (1996). Family caregiver burden from cancer care. In R. McCorkle, M., Grant, M., Frank-Stromborg, & S. Baird (Eds.), *Cancer Nursing: A Comprehensive Textbook, 2*, (pp. 93–109). Orlando: W.B. Saunders Co.

Given, B., Wyatt, G., Given, C., Sherwood, P., Gift, A., DeVoss, D., & Rahbar, M. (2004). Burden and depression among caregivers of patients with cancer at the end of life. *Oncology Nursing Forum*, *31*(6), 1105-1117. doi:10.1188/04.onf.1105-1117

Golan, M. (2013). The journey from opposition to recovery from eating disorders: multidisciplinary model integrating narrative counseling and motivational interviewing in traditional approaches. *Journal of Eating Disorders*, *1*(1), 19. doi:10.1186/2050-2974-1-19

Goldberg, L., Johnson, J., Eber, H., Hogan, R., Ashton, M., Cloninger, C., & Gough, H. (2006). The international personality item pool and the future of public-domain personality measures. *Journal of Research In Personality*, *40*(1), 84-96. doi:10.1016/j.jrp.2005.08.007

Gollings, E., & Paxton, S. (2006). Comparison of internet and face-to-face delivery of a group body image and disordered eating intervention for women: A pilot study. *Eating Disorders, 14*(1), 1-15. doi:10.1080/10640260500403790

Gonzales, N.A., Dumka, L.E., Millsap, R.E., Gottschall, A., McClain, D., & Wong, J.J… Kim, S.Y. (2012). Randomized trial of a broad preventive intervention for Mexican American adolescents. *Journal of Consulting and Clinical Psychology, 80*(1), 1-16. doi:10.1037/a0026063

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry, 38,* 581-586. doi: 10.1111/j.1469-7610.1997.tb01545.x

Goodman, R. (2001). Psychometric properties of the Strengths and Difficulties Questionnaire. *Journal of the American Academy of Child & Adolescent Psychiatry, 40,* 1337-1345. doi: 10.1097/00004583-200111000-00015

Gowers, S., & McMahon, J. (1989). Social class and prognosis in anorexia nervosa. *International Journal of Eating Disorders, 8*(1), 105-109. doi:10.1002/1098-108x(198901)8:1<105::aid-eat2260080112>3.0.co;2-u

Graber, J., Brooks-Gunn, J., Paikoff, R., & Warren, M. (1994). Prediction of eating problems: An 8-year study of adolescent girls. *Developmental Psychology, 30*(6), 823-834. doi:10.1037/0012-1649.30.6.823

Graff Low, K., Charanasomboon, S., Lesser, J., Reinhalter, K., Martin, R., & Jones, H. et al. (2006). Effectiveness of a computer-based interactive eating disorders prevention program at long-term follow-up. *Eating Disorders, 14*(1), 17-30. doi:10.1080/10640260500403816

Grave, R., Luca, L., & Campello, G. (2001). Middle school primary prevention program for eating disorders: A controlled study with a twelve-month follow-up. *Eating Disorders*, *9*(4), 327-337. doi:10.1080/106402601753454895

Green, S. P., & Pritchard, M. E. (2003). Predictors of body image dissatisfaction in adult men and women. *Social Behaviour and Personality: An International Journal*, *31*(3), 215-222. doi:10.2224/sbp.2003.31.3.215

Griffiths, S., Mond, J., Murray, S., & Touyz, S. (2014). The prevalence and adverse associations of stigmatization in people with eating disorders. *International Journal of Eating Disorders*, n/a-n/a. doi:10.1002/eat.22353

Griffiths, L.J., Parsons, T.J., & Hill, A.J. (2010). Self-esteem and quality of life in obese children and adolescents: A systematic review. *International Journal of Pediatric Obesity*, *5*(4), 282-304. doi:10.3109/17477160903473697

Grisset, N., & Norvell, N. (1992). Perceived social support, social skills, and quality of relationships in bulimic women. *Journal of Consulting And Clinical Psychology*, *60*(2), 293-299. doi:10.1037/0022-006x.60.2.293

Gulec, H., Moessner, M., Mezei, A., Kohls, E., Túry, F., & Bauer, S. (2011). Internet-based maintenance treatment for patients with eating disorders. *Professional Psychology: Research and Practice*, *42*(6), 479-486. doi:10.1037/a0025806

Haigh, R., & Treasure, J. (2003). Investigating the needs of carers in the area of eating disorders: development of the Carers' Needs Assessment Measure (CaNAM). *European Eating Disorders Review*, *11*(2), 125-141. doi:10.1002/erv.487

Halmi, K. (1991). Comorbidity of psychiatric diagnoses in anorexia nervosa. *Archives of General Psychiatry*, *48*(8), 712. doi:10.1001/archpsyc.1991.01810320036006

Halmi, K., Agras, W., Crow, S., Mitchell, J., Wilson, G., Bryson, S., …Kraemer, H. (2005). Predictors of treatment acceptance and completion in anorexia nervosa. *Archives of General Psychiatry*, *62*(7), 776. doi:10.1001/archpsyc.62.7.776

Harb, C. (2012, August). Child eating disorders on the rise. CNN International Edition. Retrieved from http://edition.cnn.com/2012/08/22/health/child-eating-disorders/

Harrison, K., & Cantor, J. (1997). The relationship between media consumption and eating disorders. *Journal of Communication, 47*(1), 40-67. doi:10.1111/j.1460-2466.1997.tb02692.x

Hart, L.M., Jorm, A.F., Paxton, S.J., Kelly, C.M., & Kitchener, B.A. (2009). First aid for eating disorders. *Eating Disorders, 17*(5), 357-384. doi:10.1080/10640260903210156

Hay, P., Darby, A., & Mond, J. (2007). Knowledge and beliefs about bulimia nervosa and its treatment: A comparative study of three disciplines. *Journal of Clinical Psychology in Medical Settings*, *14*(1), 59-68. doi:10.1007/s10880-007-9057-8

Hay, P.J., Mond, J., Buttner, P., & Darby, A. (2008). Eating disorder behaviours are increasing: Findings from two sequential community surveys in South Australia. *Plos ONE, 3*(2), e1541. doi:10.1371/journal.pone.0001541

Heinicke, B.E., Paxton, S.J., McLean, S.A., & Wertheim, E.H. (2007). Internet-delivered targeted group intervention for body dissatisfaction and disordered eating in adolescent Girls: A randomized controlled trial. *Journal of Abnormal Child Psychology, 35*(3), 379-391. doi:10.1007/s10802-006-9097-9

Henderson, M., & Freeman, C. (1987). A self-rating scale for bulimia. The 'BITE'. *The British Journal of Psychiatry*, *150*(1), 18-24. doi:10.1192/bjp.150.1.18

Hepworth, N., & Paxton, S. (2007). Pathways to help-seeking in bulimia nervosa and binge eating problems: A concept mapping approach. *International Journal of Eating Disorders*, *40*(6), 493-504. doi:10.1002/eat.20402

Herpertz-Dahlmann, B. (2009). Adolescent eating disorders: Definitions, symptomatology, epidemiology and comorbidity. *Child and Adolescent Psychiatric Clinics of North America*, *18*(1), 31-47. doi:10.1016/j.chc.2008.07.005

Herrin, M., & Larkin, M. (2013). *Nutrition counselling in the treatment of eating disorders* (2nd ed.) New York: Routledge.

Hersen, M., Hilsenroth, M.J., & Segal, D.L (2004). *Comprehensive handbook of psychological assessment.* New Jersey: John Wiley & Sons.

Herzog, D.B., Keller, M.B., Sacks, N.R., Yeh, C.J., & Lavori, P.W. (1992) Psychiatric comorbidity in treatment- seeking anorexics and bulimics. *Journal of the American Academy of Child & Adolescent Psychiatry*, *31*(5), 810-818. doi:10.1097/00004583-199209000-00006

Herzog, D.B., Nussbaum, K.M., & Marmor, A.K. (1996). Comorbidity and outcome in eating disorders. *Psychiatric Clinics of North America*, *19*(4), 843-859. doi:10.1016/s0193-953x(05)70385-3

Hilbert, A., & Tuschen-Caffier, B. (2004). Body image interventions in cognitive-behavioural therapy of binge-eating disorder: a component analysis. *Behaviour Research and Therapy*, *42*(11), 1325-1339. doi:10.1016/j.brat.2003.09.001

Hinkin, T. (1998). A brief tutorial on the development of measures for use in survey questionnaire. *Organizational Research Methods*, *1*(1), 104-121. doi:10.1177/109442819800100106

Hinney, A., & Volckmar, A. (2013). Genetics of eating disorders. *Current Psychiatry Reports*, *15*(12). doi:10.1007/s11920-013-0423-y

Hinrichsen, H., Sheffield, A., & Waller, G. (2007). The role of parenting experiences in the development of social anxiety and agoraphobia in the eating disorders. *Eating Behaviors*, *8*(3), 285-290. doi:10.1016/j.eatbeh.2006.11.003

Hoek, H. (2006). Incidence, prevalence and mortality of anorexia nervosa and other eating disorders. *Current Opinion in Psychiatry, 19*(4), 389-394. doi:10.1097/01.yco.0000228759.95237.78

Hogan, T.P. (2007). *Psychological Testing A Practical Introduction* (2nd Ed.). New Jersey: John Wiley & Sons.

Holm-Denoma, J., Hankin, B., & Young, J. (2014). Developmental trends of eating disorder symptoms and comorbid internalizing symptoms in children and adolescents. *Eating Behaviors, 15*(2), 275-279. doi:10.1016/j.eatbeh.2014.03.015

Holt, K., & Ricciardelli, L. (2008). Weight concerns among elementary school children: A review of prevention programs. *Body Image, 5*(3), 233-243. doi:10.1016/j.bodyim.2008.02.002

Honey, A., Boughtwood, D., Clarke, S., Halse, C., Kohn, M., & Madden, S. (2007). Support for parents of children with anorexia: What parents want. *Eating Disorders*, *16*(1), 40-51. doi:10.1080/10640260701773447

Hoyle, D., Slater, J., Williams, C., Schmidt, U., & Wade, T. (2013). Evaluation of a web-based skills intervention for carers of people with anorexia nervosa: A randomized controlled trial. *International Journal of Eating Disorders*, *46*(6), 634-638. doi:10.1002/eat.22144

Hudson, J.I., Hiripi, E., Pope Jr, H., & Kessler, R.C. (2007). The prevalence and correlates of eating disorders in the national comorbidity survey replication. *Biological Psychiatry, 61*(3), 348-358. doi:10.1016/j.biopsych.2006.03.040

Humphrey, L.L. (1988). Relationships within subtypes of anorexic, bulimic, and normal families. *Journal of the American Academy of Child & Adolescent Psychiatry, 27*(5), 544-551. doi:10.1097/00004583-198809000-00005

Hwang, A.D. (2010). *Classifying symptom change in eating disorders: Clinical significance metrics for the change in eating disorder symptoms scale* (Unpublished doctoral dissertation). Brigham Young University, United States.

IBM Corp. (2011). IBM SPSS Statistics for Windows, Version 20.0 [computer software]. Armonk, NY: IBM Corp.

Insel, T. (2009). Translating scientific opportunity into public health impact. *Archives of General Psychiatry*, *66*(2), 128. doi:10.1001/archgenpsychiatry.2008.540

Cooley, M., Boyd, R., & Grados, J. (2004). Feasibility of an Anxiety Preventive Intervention for Community Violence Exposed African-American Children. *The Journal Of Primary Prevention*, *25*(1), 105-123. doi:10.1023/b:jopp.0000039941.85452.ea

Jacobi, C., Abascal, L., & Taylor, C. (2004). Screening for eating disorders and high-risk behavior: Caution. *International Journal of Eating Disorders*, *36*(3), 280-295. doi:10.1002/eat.20048

Jacobi, C., Fittig, E., Bryson, S., Wilfley, D., Kraemer, H., & Taylor, C. (2011). Who is really at risk? Identifying risk factors for subthreshold and full syndrome eating disorders in a high-risk sample. *Psychological Medicine*, *41*(09), 1939-1949. doi:10.1017/s0033291710002631

Jacobi, C., Hayward, C., de Zwaan, M., Kraemer, H., & Agras, W. (2004). Coming to terms with risk factors for eating disorders: Application of risk terminology and suggestions for a general taxonomy. *Psychological Bulletin*, *130*(1), 19-65. doi:10.1037/0033-2909.130.1.19

Jaycox, L., Reivich, K., Gillham, J., & Seligman, M. (1994). Prevention of depressive symptoms in school children. *Behaviour Research and Therapy*, *32*(8), 801-816. doi:10.1016/0005-7967(94)90160-0

Johnson, J.G., Cohen, P., Kasen, S., & Brook, J. (2002). Eating disorders during adolescence and the risk for physical and mental disorders during adulthood. *Archives of General Psychiatry*, *59*(6), 545. doi:10.1001/archpsyc.59.6.545

Jordan, J., Joyce, P., Carter, F., Horn, J., McIntosh, V., & Luty, S. (2008). Specific and nonspecific comorbidity in anorexia nervosa. *International Journal of Eating Disorders*, *41*(1), 47-56. doi:10.1002/eat.20463

Juarascio, A.S., Forman, E.M., & Herbert, J.D. (2010). Acceptance and commitment therapy versus cognitive therapy for the treatment of comorbid eating pathology. *Behaviour Modification, 34,* 175-190. doi:10.1177/0145445510363472

Kaplan, R. (2000). Two pathways to prevention. *American Psychologist, 55*(4), 382-396. doi:10.1037//0003-066x.55.4.382

Katzman, D. (2005). Medical complications in adolescents with anorexia nervosa: A review of the literature. *International Journal of Eating Disorders*, *37*(S1), S52-S59. doi:10.1002/eat.20118

Kaye, W.H., Bulik, C.M., Thornton, L., Barbarich, N., & Masters, K. (2004). Comorbidity of anxiety disorders with anorexia and bulimia nervosa. *American Journal of Psychiatry, 161*(12), 2215-2221. doi:10.1176/appi.ajp.161.12.2215

Keel, P.K. (2005). *Eating Disorders*. New Jersey: Pearson Education Inc.

Keel, P., & Forney, K. (2013). Psychosocial risk factors for eating disorders. *International Journal of Eating Disorders*, *46*(5), 433-439. doi:10.1002/eat.22094

Kelly, C. M., Jorm, A. F., & Wright, A. (2007). Improving mental health literacy as a strategy to facilitate early intervention for mental disorders. *The Medical Journal of Australia Volume, 187*(Suppl 7), S26-S30. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/17908021

Kelly, K., Reinhard, S., & Brooks-Danso, A. (2008). Professional partners supporting family caregivers. *American Journal of Nursing*, *108*(Supplement), 6-12. doi:10.1097/01.naj.0000336400.76635.db

Kendall P.C. (1990). *The coping cat workbook.* Admore, PA: Workbook publishing.

Kendler, K.S., MacLean, C., Neale, M.C., Kessler, R.C., Heath, A.C., & Eaves, L.J. (1991). The genetic epidemiology of bulimia nervosa. *American Journal of Psychiatry*, *148*(12), 1627-1637. doi:10.1176/ajp.148.12.1627

Kenny, M., & Hart, K. (1992). Relationship between parental attachment and eating disorders in an inpatient and a college sample. *Journal of Counseling Psychology*, *39*(4), 521-526. doi:10.1037//0022-0167.39.4.521

Keys, A., Brozek, J., Hentschel, A., Mickelsen, O., & Taylor, H. L. (1950). *The biology of human starvation.* Minneapolis: University of MinnesotaPress.

Killen, J.D., Taylor, C.B., Hammer, L.D., Litt, I., Wilson, D.M., & Rich, T. et al. (1993). An attempt to modify unhealthful eating attitudes and weight regulation practices of young adolescent girls. *International Journal of Eating Disorders*, *13*(4), 369-384. doi:10.1002/1098-108x(199305)13:4<369::aid-eat2260130405>3.0.co;2-0

Killen, J.D., Taylor, C.B., Hayward, C., Haydel, K.F., Wilson, D.M., Hammer, L., … Strachowski, D. (1996). Weight concerns influence the development of eating disorders: A 4-year prospective study. *Journal of Consulting and Clinical Psychology*, *64*(5), 936-940. doi:10.1037//0022-006x.64.5.936

Kimbrel, N.A., Cobb, A.R., Mitchell, J.T., Hundt, N.E., & Nelson-Gray, R.O. (2008). Sensitivity to punishment and low maternal care account for the link between bulimic and social anxiety symptomology. *Eating Behaviors*, *9*(2), 210-217. doi:10.1016/j.eatbeh.2007.09.005

Kline, P. (2000). *The handbook of psychological testing (2nd Ed.).* London: Routledge.

Klump, K., Keel, P., Sisk, C., & Burt, S. (2010). Preliminary evidence that estradiol moderates genetic influences on disordered eating attitudes and behaviors during puberty. *Psychological Medicine, 40*(10), 1745-1753. doi:10.1017/s0033291709992236

Klump, K., Wonderlich, S., Lehoux, P., Lilenfeld, L., & Bulik, C. (2002). Does environment matter? A review of nonshared environment and eating disorders. *International Journal of Eating Disorders*, *31*(2), 118-135. doi:10.1002/eat.10024

Knoll, S., Bulik, C., & Hebebrand, J. (2010). Do the currently proposed DSM-5 criteria for anorexia nervosa adequately consider developmental aspects in children and adolescents? *European Child & Adolescent Psychiatry*, *20*(2), 95-101. doi:10.1007/s00787-010-0141-5

Kohn M, Booth M.L. (2003). The worldwide epidemic of obesity in adolescents. *Adolescent Medicine: State of the Art Reviews 14*(1), 1-9. Retrieved from http://sydney.edu.au/medicine/public-health/research/publications.php?year=2003

Krautter, T., & Lock, J. (2004). Is manualized family-based treatment for adolescent anorexia nervosa acceptable to patients? Patient satisfaction at the end of treatment. *Journal of Family Therapy*, *26*(1), 66-82. doi:10.1111/j.1467-6427.2004.00267.x

Kusel, A. B. (1999). Primary prevention of eating disorders through media literacy training of girls. In L. Wilmshurst (Ed.). *Child and adolescent psychopatholgy* (3rd ed.) (pp. 1859-1863). Thousand Oaks, CA: SAGE Publications

LaBarbera, M. (2012). *Nutrition education, free - fun healthy kids' games, healthy family living website, my plate education, healthy eating wellness tools, children's nutrition information, free kids' games. Nourish Interactive*. Retrieved from http://www.nourishinteractive.com

Lane, H.J., Lane, A.M., & Matheson, H. (2004). Validity of the eating attitude test among exercisers. *Journal of Sports Science and Medicine, 3*, 224-253. Retrieved from http://www.jssm.org

Lantzouni, E., Frank, G.R., Golden, N.H., & Shenker, R.I. (2002). Reversibility of growth stunting in early onset anorexia nervosa: a prospective study. *Journal of Adolescent Health, 31*(2), 162-165. doi:10.1016/s1054-139x(02)00342-7

Lask, B., & Bryant-Waugh, R. (1992). Early-onset anorexia nervosa and related eating disorders. *Journal of Child Psychology and Psychiatry, 33*(1), 281-300. doi:10.1111/j.1469-7610.1992.tb00864.x

Latzer, Y., Peretz, T., & Kreutzer, S. (2008). Conflict-oriented cognitive behavioural therapy: An integrative approach to the treatment of bulimia nervosa patients. *Clinical Social Work Journal, 36*(4), 373-383. doi:10.1007/s10615-008-0157-1

Le Grange, D., Binford, R., & Loeb, K.L.. (2005). Manualized family-based treatment for anorexia nervosa: A case series. *Journal of the* A*merican Academy of Child and Adolescent Psychiatry, 44*(1), 41-46. doi:10.1097/01.chi.0000145373.68863.85

Le Grange, D., Crosby, R., & Lock, J. (2008). Predictors and moderators of outcome in family-based treatment for adolescent bulimia nervosa. *Journal of the American Academy of Child and Adolescent Psychiatry, 47*, 464-470. doi:10.1097/chi.0b013e3181640816

Le Grange, D., Crosby, R., Rathouz, P., & Leventhal, B. (2007). A randomized controlled comparison of family-based treatment and supportive psychotherapy for adolescent bulimia nervosa. *Archives of General Psychiatry, 64*(9), 1049. doi:10.1001/archpsyc.64.9.1049

Le Grange, D., Eisler, I., Dare, C., & Russell, G. (1992). Evaluation of family treatments in adolescent anorexia nervosa: A pilot study. *International Journal of Eating Disorders,*

12(4), 347-357. doi:10.1002/1098-108x(199212)12:4<347::aid-eat2260120402>3.0.co;2-w

Le Grange, D., & Gelman, T. (1998). Patients' Perspective of Treatment in Eating Disorders: A Preliminary Study. *South African Journal of Psychology, 28*(3), 182-186. doi:10.1177/008124639802800309

Le Grange, D., & Lock, J. (2011). *Eating disorders in children and adolescents*. New York: Guilford Press.

Le Grange, D., Lock, J., Loeb, K., & Nicholls, D. (2009). Academy for eating disorders position paper: The role of the family in eating disorders. *International Journal of Eating Disorders*, *43*(1), 1-5. doi:10.1002/eat.20751

Le Grange, D., & Loeb, K. (2007). Early identification and treatment of eating disorders: prodrome to syndrome. *Early Intervention in Psychiatry, 1*(1), 27-39. doi:10.1111/j.1751-7893.2007.00007.x

Le Grange, D., Loeb, K., Van Orman, S., & Jellar, C. (2004). Bulimia nervosa in adolescents. *Archives of Pediatrics and Adolescent Medicine, 158*(5), 478. doi:10.1001/archpedi.158.5.478

Leon, G.R., Fulkerson, J.A., Perry, C.L., Keel, P.K., & Klump, K.L. (1999). Three to four year prospective evaluation of personality and behavioral risk factors for later disordered eating in adolescent girls and boys. *Journal of Youth and Adolescence, 28*(2), 181–196. Retrieved from http://link.springer.com/article/10.1023%2FA%3A1021649314458#

Levine, M.P., & Smolak, L. (2006). The prevention of eating problems and eating disorders: theory, research, and practice. *Choice Reviews Online, 43*(6), 419-433. doi:10.5860/choice.43-3419

Levine, M., & Piran, N (2001). The prevention of eating disorders: Towards a participatory ecology of knowledge, action and advocacy. In R. Striegel-Moore & L Smolak (Eds.). *Eating disorders* (pp. 233-253). Washington, DC: American Psychological Association.

Lewinsohn, P., Seeley, J., Moerk, K., & Striegel-Moore, R. (2002). Gender differences in eating disorder symptoms in young adults. *International Journal of Eating Disorders*, *32*(4), 426-440. doi:10.1002/eat.10103

Lilenfeld, L., Kaye, W., Greeno, C., Merikangas, K., Plotnicov, K., & Pollice, C. (1998). A controlled family study of anorexia nervosa and bulimia nervosa. *Archives of General Psychiatry*, *55*(7), 603. doi:10.1001/archpsyc.55.7.603

Lim, S.S., Norman, R.J., Clifton, P.M., & Noakes, M. (2009). Psychological effects of prescriptive vs general lifestyle advice for weight loss in young women. *Journal of The American Dietetic Association*, *109*(11), 1917-1921. doi:10.1016/j.jada.2009.08.008

Lindenberg, K. (2011). E-Health for Individualized Prevention of Eating Disorders. *CPEMH*, *7*(1), 74-83. doi:10.2174/1745017901107010074

Lock, J. (2001). *Treatment manual for anorexia nervosa*. New York: Guilford Press.

Lock, J. (2002). Treating adolescents with eating disorders in the family context. *Child and Adolescent Psychiatric Clinics of North America*, *11*(2), 331-342. doi:10.1016/s1056-4993(01)00009-8

Lock, J., Agras, W., Bryson, S., & Kraemer, H. (2005). A comparison of short- and long-term family therapy for adolescent anorexia nervosa. *Journal of the American Academy of Child & Adolescent Psychiatry*, *44*(7), 632-639. doi:10.1097/01.chi.0000161647.82775.0a

Lock, J., Couturier, J., & Agras, S. (2006). Comparison of long-term outcomes in adolescents with anorexia nervosa treated with family therapy. *Journal of the American Academy of*

Child & Adolescent Psychiatry, 45(6), 666-672. doi:10.1097/01.chi.0000215152.61400.ca

Lock, J., & Le Grange, D. (2005). Family-based treatment of eating disorders. *International Journal of Eating Disorders, 37*(S1), S64-S67. doi:10.1002/eat.20122

Lock, J., Le Grange, D., Agras W.S., Moye, A., & Bryson S.W. & Jo, B. (2010). Randomized clinical trial comparing family-based treatment with adolescent-focused individual therapy for adolescents with anorexia nervosa. *Archives of General Psychiatry, 67*(10), 1025-1032. doi: 10.1001/archgenpsychiatry.2010.128.

Loeb, Brown & Goldstein (2011). Assessment of eating disorders in children and adolescents. In D. Le Grange & J. Lock (Eds). *Eating disorders in children and adolescents: A clinical handbook* (pp. 156-198). New York: Gilford Press.

Loeb, K., Craigen, K., Goldstein, M., Lock, J., & Le Grange, D. (2011). Early Treatment for Eating Disorders. In D. L. Grange & J. Lock (Eds.), *Eating Disorders in Children and Adolescents: A Clinical Handbook* (pp. 337-361). New York: Guildford Press.

Lovibond, S.H. & Lovibond, P.F. (1995). *Manual for the Depression Anxiety Stress Scales*. (2nd ed.) Sydney: Psychology Foundation.

Lundgren, J., Danoff-Burg, S., & Anderson, D. (2004). Cognitive-behavioral therapy for bulimia nervosa: An empirical analysis of clinical significance. *International Journal of Eating Disorders, 35*(3), 262-274. doi:10.1002/eat.10254

Luthar, S. S., & Cicchetti, D. (2000). The construct of resilience: Implications for interventions and social policies. *Development and Psychopathology, 12*(4), 857-885. doi:10.1017/s0954579400004156

Madden, S., Morris, A., Zurynski, Y.A., Kohn, M., & Elliot, E. (2009). Burden of eating disorders in 5–13-year-old children in Australia. *Medical Journal of Australia, 190(8)*:

410-414. Retrieved from https://www.mja.com.au/journal/2009/190/8/burden-eating-disorders-5-13-year-old-children-australia

Maguire, S., le Grange, D., Surgenor, L., Marks, P., Lacey, H., & Touyz, S. (2008). Staging anorexia nervosa: Conceptualizing illness severity. *Early Intervention in Psychiatry, 2*(1), 3-10. doi:10.1111/j.1751-7893.2007.00049.x

Makino, M., Tsuboi, K., & Dennerstein, L. (2004). Prevalence of eating disorders: a comparison of western and non-western countries. *Medscape General Medicine 6*(3) 4-9. Retrieve from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1435625/

Maloney, M.J., McGuire, J.B., Daniels, S.R. (1988) Reliability testing of a children's version of the Eating Attitude Test. *Journal of The American Academy Of Child & Adolescent Psychiatry*, *27*(5), 541-543. doi:10.1097/00004583-198809000-00004

Maloney, M.J., McGuire, J., Daniels, S.R., & Specker, B. (1989). Dieting Behavior and Eating Attitudes in Children, *Pediatrics, 84*(3), 482-489. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/2788865

Malson, H., Clarke, S., & Finn, M. (2008). 'I don't think that's normal': A reflection on accounts of experiences of treatment for eating disorders. *Feminism & Psychology, 18*(3), 417-424. doi:10.1177/0959353507083097

Marcus, M., & Wildes, J. (2014). Obesity: Is it a mental disorder? *FOCUS*, *12*(4), 476-488. doi:10.1176/appi.focus.120411

Marquer, C., Barry, C., Mouchenik, Y., Hustache, S., Djibo, D., & Manzo, M. (2012). A rapid screening tool for psychological distress in children 3–6years old: results of a validation study. *BMC Psychiatry, 12*(1), 170. doi:10.1186/1471-244x-12-170

Martin, G., Wertheim, E., Prior, M., Smart, D., Sanson, A., & Oberklaid, F. (2000). A longitudinal study of the role of childhood temperament in the later development of

eating concerns. *International Journal Of Eating Disorders*, *27*(2), 150-162. doi:10.1002/(sici)1098-108x(200003)27:2<150::aid-eat3>3.0.co;2-a

Masten, A.S., Cutuli, J.J., Herbers, J.E., & Gabrielle-Reed, M.J. (2009). Resilience in development. In C.R. Snyder & S.J. Lopez (Eds.), *Handbook of positive psychology* (2nd ed.), (pp.117-131). New York: Oxford University Press.

Masten, A.S.; Obradovic, J. (2006). Competence and resilience in development. *Annals of the New York Academy of Sciences* 1094: 13–27. doi:10.1196/annals.1376.003

Matthews, M., Zullig, K. J., Ward, R. M., Horn, T., & Huebner, E. S. (2012). An analysis of specific life satisfaction domains and disordered eating among college students. *Social Indicators Research*, *107*, 55-69.doi: 10.1007/s11205-011-9826-5

Matton, A., Goossens, L., Vervaet, M., & Braet, C. (2015). Temperamental differences between adolescents and young adults with or without an eating disorder. *Comprehensive Psychiatry*, *56*, 229-238. doi:10.1016/j.comppsych.2014.09.005

Mazzeo, S., & Bulik, C. (2009). Environmental and genetic risk factors for eating disorders: What the clinician needs to know. *Child and Adolescent Psychiatric Clinics of North America*, *18*(1), 67-82. doi:10.1016/j.chc.2008.07.003

Mazzeo, S., Zucker, N., Gerke, C., Mitchell, K., & Bulik, C. (2005). Parenting concerns of women with histories of eating disorders. *International Journal of Eating Disorders*, *37*(S1), S77-S79. doi:10.1002/eat.20121

Mehler, P., & Brown, C. (2015). Anorexia nervosa – medical complications. *J Eat Disord*, *3*(1). doi:10.1186/s40337-015-0040-8

McCabe, M., & Ricciardelli, L. (2001). Body image and body change techniques among young adolescent boys. *European Eating Disorders Review*, *9*(5), 335-347. doi:10.1002/erv.389

McCabe, M., & Ricciardelli, L. (2003). Sociocultural influences on body image and body changes among adolescent boys and girls. *Journal of Social Psychology*, *143*(1), 5-26. doi:10.1080/00224540309598428

McCabe, M., & Ricciardelli, L. (2005). A prospective study of pressures from parents, peers, and the media on extreme weight change behaviors among adolescent boys and girls. *Behaviour Research and Therapy*, *43*(5), 653-668. doi:10.1016/j.brat.2004.05.004

McCabe, M., Ricciardelli, L., & Finemore, J. (2002). The role of puberty, media and popularity with peers on strategies to increase weight, decrease weight and increase muscle tone among adolescent boys and girls. *Journal of Psychosomatic Research*, *52*(3), 145-153. doi:10.1016/s0022-3999(01)00272-0

McCabe, M., Ricciardelli, L., & Holt, K. (2010). Are there different sociocultural influences on body image and body change strategies for overweight adolescent boys and girls? *Eating Behaviors*, *11*(3), 156-163. doi:10.1016/j.eatbeh.2010.01.005

McCabe, M., Ricciardelli, L., & Karantzas, G. (2010). Impact of a healthy body image program among adolescent boys on body image, negative affect, and body change strategies. *Body Image*, *7*(2), 117-123. doi:10.1016/j.bodyim.2009.10.007

McCarthy, D., Simmons, J., Smith, G., Tomlinson, K., & Hill, K. (2002). Reliability, stability, and factor structure of the Bulimia Test-Revised and Eating Disorder Inventory-2 scales in adolescence. *Assessment, 9*(4), 382-389. doi:10.1177/1073191102238196

McClelland, L., & Crisp, A. (2001). Anorexia nervosa and social class. *International Journal of Eating Disorders*, *29*(2), 150-156. doi:10.1002/1098-108x(200103)29:2<150::aid-eat1004>3.0.co;2-i

McDowell, I., & Newell, C. (1996). *Measuring health: A guide to rating scales and questionnaires,* (2nd ed.). New York: Oxford University Press.

McNamara, K., & Loveman, C. (1990). Differences in family functioning among bulimics, repeat dieters, and nondieters. *Journal of Clinical Psychology, 46*(4), 518-523. doi:10.1002/1097-4679(199007)46:4<518::aid-jclp2270460421>3.0.co;2-e

McVey, G., Davis, R., Tweed, S., & Shaw, B. (2004). Evaluation of a school-based program designed to improve body image satisfaction, global self-esteem, and eating attitudes and behaviors: A replication study. *International Journal of Eating Disorders, 36*(1), 1-11. doi:10.1002/eat.20006

McVey, G., Tweed, S., & Blackmore, E. (2007). Healthy schools-healthy kids: A controlled evaluation of a comprehensive universal eating disorder prevention program. *Body Image, 4*(2), 115-136. doi:10.1016/j.bodyim.2007.01.004

McVey, G., Tweed, S., Blackmore, E. (2004). Dieting among preadolescent and young adolescent females. *Canadian Medical Association Journal, 170*(10), 1559-1561. doi:10.1503/cmaj.1031247

Mercader, J.M., Fernández-Aranda, F., Gratacós, M., Ribases, M., Badia, A., & Villarejo, C. (2007). Blood levels of brain-derived neurotrophic factor correlate with several psychopathological symptoms in anorexia nervosa patients. *Neuropsychobiology, 56*(4), 185-190. doi:10.1159/000120623

Micali, N., Stahl, D., Treasure, J., & Simonoff, E. (2013). Childhood psychopathology in children of women with eating disorders: understanding risk mechanisms. *Journal of Child Psychology and Psychiatry, 55*(2), 124-134. doi:10.1111/jcpp.12112

Miller-Day, M., & Marks, J. (2006). Perceptions of parental communication orientation, perfectionism, and disordered eating behaviours of sons and daughters. *Health Communication, 19*(2), 153-163. doi:10.1207/s15327027hc1902_7

Minitab Inc. (2010). Minitab®, Version 16.1.1 [computer software].

Minuchin, S., Baker, L., Rosman, B.L. Liebman, R., Milman, L., & Todd, T.C. (1975). A conceptual model of psychosomatic illness in children fFamily organization and family therapy. *Archieves of General Psychiatry.* 1975;32(8):1031-1038. doi:10.1001/archpsyc.1975.01760260095008

Minuchin, S., Rosman, B.L., & Baker, L. (1978). *Psychosomatic families: anorexia nervosa in context*. Cambridge (MA): Harvard University Press.

Mishkind, M.E., Rodin, J., Silberstein, L.R., & Striegel-Moore, R.H. (1986). The embodiment of masculinity: Cultural, psychological, and behavioral dimensions. *American Behavioral Scientist*, *29*(5), 545-562. doi:10.1177/000276486029005004

Mitchell, K. & Carr, A. (2000). Anorexia and bulimia. In A. Carr (Ed.) *What works with children and adolescents? A critical review of psychological interventions with children, adolescents, and their families* (pp. 233-257). Florence, KY: Routledge.

Mond, J.M., & Hay, P.J. (2008). Public perceptions of binge eating and its treatment. *International Journal of Eating Disorders*, *41*(5), 419-426. doi:10.1002/eat.20512

Mond, J.M., Hay, P.J., Rodgers, B., & Owen, C. (2009). Comparing the health burden of eating- disordered behavior and overweight in women. *Journal of Women's Health*, *18*(7), 1081-1089. doi:10.1089/jwh.2008.1174

Morgan, J.F., Reid, F., & Lacey, J.H. (1999). The SCOFF questionnaire: assessment of a new screening tool for eating disorders. *BMJ*, *319*(7223), 1467-1468. doi:10.1136/bmj.319.7223.1467

Mott, A. (1994). *Understanding eating disorders: Anorexia nervosa, bulimia nervosa and obesity.* Washington, D.C.: Taylor & Francis Ltd.

Moynihan, R., Henry, D., & Moons, K. (2014). Using evidence to combat over diagnosis and overtreatment: Evaluating treatments, tests, and disease definitions in the time of too much. *Plos Med*, *11*(7), e1001655. doi:10.1371/journal.pmed.1001655

Mrazek, P., & Haggerty, R. (1994). *Reducing risks for mental disorders*. Washington, D.C.: National Academy Press.

Mukai, T., Kambara, A., & Sasaki, Y. (1998). Body dissatisfaction, need for social approval, and eating disturbances among Japanese and American college women. *Sex Roles, 39,* 751-763. Retrieved from http://link.springer.com/article/10.1023%2FA%3A1018812218467#

Muñoz, M. T., & Argente, J. (2002). Anorexia nervosa in female adolescents: Endocrine and bone mineral density disturbances. *European Journal of Endocrinology, 147*(3), 275-286. doi:10.1530/eje.0.1470275

Murphy, R., Straebler, S., Cooper, Z., & Fairburn, C.G. (2010). Cognitive behavioral therapy for eating disorders. *Psychiatric Clinics of North America* 33 (3): 611–627. doi:10.1016/j.psc.2010.04.004. PMC 2928448. PMID 20599136

Mustapic, J., Marcinko, D., & Vargek, P. (2015). Eating behaviours in adolescent girls: the role of body shame and body dissatisfaction. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity*. doi:10.1007/s40519-015-0183-2

Myers L.S., Gamst, G., & Guarino A.J. (2006). *Applied Multivariate Research.* California: Sage Publications.

National Eating Disorders Collaboration, Commonwealth Department of Health and Aging (2014). *Eating disorders in schools: Prevention, early identification and response.* Retrieved from http://www.nedc.com.au/nedc-publications

National Eating Disorders Collaboration, Commonwealth Department of Health and Aging (2012). *An intergrated response to complexity: National eating disorders framework.* Retrieved from http://www.nedc.com.au/nedc-publications

National Eating Disorders Collaboration, Commonwealth Department of Health and Aging (2010a). *Eating Disorders: The way forward, a strategic communication framework.* Retrieved from http://www.nedc.com.au/nedc-publications

National Eating Disorders Collaboration, Commonwealth Department of Health and Aging (2010b). *Eating disorders prevention, treatment and management: An evidence review.* Retrieved from http://www.nedc.com.au/nedc-publications

National Health System of the Ministry of Health and Consumer Affairs, Catalan Agency for Health Technology Assessment and Research (2009). *Clinical practice guidelines for eating disorders* (CAHTA Number 2006/05-01). Retrieved from http://www.guiasalud.es/GPC/GPC_440_Eat_Disorders_compl_en.pdf

National Institute for Clinical Excellence, London, National Institute for Clinical Excellence (2004). *Eating disorders: Core interventions in the treatment and management of anorexia nervosa, bulimia nervosa and related eating disorders* (Clinical Guideline 9). Retrieved from https://www.nice.org.uk/guidance/cg9

Neumark-Sztainer, D. (2009). Preventing obesity and eating disorders in adolescents: what can health providers do? *Journal of Adolescent Health*, *44*(3), 206-213. doi:10.1016/j.jadohealth.2008.11.005

Neumark-Sztainer, D., Paxton, S.J., Hannan, P.J., Haines, J., & Story, M. (2006). Does body satisfaction matter? Five-year longitudinal associations between body satisfaction and health behaviors in adolescent females and males. *Journal of Adolescent Health, 39*(2), 244-251. doi:10.1016/j.jadohealth.2005.12.001

Neumark-Sztainer, D., Sherwood, N., Coller, T., Hannan, P. (2000). Primary prevention of disordered eating among preadolescent girls: Feasibility and short-term effect of a community-based intervention. *Journal of the American Dietetic Association, 100*(12), 1466-1473. doi:10.1016/s0002-8223(00)00410-7

Nicholls, D., & Bryant-Waugh, R. (2009). Eating disorders of infancy and childhood: definition, symptomatology, epidemiology, and comorbidity. *Child and Adolescent Psychiatric Clinics of North America*, *18*(1), 17-30. doi:10.1016/j.chc.2008.07.008

Nicholls, D., Chater, R., & Lask, B. (2000). Children into DSM don't go: A comparison of classification systems for eating disorders in childhood and early adolescence. *International Journal of Eating Disorders*, *28*(3), 317-324. doi:10.1002/1098-108x(200011)28:3<317::aid-eat9>3.3.co;2-r

Nicholls, D., Christie, D., Randall, L., & Lask, B. (2001). Selective Eating: Symptom, Disorder or Normal Variant. *Clinical Child Psychology and Psychiatry*, *6*(2), 257-270. doi:10.1177/1359104501006002007

Nishizono-Maher, A., Escobar-Koch, T., Ringwood, S., Banker, J., van Furth, E., & Schmidt, U. (2010). What are the top five essential features of a high quality eating disorder service? A comparison of the views of US and UK eating disorder sufferers, carers and health professionals. *European Eating Disorders Review*, n/a-n/a. doi:10.1002/erv.1062

Northouse, L., Mood, D., Templin, T., Mellon, S., & George, T. (2000). Couples' patterns of adjustment to colon cancer. *Social Science & Medicine*, *50*(2), 271-284. doi:10.1016/s0277-9536(99)00281-6

Oakley Browne, M., Wells, J., Scott, K., & McGee, M. (2006). Lifetime prevalence and projected lifetime risk of DSM-IV disorders in Te Rau Hinengaro: The New Zealand Mental Health Survey. *Australian and New Zealand Journal of Psychiatry*, *40*(10), 865-874. doi:10.1111/j.1440-1614.2006.01905.x

O'Brien, K., & LeBow, M. (2007). Reducing maladaptive weight management practices: Developing a psychoeducational intervention program. *Eating Behaviors*, *8*(2), 195-210. doi:10.1016/j.eatbeh.2006.06.001

O'Dea, J. (2007). *Everybody's Different: A positive approach to teaching about health, puberty, body image, nutrition, self-esteem and obesity prevention*. Camberwell, Victoria: ACER Press.

O'Dea, J., & Maloney, D. (2000). Preventing eating and body image problems in children and adolescents using the health promoting schools framework. *Journal of School Health, 70*(1), 18-21. doi:10.1111/j.1746-1561.2000.tb06441.x

Obradović, J., Bush, N., Stamperdahl, J., Adler, N., & Boyce, W. (2010). Biological sensitivity to context: The interactive effects of stress reactivity and family adversity on socioemotional behavior and school readiness. *Child Development, 81*(1), 270-289. doi:10.1111/j.1467-8624.2009.01394.x

Ocker, L.B., Lam, E., Jensen, B.E., & Zhang, J.J. (2007). Psychometric properties of the eating attitudes test. *Measurement in Physical Education and Exercise Science, 10*(4), 25-48. doi:10.1207/s15327841mpee1101_2

Ogebe, O., Abdulmalik, J., Bello-Mojeed, M., Holder, N., Jones, H., Ogun, O., & Omigbodun, O. (2011). A comparison of the prevalence of premenstrual dysphoric disorder and comorbidities among adolescents in the United States of America and Nigeria. *Journal of Pediatric and Adolescent Gynecology, 24*(6), 397-403. doi:10.1016/j.jpag.2011.07.009

Olson, J., & Goddard, H. (2012). Applying prevention and positive youth development theory to predict depressive symptoms among young people. *Youth & Society, 47*(2), 222-244. doi:10.1177/0044118x12457689

Ong, A.D., Bergeman, C.S., Bisconti, T.L., & Wallace, K.A. (2006). Psychological resilience, positive emotions, and successful adaptation to stress in later life. *Journal of Personality and Social Psychology, 91*(4), 730-749. doi:10.1037/0022-3514.91.4.730

Owens, P., Hoagwood, K., Horwitz, S., Leaf, P., Poduska, J., Kellam, S., & Ialongo, N. (2002). Barriers to Children's Mental Health Services. *Journal of the American Academy of Child & Adolescent Psychiatry*, *41*(6), 731-738. doi:10.1097/00004583-200206000-00013

Park, R.J., & Stein, A. (2003). The offspring of mothers with eating disorders. *European Child & Adolescent Psychiatry, 12*(0), 1-1. doi:10.1007/s00787-003-1114-8

Parle, S. (2012). How does discrimination affect people with mental illness? *Nursing Times, 108*(28), 12-14. Retrieved from http://www.nursingtimes.net/nursing-practice/specialisms/mental-health/how-does-stigma-affect-people-with-mental-illness/5046801.article

Pasold, T., Boateng, B., & Portilla, M. (2010). The use of a parent support group in the outpatient treatment of children and adolescents with eating disorders. *Eating Disorders, 18*(4), 318-332. doi:10.1080/10640266.2010.490121

Patton, G., Carlin, J., Shao, Q., Hibbert, M., Rosier, M., Selzer, R., … Bowes, G. (1998). Adolescent dieting: Healthy weight control or borderline eating disorder? *American Journal of Nursing, 98*(11), 16F. doi:10.1097/00000446-199811000-00010

Patton, G., Coffey, C., Carlin, J., Sanci, L., & Sawyer, S. (2008). Prognosis of adolescent partial syndromes of eating disorder. *The British Journal of Psychiatry*, *192*(4), 294-299. doi:10.1192/bjp.bp.106.031112

Patton, G., Johnson-Sabine, E., Wood, K., Mann, A., & Wakeling, A. (1990). Abnormal eating attitudes in London schoolgirls - a prospective epidemiological study: outcome at twelve month follow-up. *Psychological Medicine, 20*(02), 383. doi:10.1017/s0033291700017700

Paulson-Karlsson, G., Engström, I., & Nevonen, L. (2008). A pilot study of a family-based treatment for adolescent anorexia nervosa: 18- and 36-month follow-ups. *Eating Disorders, 17*(1), 72-88. doi:10.1080/10640260802570130

Paxton, S.J. (1993). A prevention program for disturbed eating and body dissatisfaction in adolescent girls: a 1 year follow-up. *Health Education Research, 8*(1), 43-51. doi:10.1093/her/8.1.43

Paxton, S., Neumark-Sztainer, D., Hannan, P., & Eisenberg, M. (2006). Body dissatisfaction prospectively predicts depressive mood and low self-esteem in adolescent girls and boys. *Journal of Clinical Child & Adolescent Psychology, 35*(4), 539-549. doi:10.1207/s15374424jccp3504_5

Peebles, R., Wilson, J., & Lock, J. (2006). How do children with eating disorders differ from adolescents with eating disorders at initial evaluation? *Journal of Adolescent Health, 39*(6), 800-805. doi:10.1016/j.jadohealth.2006.05.013

Peebles, R., Hardy, K., Wilson, J., & Lock, J. (2010). Are diagnostic criteria for eating disorders markers of medical severity?. *PEDIATRICS, 125*(5), e1193-e1201. doi:10.1542/peds.2008-1777

Perkins, S., Winn, S., Murray, J., Murphy, R., & Schmidt, U. (2004). A qualitative study of the experience of caring for a person with bulimia nervosa. Part 1: The emotional impact of caring. *International Journal of Eating Disorders, 36*(3), 256-268. doi:10.1002/eat.20067

Perkins, S.J., Murphy, R., Schmidt, U., & Williams, C. (2006). Self-help and guided self-help for eating disorders. *Cochrane Systematic Reviews, 19*(3), 191-194. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/16856036

Pearson, C., Combs, J., Zapolski, T., & Smith, G. (2012). A longitudinal transactional risk model for early eating disorder onset. *Journal of Abnormal Psychology, 121*(3), 707-718. doi:10.1037/a0027567

Pearson, C., & Gleaves, D. (2006). The multiple dimensions of perfectionism and their relation with eating disorder features. *Personality and Individual Differences, 41*(2), 225-235. doi:10.1016/j.paid.2006.01.013

Persons, J. B. (2008). *The case formulation approach to cognitive-behavior therapy*. New York: Guilford.

Petersen, A. C., & Taylor, B. (1980). The biological approach to adolescence: Biological change and psychological adaptation. In J. Adelson (Ed.), *Handbook of psychology* (pp. 117–158). New York: Wiley.

Phares, V., Fields, S., & Binitie, I. (2006). Getting fathers involved in child-related therapy. *Cognitive and Behavioral Practice, 13*(1), 42-52. doi:10.1016/j.cbpra.2005.06.002

Pike, K., Walsh, B., Vitousek, K., Wilson, G., & Bauer, J. (2003). Cognitive behavior therapy in the post-hospitalization treatment of anorexia nervosa. *American Journal of Psychiatry, 160*(11), 2046-2049. doi:10.1176/appi.ajp.160.11.2046

Piran, N. (2005). Prevention of Eating Disorders: A Review of Outcome Evaluation Research. *Israel Journal Psychiatry Related Sciences 42*(3), 172–177. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/16335629

Polivy, J., & Herman, C.P. (2002). Causes of eating disorders. *Annual Review of Psychology, 53*(1), 187-213. doi:10.1146/annurev.psych.53.100901.135103

Pollard, J., Hawkins, J., & Arthur, M. (1999). Risk and protection: Are both necessary to understand diverse behavioral outcomes in adolescence? *Social Work Research, 23*(3), 145-158. doi:10.1093/swr/23.3.145

Pollice, C., Kaye, W.H., Greeno, C.G. Weltzin, T.E. (1997). Relationship of depression, anxiety, and obsessionality to state of illness in anorexia nervosa. *International Journal of Eating Disorders, 21*(4), 367–376. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/9138049

Pott, W., Ozgur, A., Hebebrand, J., & Pauli-Pott, U. (2009). Treating childhood obesity: Family background variables and the child's success in a weight-control intervention. *International Journal of Eating Disorders*, *42*(3), 284-289. doi:10.1002/eat.20655

Potts, J., McCormack, J., & Watson, H. (2011, March). Beyond blame: Involving parents and families in the treatment of eating disorders. *Proceedings of the 10th London International Eating Disorders Conference, England.* Retrieved from http://www.paediatrics.uwa.edu.au

Powers, P. (1996). Initial assessment and early treatment options for anorexia nervosa and bulimia nervosa. *Psychiatric Clinics f North America*, *19*(4), 639-655. doi:10.1016/s0193-953x(05)70373-7

Puhl, R., & Suh, Y. (2015). Stigma and Eating and Weight Disorders. *Current Psychiatry Reports*, *17*(3). doi:10.1007/s11920-015-0552-6

Rapee, R., & Jacobs, D. (2002). The reduction of temperamental risk for anxiety in withdrawn pre-schoolers: A pilot study. *Behavioural and Cognitive Psychotherapy*, *30*(02). doi:10.1017/s1352465802002084

Rapee, R., Kennedy, S., Ingram, M., Edwards, S., & Sweeney, L. (2005). Prevention and early intervention of anxiety disorders in inhibited preschool children. *Journal of Consulting and Clinical Psychology*, *73*(3), 488-497. doi:10.1037/0022-006x.73.3.488

Ray, W.J. (2014). *Abnormal Psychology*. Pennsylvania State University: SAGE.

Reichborn-Kjennerud, T., Bulik, C., Tambs, K., & Harris, J. (2004). Genetic and environmental influences on binge eating in the absence of compensatory behaviors: A

population-based twin study. *International Journal of Eating Disorders, 36*(3), 307-314. doi:10.1002/eat.20047

Reivich, K. & Shatté, A. (2002). *The Resilience Factor*. New York: Broadway Books.

Rhee, K. (2008). Childhood overweight and the relationship between parent behaviors, parenting style, and family functioning. *Annals of the American Academy of Political and Social Science, 615*(1), 11-37. doi:10.1177/0002716207308400

Rhee, K., Lumeng, J.C., Appugliese, D.P. (2006). Parenting styles and overweight status in first grade. *Paediatrics, 117*(6), 2047-2054. doi:10.1542/peds.2005-2259

Rhodes, P., Baillee, A., Brown, J., & Madden, S. (2008). Can parent-to-parent consultation improve the effectiveness of the Maudsley model of family-based treatment for anorexia nervosa? A randomized control trial. *Journal of Family Therapy, 30*(1), 96-108. doi:10.1111/j.1467-6427.2008.00418.x

Rhodes, P., Brown, J., & Madden, S. (2009). The Maudsley model of family-based treatment for anorexia nervosa: A qualitative evaluation of parent-to-parent consultation. *Journal of Marital and Family Therapy, 35*(2), 181-192. doi:10.1111/j.1752-0606.2009.00115.x

Ricciardelli, L., & McCabe, M. (2004). A biopsychosocial model of disordered eating and the pursuit of muscularity in adolescent boys. *Psychological Bulletin, 130*(2), 179-205. doi:10.1037/0033-2909.130.2.179

Ricciardelli, L., & McCabe, M. (2001). Children's body image concerns and eating disturbance. *Clinical Psychology Review, 21*(3), 325-344. doi:10.1016/s0272-7358(99)00051-3

Richardson, S.M., & Paxton, S.J. (2009). An evaluation of a body image intervention based on risk factors for body dissatisfaction: A controlled study with adolescent girls. *International Journal of Eating Disorders,* 43(2), 112- 122. doi:10.1002/eat.20682

Richer, V. (2010). Eating Disorders: Cognitive Behavioural Therapy with Children and Young People. *Child and Adolescent Mental Health*, *15*(2), 128-128. doi:10.1111/j.1475-3588.2010.00559_9.x

Rickwood, D., Mazzer, K., & Telford, N. (2015). Social influences on seeking help from mental health services, in-person and online, during adolescence and young adulthood. *BMC Psychiatry*, *15*(1). doi:10.1186/s12888-015-0429-6

Robin, A.L., Siegel, P.T., Moye, A.W., Gilroy, M., Dennis, A.B., & Sikand, A.A. (1999). Controlled comparison of family versus individual therapy for adolescents with anorexia nervosa. *Journal of the American Academy Of Child & Adolescent Psychiatry*, *38*(12), 1482-1489. doi:10.1097/00004583-199912000-00008

Rocco, P., Ciano, R., & Balestrieri, M. (2001). Psychoeducation in the prevention of eating disorders: An experimental approach in adolescent schoolgirls. *British Journal of Medical Psychology*, *74*(3), 351-358. doi:10.1348/000711201161028

Rockwell, R.E., Boutelle, K., Trunko, M., Jacobs, M.J., & Kaye, W. (2011). An innovative short-term, intensive, family-based treatment for adolescent anorexia nervosa: Case series. *European Eating Disorders Review*, *19*(4), 362-367. doi:10.1002/erv.1094

Rodgers, R., Paxton, S., & Chabrol, H. (2009a). Depression as a moderator of sociocultural influences on eating disorder symptoms in adolescent females and males. *Journal of Youth and Adolescence*, *39*(4), 393-402. doi:10.1007/s10964-009-9431-y

Rodgers, R.F., Paxton, S.J., & Chabrol, H. (2009b). Effects of parental comments on body dissatisfaction and eating disturbance in young adults: A sociocultural model. *Body Image*, *6*(3), 171-177. doi:10.1016/j.bodyim.2009.04.004

Rodriguez-Tomé, H., Bariaud, F., Zardi, M., Delmas, C., Jeanvoine, B., & Szylagy, P. (1993). The effects of pubertal changes on body image and relations with peers of the opposite

sex in adolescence. *Journal of Adolescence, 16*(4), 421-438. doi:10.1006/jado.1993.1034

Rosen, D. (2010). Identification and management of eating disorders in children and adolescents. *Pediatrics, 126*(6), 1240-1253. doi:10.1542/peds.2010-2821

Ross, A., Paxton, S., & Rodgers, R. (2013). Y's Girl: Increasing body satisfaction among primary school girls. *Body Image, 10*(4), 614-618. doi:10.1016/j.bodyim.2013.06.009

Roosa, M.W. (2000). Some thoughts about resilience versus positive development, main effects, versus interaction effects and the value of resilience. *Child Development, 71*(3), 567-569. doi:10.1111/1467-8624.00166

Roth, J. H. (2000). *Puppets, prevention and prediction: A longitudinal preventive study of internalising disorders in early childhood*. Unpublished doctoral dissertation, Griffith University, Brisbane, Australia.

Roth, D., Mittelman, M.S., Clay, O.J., Madan, A., & Haley, W.E. (2005). Changes in social support as mediators of the impact of a psychosocial intervention for spouse caregivers of persons with Alzheimer's disease. *Psychology and Aging, 20*(4), 634-644. doi:10.1037/0882-7974.20.4.634

Royal Australian and New Zealand College of Psychiatrists - RANZCP (2011, October). *Addressing the needs of siblings of children with disability or chronic illness* (Issue Brief No. 69). Melbourne, Australia: Author.

Russell-Mayhew, S. (2007). Preventing a continuum of disordered eating: Going beyond the individual**.** *Prevention Research Integrated Research Services, Inc., 14*(3), 7-10. Retrieved from http://sks.sirs.swb.orc.scoolaid.net

Russell, S., & Ryder, S. (2001). BRIDGE (Building the relationship between Body Image and Disordered Eating Graph & Explanation): Interventions and transitions. *Eating Disorders, 9*(1), 15-27. doi:10.1080/106402601300187704

Russell, G.F., Szmukler, G.I., Dare, C., & Eisler, I. (1987). An evaluation of family therapy in anorexia nervosa and bulimia nervosa. *Archives of General Psychiatry*, *44*(12), 1047-1058. doi:10.1001/archpsyc.1987.01800240021004

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry*, *57*(3), 316-331. doi:10.1111/j.1939-0025.1987.tb03541.x

Salbach-Andrae, H., Lenz, K., Simmendinger, N., Klinkowski, N., Lehmkuhl, U., & Pfeiffer, E. (2007). Psychiatric comorbidities among female adolescents with anorexia nervosa. *Child Psychiatry & Human Development*, *39*(3), 261-272. doi:10.1007/s10578-007-0086-1

Sameroff, A. J., & Gutman, L. M. (2004). Contributions of risk research to the design of successful interventions. In P. Allen-Meares & M. W. Fraser (Eds.), *Intervention with children and adolescents: An interdisciplinary approach* (pp. 9–26). Boston: Allyn & Bacon.

Sanders, M. R., & Dadds, M. R. (1993). *Behavioral family intervention*, Needham Heights, MA: Allyn & Bacon.

Sepulveda, A., Lopez, C., Macdonald, P., & Treasure, J. (2008). Feasibility and acceptability of DVD and telephone coaching-based skills training for carers of people with an eating disorder. *International Journal of Eating Disorders*, *41*(4), 318-325. doi:10.1002/eat.20502

Sepulveda, A., Lopez, C., Todd, G., Whitaker, W., & Treasure, J. (2008). An examination of the impact of “the Maudsley eating disorder collaborative care skills workshops” on the well-being of carers. *Social Psychiatry and Psychiatric Epidemiology*, *43*(7), 584-591. doi:10.1007/s00127-008-0336-y

Schmidt, U., Lee, S., Beecham, J., Perkins, S., Treasure, J., & Yi, I. (2007). A randomized controlled trial of family therapy and cognitive behaviour therapy self-care for

adolescents with bulimia nervosa and related disorders. *American Journal of Psychiatry, 164*, 591-598. doi:10.1176/appi.ajp.164.4.591

Schulze, U., Calame, S., Keller, F., & Mehler-Wex, C. (2009). Trait anxiety in children and adolescents with anorexia nervosa. *Eating And Weight Disorders - Studies on Anorexia, Bulimia and Obesity*, *14*(2-3), e163-e168. doi:10.1007/bf03327817

Schwimmer, J.B., Burwinkle, T.M., & Varni, J.W. (2003). Health-related quality of life of severely obese children and adolescents. *Journal of the American Medical Association, 289*(14), 1813-1819. doi:10.1001/jama.289.14.1813

Scime, M., & Cook-Cottone, C. (2008). Primary prevention of eating disorders: A constructivist integration of mind and body strategies. *International Journal Of Eating Disorders, 41*(2), 134-142. doi:10.1002/eat.20480

Seaver, A., McVey, G.L., Fullerton, Y., & Stratton, L. (1997). *Every BODY is a Somebody: An active learning program to promote healthy body image, positive self-esteem, healthy eating and an active lifestyle for female adolescents. Teachers Guide.* Brampton, Ontario: The Body Image Coalition of Peel.

Selzer, R., Hamill, C., Bowes, G., & Patton, G. (1996). The branched eating disorders test: Validity in a nonclinical population. *International Journal of Eating Disorders, 20*(1), 57-64. doi:10.1002/(sici)1098-108x(199607)20:1<57::aid-eat7>3.3.co;2-h

Shafran, R., Cooper, Z., & Fairburn, C. (2003). Clinical perfectionism is not multidimensional perfectionism: A reply to Hewitt, Flett, Besser, Sherry & McGee. *Behaviour Research and Therapy*, *41*(10), 1217-1220. doi:10.1016/s0005-7967(03)00020-2

Shapiro, J., Bauer, S., Andrews, E., Pisetsky, E., Bulik-Sullivan, B., Hamer, R., …Bulik, C. (2010). Mobile therapy: Use of text-messaging in the treatment of bulimia nervosa. *International Journal of Eating Disorders, 43*(6), 513-519. doi:10.1002/eat.20744

Shapiro, J.R., Berkman, N.D., Brownley, K.A., Sedway, J.A., Lohr, K.N., & Bulik, C.M. (2007a). Bulimia nervosa treatment: A systematic review of randomized controlled trials. *International Journal of Eating Disorders, 40*(4), 321-336. doi:10.1002/eat.20372.

Shapiro, J., Reba-Harrelson, L., Dymek-Valentine, M., Woolson, S., Hamer, R., & Bulik, C. (2007b). Feasibility and acceptability of CD-ROM-based cognitive-behavioural treatment for binge-eating disorder. *European Eating Disorders Review*, *15*(3), 175-184. doi:10.1002/erv.787

Shisslak, C., Crago, M., & Estes, L. (1995). The spectrum of eating disturbances. *International Journal of Eating Disorders, 18*(3), 209-219. doi:10.1002/1098-108x(199511)18:3<209::aid-eat2260180303>3.0.co;2-e

Shoebridge, P., & Gowers, S.G. (2000). Parental high concern and adolescent-onset anorexia nervosa: A case-control study to investigate direction of causality. *The British Journal of Psychiatry*, *176*(2), 132-137. doi:10.1192/bjp.176.2.132

Shortt, A., Barrett, P., & Fox, T. (2001). Evaluating the FRIENDS program: A cognitive behavioural treatment of anxious children and their parents. *Journal of Clinical Child & Adolescent Psychology*, *30*(4), 525-535. doi:10.1207/s15374424jccp3004_09

Silverman, J. (1997). Charcot's comments on the therapeutic role of isolation in the treatment of anorexia nervosa. *International Journal of Eating Disorders*, *21*(3), 295-298. doi:10.1002/(sici)1098-108x(199704)21:3<295::aid-eat10>3.0.co;2-#

Sinton, M., & Birch, L. (2005). Weight status and psychosocial factors predict the emergence of dieting in preadolescent girls. *International Journal of Eating Disorders, 38*(4), 346-354. doi:10.1002/eat.20176

Slack, M. (2007). Using standard studies to interpret the scores from scales for assessing the internal validity of randomized controlled trials. *Hospital Pharmacy*, *42*(11), 1027-1036. doi:10.1310/hpj4211-1027

Slane, J., Burt, S., & Klump, K. (2009). The road less traveled: Associations between externalizing behaviors and eating pathology. *International Journal of Eating Disorders*, 43, 149-160. doi:10.1002/eat.20680

Smink, F., van Hoeken, D., & Hoek, H. (2013). Epidemiology, course, and outcome of eating disorders. *Current Opinion In Psychiatry*, *26*(6), 543-548. doi:10.1097/yco.0b013e328365a24f

Smith, A., & Cook-Cottone, C. (2011). A review of family therapy as an effective intervention for anorexia nervosa in adolescents. *Journal of Clinical Psychology In Medical Settings*, *18*(4), 323-334. doi:10.1007/s10880-011-9262-3

Smith, G., McCarthy, D., & Zapolski, T. (2009). On the value of homogeneous constructs for construct validation, theory testing, and the description of psychopathology. *Psychological Assessment*, *21*(3), 272-284. doi:10.1037/a0016699

Smolak, L., & Levine, M. (1994). Psychometric properties of the children's eating attitudes test. *International Journal of Eating Disorders*, *16*(3), 275-282. doi:10.1002/1098-108x(199411)16:3<275::aid-eat2260160308>3.0.co;2-u

Smolak, L. (2004). Body image in children and adolescents: where do we go from here? *Body Image*, *1*(1), 15-28. doi:10.1016/s1740-1445(03)00008-1

Solano-Flores, G. (1993). Item structural properties as predictors of item difficulty and item association. *Educational and Psychological Measurement*, *53*(1), 19-31. doi:10.1177/0013164493053001002

Sorensen, S., Pinquart, M., & Duberstein, P. (2002). How effective are interventions with caregivers? An updated meta-analysis. *The Gerontologist, 42*(3), 356-372. doi:10.1093/geront/42.3.356

Spear, B., Barlow, S., Ervin, C., Ludwig, D., Saelens, B., Schetzina, K., & Taveras, E. (2007). Recommendations for treatment of child and adolescent overweight and obesity. *Pediatrics, 120*(Supplement), S254-S288. doi:10.1542/peds.2007-2329f

Spettigue, W., Maras, D., Obeid, N., Henderson, K., Buchholz, A., Gomez, R., & Norris, M. (2014). A psycho-education intervention for parents of adolescents with eating disorders: A randomized controlled trial eating disorders: The journal of treatment & prevention. *Eating Disorders*, *23*(1), 60-75. doi:10.1080/10640266.2014.940790

Spiker,D., Hebbeler, K. & Barton, L. (2011). Measuring quality of programs for children with disabilities. In M. Zaslow, I. Martinez-Beck, K. Tout, & T. Halle (Eds.), Measuring quality in early childhood settings (pp. 229-255). Baltimore, MD: Brookes Publishing.

Spotts, J.L. (2008). *Utility of the modified mini screen (MMS) for screening mental health disorders in a prison population.* University of Iowa, Iowa.

Stallard, P., Simpson, N., Anderson, S., & Goddard, M. (2007). The FRIENDS emotional health prevention programme. *European Child & Adolescent Psychiatry*, *17*(5), 283-289. doi:10.1007/s00787-007-0665-5

Steiger, H., Gauvin, L., Israël, M., Koerner, N., Ng Ying Kin, N., Paris, J., …Young, S. (2001). Association of serotonin and cortisol indices with childhood abuse in bulimia nervosa. *Arch Gen Psychiatry*, *58*(9), 837–843. doi:10.1001/archpsyc.58.9.837

Stein, R., Saelens, B., Dounchis, J., Lewczyk, C., Swenson, A., & Wilfley, D. (2001). Treatment of eating disorders in women. *The Counseling Psychologist*, *29*(5), 695-732. doi:10.1177/0011000001295004

Steiner, H., Kwan, W., Shaffer, T., Walker, S., Miller, S., Sagar, A., & Lock, J. (2003). Risk and protective factors for juvenile eating disorders. *European Child & Adolescent Psychiatry*, *12*(0), 1-1. doi:10.1007/s00787-003-1106-8

Steinhausen, H., Jakobsen, H., Helenius, D., Munk-Jørgensen, P., & Strober, M. (2014). A nation-wide study of the family aggregation and risk factors in anorexia nervosa over three generations. *International Journal of Eating Disorders, 48*(1), 1-8. doi:10.1002/eat.22293

Stice, H.E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychological Bulletin, 128*, 825. doi: 10.1037/0033-2909.128.5.825

Stice, E., & Shaw, H.E. (2002). Role of body dissatisfaction in the onset and maintenance of eating pathology: A synthesis of research findings. *Journal of Psychosomatic Research, 53,* 985-993. doi: 10.1016/j.bbr.2011.03.031

Stice, E., & Shaw, H.E. (2004). Eating disorder prevention programs: A meta-analytic review. *Psychological Bulletin*, *130*(2), 206-227. doi:10.1037/0033-2909.130.2.206

Stice, E., Shaw, H.E., & Marti, C. (2007). A meta-analytic review of eating disorder prevention programs: Encouraging findings. *Annual Review of Clinical Psychology, 3*(1), 207-231. doi:10.1146/annurev.clinpsy.3.022806.091447

Stice, E., Marti, C., Shaw, H.E., & Jaconis, M. (2009). An 8-year longitudinal study of the natural history of threshold, subthreshold, and partial eating disorders from a community sample of adolescents. *Journal of Abnormal Psychology, 118*(3), 587-597. doi:10.1037/a0016481

Stice, E., Ng, J., & Shaw, H.E. (2010). Risk factors and prodromal eating pathology. *Journal of Child Psychology and Psychiatry, 51*(4), 518-525. doi:10.1111/j.1469-7610.2010.02212.x

Stice, E., Telch, C., & Rizvi, S. (2000). Development and validation of the Eating Disorder Diagnostic Scale: A brief self-report measure of anorexia, bulimia, and binge-eating disorder. *Psychological Assessment*, *12*(2), 123-131. doi:10.1037//1040-3590.12.2.123

Stoeber, J., Otto, K., & Dalbert, C. (2009). Perfectionism and the Big Five: Conscientiousness predicts longitudinal increases in self-oriented perfectionism. *Personality and Individual Differences*, *47*(4), 363-368. doi:10.1016/j.paid.2009.04.004

Striegel-Moore, R., & Bulik, C. (2007). Risk factors for eating disorders. *American Psychologist*, *62*(3), 181-198. doi:10.1037/0003-066x.62.3.181

Striegel-Moore, R., Rosselli, F., Perrin, N., DeBar, L., Wilson, G., May, A., & Kraemer, H. (2009). Gender difference in the prevalence of eating disorder symptoms. *International Journal of Eating Disorders*, *42*(5), 471-474. doi:10.1002/eat.20625

Strober, M., Freeman, R., Lampert, C., Diamond, J., & Kaye, W. (2000). Controlled family study of anorexia nervosa and bulimia nervosa: evidence of shared liability and transmission of partial syndromes. *American Journal of Psychiatry*, *157*(3), 393-401. doi:10.1176/appi.ajp.157.3.393

Sullivan, P.F. (1995) Mortality in anorexia nervosa. *American Journal of Psychiatry*, 152, 1073–1077. doi:10.1176/ajp.152.7.1073

Surveymonkey.com,. (2015). *SurveyMonkey: Free online survey software & questionnaire tool*. Retrieved 21 April 2015, from https://www.surveymonkey.com/

Swinbourne, J., & Touyz, S. (2007). The co-morbidity of eating disorders and anxiety disorders: a review. *European Eating Disorders Review*, *15*(4), 253-274. doi:10.1002/erv.784

Sysko, R., Walsh, B., & Fairburn, C. (2005). Eating Disorder Examination-Questionnaire as a measure of change in patients with bulimia nervosa. *International Journal Of Eating Disorders*, *37*(2), 100-106. doi:10.1002/eat.20078

Tabachnick, B.G., & Fidell, L.S. (2013). *Using Multivariate Statistics (6th Ed.).* New York: Harper & Row.

Taylor, A., Wilson, C., Slater, A., and Mohr, P. (2012). Self-esteem and body dissatisfaction in young children: Associations with weight and perceived parenting style. *Clinical Psychologist*, *16*(1), 25-35. doi:10.1111/j.1742-9552.2011.00038.x

Tereno, S., Soares, I., Martins, C., Celani, M., & Sampaio, D. (2007). Attachment styles, memories of parental rearing and therapeutic bond: a study with eating disordered patients, their parents and therapists. *European Eating Disorders Review*, *16*(1), 49-58. doi:10.1002/erv.801

Teri, L., McCurry, S., Logsdon, R., & Gibbons, L. (2005). Training community consultants to help family members improve dementia care: A randomized controlled trial. *The Gerontologist*, *45*(6), 802-811. doi:10.1093/geront/45.6.802

The Medical Management Institute (2008). (ICD-9-CM) *International Classification of Diseases 9th Revision-Clinical Modification.* Salt Lake City: Contexo Media.

Thelen, M.H., Farmer, J., Wonderlich, S., & Smith, M. (1991). A revision of the Bulimia Test: The BULIT--R. *Psychological Assessment*, *3*(1), 119-124. doi:10.1037//1040-3590.3.1.119

Thienemann, M., & Steiner, H. (1993). Family environment of eating disordered and depressed adolescents. *International Journal of Eating Disorders*, *14*(1), 43-48. doi:10.1002/1098-108x(199307)14:1<43::aid-eat2260140106>3.0.co;2-7

Thompson, J., & Stice, E. (2001). Thin-ideal internalization: mounting evidence for a new risk factor for body image disturbance and eating pathology. *Current Directions in Psychological Science*, *10*(5), 181-183. doi:10.1111/1467-8721.00144

Tiller, J., Sloane, G., Schmidt, U., Troop, N., Power, M., & Treasure, J. (1997). Social support in patients with anorexia nervosa and bulimia nervosa. *International Journal Of*

Eating Disorders, *21*(1), 31-38. doi:10.1002/(sici)1098-108x(199701)21:1<31::aid-eat4>3.0.co;2-4

Tozzi, F., Thornton, L., Klump, K., Fichter, M., Halmi, K., & Kaplan, A. (2005). Symptom Fluctuation in Eating Disorders: Correlates of Diagnostic Crossover. *AJP*, *162*(4), 732-740. doi:10.1176/appi.ajp.162.4.732

Treasure, J., Gavan, K., Todd, G., & Schmidt, U. (2002). Changing the environment in eating disorders: working with carers/families to improve motivation and facilitate change. *European Eating Disorders Review*, *11*(1), 25-37. doi:10.1002/erv.485

Treasure, J., Murphy, T., Szmukler, T., Todd, G., Gavan, K., & Joyce, J. (2001). The experience of caregiving for severe mental illness: a comparison between anorexia nervosa and psychosis. *Social Psychiatry and Psychiatric Epidemiology*, *36*(7), 343-347. doi:10.1007/s001270170039

Truby, H., Baxter, K., Barrett, P., Ware, R., Cardinal, J., & Davies, P. (2010). The Eat Smart Study: A randomised controlled trial of a reduced carbohydrate versus a low fat diet for weight loss in obese adolescents. *Biomedical Central Public Health*, *10*(1), 464. doi:10.1186/1471-2458-10-464

Turner, H., & Cooper, M. (2002). Cognitions and their origins in women with anorexia nervosa, normal dieters and female controls. *Clinical Psychology and Psychotherapy*, *9*(4), 242-252. doi:10.1002/cpp.317

Tyrka, A., Waldron, I., Graber, J., & Brooks-Gunn, J. (2002). Prospective predictors of the onset of anorexic and bulimic syndromes. *International Journal of Eating Disorders*, *32*(3), 282-290. doi:10.1002/eat.10094

US Department of Health and Human Services, Substance Abuse and Mental Health Service Administration. (2012). *Screening and assessing for substance use disorders, treatment improvement protocol* (DHHS Publication No. SMA 99-3282). Retrieved from

http://adaiclearinghouse.org/downloads/TIP-31-Screening-and-Assessing-Adolescents-for-Substance-Use-Disorders-63.pdf

Ungar, M. (2004). A constructionist discourse on resilience: Multiple contexts, multiple realities among at-risk children and youth. *Youth & Society, 35*(3), 341-365. doi:10.1177/0044118x03257030

van den Berg, P., Thompson, J.K., Obremski-Brandon, K., & Coovert, M. (2002). The Tripartite Influence model of body image and eating disturbance. *Journal of Psychosomatic Research, 53*(5), 1007-1020. doi:10.1016/s0022-3999(02)00499-3

Van der Ham, T., Meulman, J.J., Van Strien, D., & Van Engeland, H. (1997). Empirically based subgrouping of eating disorders in adolescents: a longitudinal perspective. *The British Journal of Psychiatry, 170*(4), 363-368. doi:10.1192/bjp.170.4.363

van Elburg, A., & Treasure, J. (2013). Advances in the neurobiology of eating disorders. *Current Opinion in Psychiatry, 26*(6), 556-561. doi:10.1097/yco.0b013e328365a2e7

van Son, G., van Hoeken, D., van Furth, E., Donker, G., & Hoek, H. (2009). Course and outcome of eating disorders in a primary care-based cohort. *International Journal of Eating Disorders, 43,*130-138. doi:10.1002/eat.20676

VanBoven, A., & Espelage, D. (2006). Depressive symptoms, coping strategies, and disordered eating among college women. *Journal of Counseling & Development, 84*(3), 341-348. doi:10.1002/j.1556-6678.2006.tb00413.x

Vanderlinden, J., Buis, H., Pieters, G., & Probst, M. (2007). Which elements in the treatment of eating disorders are necessary ‘ingredients’ in the recovery process? A comparison between the patient's and therapist's view. *European Eating Disorders Review, 15*(5), 357-365. doi:10.1002/erv.768

Vandewalle, J., Moens, E., & Braet, C. (2013). Comprehending emotional eating in obese youngsters: the role of parental rejection and emotion regulation. *International Journal of Obesity, Related Metabolic Disorders, 38*(4), 525-530. doi:10.1038/ijo.2013.233

Victorian Government Department of Human Services (2007). *Planning framework for public rural mental health services* (Publication No. 060803). Retrieved from http://www.health.vic.gov.au/mentalhealth/services/rural-framework.pdf

Vincent, M.A. & McCabe, M.P. (2000). Gender differences among adolescents in family, and peer influences on body dissatisfaction, weight loss, and binge eating behavior. *Journal of Youth and Adolescence*, 29, 205-221. Retrieved from http://link.springer.com/article/10.1023%2FA%3A1005156616173#

Vincent, M.A., McCabe, M.P., & Ricciardelli, L. (1999). Factorial validity of the Bulimia Test-Revised in adolescent boys and girls. *Behaviour Research and Therapy, 37*(11), 1129-1140. doi:10.1016/s0005-7967(98)00199-5

Vitousek, K. B., & Orimoto, L. (1993). Cognitive-behavioral models of anorexia nervosa, bulimia nervosa, and obesity. In K. S. Dobson & P.Kendall (Eds.), *Psychopathology and cognition* (pp. 191-243). San Diego, CA: Academic Press.

Vostanis, P. (2006). Strengths and difficulties questionnaire: research and clinical applications. *Current Opinion in Psychiatry*, *19*(4), 367-372. doi:10.1097/01.yco.0000228755.72366.05

Waddell, C., Godderis, R., Schwartz, C., & Garland, O. (2005). *Preventing and treating eating disorders in children and youth* (Research Report No. 1-2). Retrieved from Research on Child Health website: http://childhealthpolicy.ca/wp-content/uploads/2012/12/RR-7-04-full-report.pdf

Wade, T., Davidson, S., & O'Dea, J. (2003). A preliminary controlled evaluation of a school-based media literacy program and self-esteem program for reducing eating disorder risk

factors. *International Journal of Eating Disorders*, *33*(4), 371-383. doi:10.1002/eat.10136

Wade, T., Martin, N., Tiggemann, M., Abraham, S., Treloar, S., & Heath, A. (2000). Genetic and environmental risk factors shared between disordered eating, psychological and family variables. *Personality and Individual Differences*, *28*(4), 729-740. doi:10.1016/s0191-8869(99)00134-8

Wade, T., & Tiggemann, M. (2013). The role of perfectionism in body dissatisfaction. *Journal of Eating Disorders*, *1*(1), 2-8. doi:10.1186/2050-2974-1-2

Wade, T., Treloar, S., & Martin, N. (2008). Shared and unique risk factors between lifetime purging and objective binge eating: a twin study. *Psychological Medicine*, *38*(10), 1455-1464. doi:10.1017/s0033291708002791

Wade, T., Treloar, S., Heath, A., & Martin, N. (2009). An examination of the overlap between genetic and environmental risk factors for intentional weight loss and overeating. *International Journal of Eating Disorders*, *42*(6), 492-497. doi:10.1002/eat.20668

Wagnild, G. (2009). *The resilience scale user guide for the US English version of the Resilience Scale and the 14-item resilience scale (RS-14).* Worden, MT: The Resilience Centre.

Wallis, A., Alford, C., Hanson, A., Titterton, J., Madden, S., & Kohn, M. (2012). Innovations in Maudsley family-based treatment for anorexia nervosa at the Children's Hospital at Westmead: a family admission programme. *Journal of Family Therapy*, *35*, 68-81. doi:10.1111/j.1467-6427.2012.00604.x

Wallis, A., Rhodes, P., Kohn, M., & Madden, S. (2007). Five-years of family based treatment for anorexia nervosa: The Maudsley Model at the Children's Hospital at Westmead.

International Journal of Adolescent Medicine and Health, *19*(3), 277-283. doi:10.1515/ijamh.2007.19.3.277

Walsh, B.T. & Garner, D.M. (1997). Diagnostic issues. In D.M. Garner & P.E.Garfinkel (Eds.), Handbook for the Treatment of Eating Disorders (pp. 25-33). New York: The Guilford Press.

Watkins, B., Cooper, P., & Lask, B. (2011). History of eating disorder in mothers of children with early onset eating disorder or disturbance. *European Eating Disorders Review, 20*(2), 121-125. doi:10.1002/erv.1125

Wearden, A., Tarrier, N., Barrowclough, C., Zastowny, T.r., & Rahill, A. (2000). A review of expressed emotion research in health care. *Clinical Psychology Review*, *20*(5), 633-666. doi:10.1016/s0272-7358(99)00008-2

Wertheim, E. H., Mee, V., & Paxton, S. J. (1999). Relationships among adolescent girls' eating behaviors and their parents' weight-related attitudes and behaviors. Sex Roles, 41, 169-187. Retrieved from: http://link.springer.com/article/10.1023%2FA%3A1018850111450?LI=true

Whitney, J., Murray, J., Gavan, K., Todd, G., Whitaker, W., & Treasure, J. (2005). Experience of caring for someone with anorexia nervosa: qualitative study. *The British Journal of Psychiatry*, *187*(5), 444-449. doi:10.1192/bjp.187.5.444

Wilfley, D., Kolko, R., & Kass, A. (2011)., D., Kolko, R., & Kass, A. (2011). Cognitive-behavioral therapy for weight management and eating disorders in children and adolescents. *Child and Adolescent Psychiatric Clinics of North America*, *20*(2), 271-285. doi:10.1016/j.chc.2011.01.002

Wilfley, D.E., Welch, R.R., Stein, R.I, Spurrell, E.B., Cohen, L.R., & Saelens, B.E. (2002). A randomized comparison of group cognitive-behavioral therapy and group interpersonal

psychotherapy for the treatment of overweight individuals with binge-eating disorder. *Arch Gen Psychiatry*, *59*(8), 713–721. doi:10.1001/archpsyc.59.8.713

Wilksch, S.M., Durbridge, M., & Wade, T. (2008). A preliminary controlled comparison of programs designed to reduce risk of eating disorders targeting perfectionism and media literacy. *Journal of the American Academy of Child & Adolescent Psychiatry*, *47*(8), 939-947. doi:10.1097/chi.0b013e3181799f4a

Wilksch, S.M., & Wade, T. D. (2009a). Reduction of shape and weight concern in young adolescents: A 30-month controlled evaluation of a media literacy program. *Journal of the American Academy of Child and Adolescent Psychiatry, 48*(6), 652-661. doi:10.1097/chi.0b013e3181a1f559

Wilksch, S.M., & Wade, T.D. (2009b). School-based eating disorder prevention. In S.J., Paxton & P.H., Hay (Eds.), *Interventions for body image and eating disorders: Evidence and practice* (pp. 7-22). Sydney: IP Communications.

Williams, D.R. (2011). Obesity in Children and Adolescents: Identifying Eating Disorders. *Consultants for Pediatricians, 10*(12), 56-58. Retrieved from http://www.pediatricsconsultant360.com/content/obesity-children-and-adolescents-identifying-eating-disorders

Williamson, D.A, White, M.A., York-Crowe, E., & Stewart, T.M. (2004). Cognitive-Behavioral Theories of Eating Disorders. *Behavior Modification, 28*(6), 711-738. doi:10.1177/0145445503259853

Wilson, G., Wilfley, D., Agras, W., & Bryson, S. (2010). Psychological treatments of binge eating disorder. *Achieves of General Psychiatry*, *67*(1), 94–101. doi:10.1001/archgenpsychiatry.2009.170

Wilson, G., Grilo, C., & Vitousek, K. (2007). Psychological treatment of eating disorders. *American Psychologist, 62*(3), 199-216. doi:10.1037/0003-066x.62.3.199

Wilson, G.T., Fairburn, C.G., Agras, W., Walsh, S., & Kraemer, T. (2007). Cognitive behavioral treatment of bulimia nervosa: Time course and mechanisms of change. *Journal of Consulting and Clinical Psychology, 70*(2), 267-274. doi.org/10.1037/0022-006X.70.2.267

Wilson, G.T, & Fairburn, C. (2007). Treatments for eating disorders. In P.E., Nathan, & J.M. Gorman. *A guide to treatments that work* (pp. 581-583). New York: Oxford University Press.

Winzelberg, A., Eppstein, D., Eldredge, K., Wilfley, D., Dasmahapatra, R., Dev, P., & Taylor, C. (2000). Effectiveness of an Internet-based program for reducing risk factors for eating disorders. *Journal of Consulting and Clinical Psychology*, *68*(2), 346-350. doi:10.1037//0022-006x.68.2.346

Wolfe, B.E., Metzger, E.D., Levine, J.M., Finkelstein, D.M., Cooper, T.B., & Jimerson, D. C. (2000). Serotonin function following remission from bulimia nervosa. *Neuropsychopharmacology*, *22*(3), 257-263. doi:10.1016/s0893-133x(99)00117-7

Wonderlich, S.A., Joiner, T.E., Keel, P.K., Williamson, D.A., & Crosby, R.D. (2007). Eating disorder diagnoses: Empirical approaches to classification. *American Psychologist*, *62*(3), 167-180. doi:10.1037/0003-066x.62.3.167

World Health Organisation. (2004). Prevention of Mental Disorders: Effective interventions and policy options. Geneva. Retrieved from www.who.int/entity/mental_health/evidence/en/prevention_of_mental_disorders_sr.pdf

Yager, Z., & O'Dea, J. (2008). Prevention programs for body image and eating disorders on University campuses: a review of large, controlled interventions. *Health Promotion International*, *23*(2), 173-189. doi:10.1093/heapro/dan004

Yeo, M., & Hughes, E. (2011). Eating Disorders: Early identification in general practice. *Australian Family Physician, 40*(3), 108-111. Retrieved from http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?

Young, E.A., Clopton, J.R., & Bleckley, M.K. (2004). Perfectionism, low self-esteem, and family factors as predictors of bulimic behavior. *Eating Behaviours, 5*,273-283. doi:10.1016/s1471-0153(04)00047-9

Zabinski, M., Pung, M., Wilfley, D., Eppstein, D., Winzelberg, A., Celio, A., & Taylor, C. (2001). Reducing risk factors for eating disorders: Targeting at-risk women with a computerized psychoeducational program. *International Journal of Eating Disorders, 29*(4), 401-408. doi:10.1002/eat.1036

Zitarosa, D., de Zwaan, M., Pfeffer, M., & Graap, H. (2012). Supporting carers of persons suffering from an eating disorder. *Psychotherapie Psychosomatik Medizinische Psychologie*, 62(10), 390-3999. doi: 10.1055/s-0032-1316335.

Zubrick, S., Silburn, S., Burton, P., & Blair, E. (2000). Mental health disorders in children and young people: scope, cause and prevention. *Australian and New Zealand Journal of Psychiatry, 34*(4), 570-578. doi:10.1046/j.1440-1614.2000.00703.x

Zucker, N.L., Marcus, M., & Bulik, C. (2006). A group parent-training program: A novel approach for eating disorder management. *Eating and weight disorders - Studies on Anorexia, Bulimia and Obesity, 11*(2), 78-82. doi:10.1007/bf03327755

Appendix A. BUHREC Approval (Study 1)

BOND UNIVERSITY
BRINGING AMBITION TO LIFE

HUMAN RESEARCH ETHICS COMMITTEE
Bond University
Gold Coast, Queensland 4229
Australia
Ph: +61 7 5595 4194
Fax: +61 7 5595 1120
(from overseas)
Email: buhrec@bond.edu.au
ABN 88 010 694 121
CRICOS CODE 00017B

5 April 2012

Professor Richard Hicks, Dr Aileen Pidgeon
Ms Justine Ebenreuter
Faculty of Humanities and Social Sciences
Bond University

Dear Richard, Aileen and Justine

Project No: **RO1440**
Project Title: **Promoting Social and Emotional Wellbeing, Coping and Resiliency in Children who Engage in a Range of Maladaptive Eating Practices**

I am pleased to confirm that your Project, having been reviewed under the Full Review Procedure, has been granted approval to proceed.

It is important to remember that BUHREC's role is to monitor research projects until completion. The Committee requires, as a condition of approval, that all investigations be carried out in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Research Involving Humans and Supplementary Notes. Specifically, approval is dependent upon your compliance, as the researcher, with the requirements set out in the National Statement.

Additionally, approval is given subject to the protocol of the study being under taken as declared in your application, with amendments, where appropriate.

As you may be aware the Ethics Committee is required to annually report on the progress of research it has approved. We would greatly appreciate notification of the completed data collection process and the study completion date.

Should you have any queries or experience any problems, please liaise directly with Caroline Carstens early in your research project: Telephone: (07) 559 54194, Facsimile: (07) 559 51120, Email: buhrec@bond.edu.au.

We wish you well with your research project.

Yours sincerely

Dr Mark Bahr
Chair

BUHREC Approval of Ammendments (Study 1)

From: Lisa Marlow
To: Justine Eberreuter
Cc: Richard Hicks; Aileen Pidgeon
Subject: Ethics amendment approval RO1440
Date: Wednesday, 7 August 2013 2:42:20 PM
Attachments: Amendments Form Ro-1440.pdf

Dear Justine, This is to let you know that the Chair of BUHREC has approved the amendments to your project 'Promoting Social and Emotional Wellbeing, Coping and Resiliency in Children who Engage in a Range of Maladaptive Eating Practices' (amendment form attached).

As usual, please be aware that the approval is given subject to the protocol of the study being under taken as described in your application, with amendments, and in accordance with the National Health and Medical Research Council's National Statement on Ethical Conduct in Human Research.

You are reminded that the Primary Investigator must immediately report anything that might warrant review of ethical approval of the project.

If you have any queries or concerns about the above, please let me know.

Best wishes
Lisa

Dr Lisa Marlow
Research Ethics Manager
Office of Research Services

BOND UNIVERSITY
BRINGING AMBITION TO LIFE

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Bond University | Gold Coast, Queensland, 4229, Australia
CRICOS Provider Code: 00017B

Gateway Correspondence (Study 1)

From: Suzie Rhydderch
To: Justine Eberreuter
Subject: Research on the Butterfly Foundation/NEDC website
Date: Friday, 2 August 2013 1:01:17 PM
Attachments: Template for advertised research.doc

Dear Justine,

I received your email about the research you are doing, and your hope of handing out a questionnaire at our support groups.

After consultation with our National Manager of Support Services, I am sorry to say we are unable to complete this request, as it is not consistent with our policy of not engaging our participants in research.

However, your research sounds very interesting and we would like to offer you our usual channel of assistance, which is to promote your research on both our Butterfly and NEDC websites, and through the respective Facebook pages. Through those channels, you can provide a link to an online survey.

In order for us to assist you with recruitment, we will need the following information:

1. Please complete the attached Word template with details of your research
2. Please send through a copy of a flyer (if you would like to have a link to this put up on the website)
3. We have received a copy of your ethics approval
4. Please indicate your anticipated completion date – we can advertise your research until this date. If no date is provided, the information will be removed 3 months after it was first uploaded

Many thanks, and I look forward to hearing from you soon.

Suzie

Butterfly
Foundation for Eating Disorders

Suzie Rhydderch
NEDC Research Officer
103 Alexander Street Crows Nest NSW 2065
D: 02 8456 3910 | Office: 02 9412 4499
E: suzie@thebutterflyfoundation.org.au
W: www.thebutterflyfoundation.org.au | www.nedc.com.au

National Support Line: 1800 ED HOPE (1800 33 4673)

Initial 100 Items Selected For the New MEPQ (Study 1)

1. I think about how much I eat all of the time -

2. I think I eat the right things to be healthy -

3. Even when I am exhausted I make sure I exercise -

4. Even when I am full I can eat more -

5. Even when I am hungry I do not eat -

6. I always ask for more food -

7. I always want to eat -

8. I am always the last to finish my meals -

9. I am careful to make sure nobody knows what I do -

10. I am distracted by thoughts of food -

11. I am not hungry when I am tired -

12. I am often pleased by my own appearance -

13. I am unhappy with how I look -

14. I become nervous when I think people see what I am really like -

15. I believe magazines that show thin people make me wish I was thin -

16. I can control my hunger -

17. I can never exercise enough -

18. I cannot eat if I am nervous -

20. I cheer myself up with food -

21. I do not enjoy mealtimes -

22. I do not like people seeing me eat -

23. I do not like to eat many things -

24. I do not like to try any new food -

25. I eat in secret -

26. I eat when I am hungry -

27. I eat when no one is watching -

28. I feel awful when I eat too much -

29. I feel guilty when I eat as I think it will effect my weight -

30. I feel I have to pretend to be someone better than I really am -

31. I feel naughty when I eat -

32. I feel scared that I will get fat -

33. I fill up on food easily -

34. I find it easy to control myself around food -

35. I find it hard to eat in front of others -

36. I find it hard to get full -

37. I get scared before meal times -

38. I give food to my friends so I do not have to eat it -

39. I give my food away or throw it out -

40. I have personal private rituals that get me through each day -

41. I help with the cooking but I do not eat what I make -

42. I judge myself by my weight -

43. I keep trying to look better -

44. I leave something on my plate -

45. I like eating with other people -

46. I like lots of different sorts of food -

47. I like sharing a meal with other people -

48. I like the way I look -

49. I look forward to eating together with my family -

50. I look forward to meals -

51. I lose control once I start eating and eat an unusually large amount of food -

52. I love new foods to try that I have never tasted before -

53. I make myself sick when I think I have eaten too much -

54. I never eat my whole meal -

55. I only eat the same foods at every meal -

56. I panic when I cannot exercise -

57. I pick at my food -

58. I play with my food -

59. I start to get anxious before mealtimes -

60. I steal food from the kitchen without telling anyone -

61. I stop myself from eating before I am full -

62. I take food wherever I go -

63. I tend to compare my body with people on TV -

64. I think about food all of the time -

65. I think I know ways to control my weight -

66. I think I lead a double life -

67. I think I look bigger than everyone else -

68. I think I look okay -

69. I think I must control what I eat -

70. I think I will not stop eating once I start -

71. I think if my body looks as I wish, my life would be happier -

72. I think my body looks better if I do not eat -

73. I think my size makes me unpopular -

74. I think people do not accept me -

75. I think the models in magazines are realistic -

76. I think what I look like is an important part of who I am -

77. I think you have to be skinny to be popular -

78. I throw most of my lunch out -

79. I try excessively to achieve the perfect body -

80. I try hard not to gain weight -

81. I usually finish my meals first -

82. I want to be thin to fit in -

83. I want to cry when I see myself in the mirror -

84. I weigh myself lots of times each day -

85. If I carefully manage what I eat I think I will look better -

86. If I keep my stomach empty I think I will feel better -

87. It does not matter how angry I get I can still eat -

88. People become upset when I do not eat -

89. People tell me I am too thin -

90. People tell me to eat more -

91. People tell me to stop eating -

92. People try to force food on me -

93. Sometimes I eat until I make myself sick -

94. There are foods I do not eat because I think they will make me look fat -

95. There are times when I decide I am not going to eat -

96. When I am bored I eat -

97. When I am unhappy I cannot eat -

98. When I eat I feel guilty because of its effect on my body shape -

99. When I think of gaining weight I become nervous -

100. Worrying about my weight stops me from thinking about other things –

Final 43 Items Chosen from 100 Items (Study 1)

1. I think about how much I eat all of the time

2. I think about food all of the time

3. I think I look bigger than everyone else

4. If I keep my stomach empty I think I will feel better

5. I think I will not stop eating once I start

6. I think I know ways to control my weight

7. When I eat I feel guilty because it effects my body shape

8. I do not like people seeing me eat

9. I want to cry when I see myself in the mirror

10. I am not hungry when I am tired

11. When I'm bored I eat

12. I cannot eat if I am nervous

13. I cheer myself up with food

14. I judge myself by my weight

15. I start to get anxious before mealtimes

16. I eat in secret

17. I do not enjoy mealtimes

18. I am the last to finish my meals

19. I play with my food

20. I always want to eat

21. I take food wherever I go

22. I lose control once I start eating and eat an unusually large amount of food

23. Even when I am hungry I do not eat

24. I can control my hunger

25. I only eat the same foods at every meal

26. I stop myself from eating before I am full

27. I give my food away or throw it out

28. I try excessively to achieve the perfect body

29. Even when I am full I can eat more

30. Even when I am exhausted I make sure I exercise

31. I panic when I cannot exercise

32. I weigh myself lots of times each day

33. I want to be thin to fit in

34. I eat when no one is watching

35. I think my size makes me unpopular

36. People try to force food on me

37. I like eating with other people

38. People tell me to stop eating

39. People tell me I am too thin

40. People become upset when I do not eat

41. I like sharing a meal with other people

42. I eat my whole meal

43. I leave something on my plate

Explanatory Statement (Study 1)

BOND UNIVERSITY

Date 29th January 2012

Ethics Reference Number: RO-1440

PROJECT TITLE - Promoting social and emotional wellbeing, coping and resiliency in children who engage in a range of maladaptive eating practices.

My name is Justine Ebenreuter and I am currently completing a Doctor of Philosophy (PhD) at Bond University under the supervision of Professor Dr Richard Hicks and Assistant Professor Dr Aileen Pidgeon, in the Department of Humanities and Social Sciences.

I am conducting a research investigation into the identification of maladaptive eating practices as pre-cursors to eating disorders. I am specifically interested in identifying particular factors that influence an individual's attitude towards eating.

As part of this study, I will invite you to complete one questionnaire that seeks to address participant's thoughts and feelings towards psychological, interpersonal, behavioural and social events, and how this impacts eating behaviour. This should take you no more than 15 minutes. When you have finished completing the questionnaire, you will be required to seal it in an envelope provided. Your name and contact details will not be recorded.

Participation in this study is **completely voluntary** and you may withdraw at any time without risking any negative consequences. If you choose to withdraw your participation in this study, the information you have provided will be immediately destroyed. All the data collected in this study will be treated with complete **confidentiality** and not made accessible to any person outside of the researchers working on this project. The information I obtain from you will be dealt with in a manner that ensures you remain **anonymous**. Data will be stored in a secured location at Bond University for a period of 5 years in accordance with the guidelines set out by the Bond University Human Research Ethics Committee.

It is anticipated that the data collected during this study will assist us in understanding of the risk and protective factors associated with development and maintenance of range of maladaptive eating practice. Your participation in this study will seek to enhance work towards promoting social and emotional wellbeing, coping and resiliency in individuals who engage in a range of maladaptive eating practices.

The study may be submitted for publication however, all information will be treated in strictest confidence; and only grouped results will be published to ensure individuals remain anonymous. If you have any queries regarding the questionnaire or would like to be informed of the overall research findings, please contact Professor Richard Hicks on the following email: richard_hicks@staff.bond.edu.au or Assistant Professor Dr Aileen Pidgeon apidgeon@staff.bond.edu.au

If you experience distress from participation in this research, please contact: Lifeline crisis support on 13 11 14.

Should you have any complaints concerning the manner in which this research is being conducted please make contact with –

Bond University Human Research Ethics Committee,
c/o Bond University Office of Research Services.
Bond University, Gold Coast, 4229
Tel: +61 7 5595 4194 Fax: +61 7 5595 1120 Email: buhrec@bond.edu.au

We thank you for taking the time to assist us with this research.

Yours sincerely,

Professor Dr Richard Hicks
Principal Researcher

Signed: _____

Assistant Professor Dr Aileen Pidgeon
Co-Researcher

Signed: _____

Justine Ebenreuter
Student Researcher

Signed: _____

Consent Form (Study 1)

BOND UNIVERSITY

Bond University – Faculty of Humanities and Social Sciences

Researchers: Dr Richard Hicks, Dr Aileen Pidgeon and Justine Ebenreuter,

Project Title - Promoting social and emotional wellbeing, coping and resiliency in children who engage in a range of maladaptive eating practices.

Consent form – for participating in the research project of Justine Ebenreuter

I _____ have had participation in the research project as titled above and I consent to participate in the questionnaire for this project. I authorise the researcher to use the completed questionnaire to complete her research. I understand that I may withdraw my authority at any time without explanation or prejudice.

I understand that the confidentiality of the information I provide will be safeguarded, subject to any legal requirements.

I agree that data collected for the purposes of this research may be published or made accessible to other researchers that could benefit significantly from these findings under the condition that anonymity is maintained.

I voluntarily agree to participate in this study, having read and understood the description of this study and of my rights as a participant.

Name of participant: _____

Signature: _____ Date: _____

Test Battery (Study 1)

DEMOGRAPHICS

Please provide the following information

Name: _____

Age: _____

Gender: _____

Ethnicity:

To which of the following groups do you belong? (*Please cross **X** the one that best describes you*):

- Australian
- Aboriginal / Torres Strait islander
- European
- Indian
- American
- African
- Asian

Eating Practices Questionnaire (MEPQ-25)

Please tick ☑ the box under the word that shows how often each of these things happen to you. There are no right or wrong answers.

		Never	Rarely	Some times	Often	Very Often	Always
1	I think I look bigger than everyone else.	☐	☐	☐	☐	☐	☐
2	If I keep my stomach empty I think I will feel better.	☐	☐	☐	☐	☐	☐
3	I do not like people seeing me eat.	☐	☐	☐	☐	☐	☐
4	I want to cry when I see myself in the mirror.	☐	☐	☐	☐	☐	☐
5	I want to be thin to fit in.	☐	☐	☐	☐	☐	☐
6	I think my size makes me unpopular.	☐	☐	☐	☐	☐	☐
7	When I'm bored I eat.	☐	☐	☐	☐	☐	☐
8	I cheer myself up with food.	☐	☐	☐	☐	☐	☐
9	I always want to eat.	☐	☐	☐	☐	☐	☐
10	Even when I am full I can eat more.	☐	☐	☐	☐	☐	☐
11	People tell me to stop eating.	☐	☐	☐	☐	☐	☐
12	People tell me I am too thin.	☐	☐	☐	☐	☐	☐
13	I only eat the same foods at every meal.	☐	☐	☐	☐	☐	☐
14	People become upset when I do not eat.	☐	☐	☐	☐	☐	☐
15	People try to force food on me.	☐	☐	☐	☐	☐	☐
16	I am the last to finish my meals.	☐	☐	☐	☐	☐	☐
17	Even when I am exhausted I make sure I exercise.	☐	☐	☐	☐	☐	☐
18	I panic when I cannot	☐	☐	☐	☐	☐	☐

exercise.

		Never	Rarely	Some times	Often	Very Often	Always
19	I think I know ways to control my weight.	☐	☐	☐	☐	☐	☐
20	I stop myself from eating before I am full.	☐	☐	☐	☐	☐	☐
21	I am not hungry when I am tired.	☐	☐	☐	☐	☐	☐
22	I cannot eat if I am nervous.	☐	☐	☐	☐	☐	☐
23	I take food wherever I go.	☐	☐	☐	☐	☐	☐
24	I leave something on my plate.	☐	☐	☐	☐	☐	☐
25	I eat my whole meal.	☐	☐	☐	☐	☐	☐

Appendix B. BUHREC Approval (Study 2)

BOND UNIVERSITY
BRINGING AMBITION TO LIFE

HUMAN RESEARCH ETHICS COMMITTEE
Bond University
Gold Coast, Queensland 4229
Australia

Ph: +61 7 5595 4194
Fax: +61 7 5595 1120
(from overseas)

Email: buhrec@bond.edu.au

ABN 88 010 694 121
CRICOS CODE 00017B

9 October 2012

Justine Ebenreuter
Faculty of Humanities & Social Sciences
Bond University

Dear Justine

Protocol No: **RO 1538**
Project Title: **Promoting Social and Emotional Wellbeing, Coping and Resiliency in Children who Engage in a Range of Maladaptive Eating Practices**

I am pleased to confirm that your project was reviewed under the Full review procedure of Bond University's Human Research Ethics Committee and you have been granted approval to proceed, subject to clearance from Risk & Audit.

As a reminder, BUHREC's role is to monitor research projects until completion. The Committee requires, as a condition of approval, that all investigations be carried out in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Research Involving Humans and Supplementary Notes. Specifically, approval is dependent upon your compliance, as the researcher, with the requirements set out in the National Statement as well as the research protocol and listed in the Declaration which you have signed.

Please be aware that the approval is given subject to the protocol of the study being undertaken as described in your application with amendments, where appropriate. As you may be aware the Ethics Committee is required to annually report on the progress of research it has approved. We would greatly appreciate if you could advise us when you have completed data collection and when the study is completed

Should you have any queries or experience any problems, please contact early in your research project: Telephone: (07) 559 53554, Facsimile: (07) 559 51120, Email: buhrec@bond.edu.au.

We wish you well with your research project.

Yours sincerely

Dr Mark Bahr
Chair

BUHREC Approval of Ammendments (Study 2)

From: Lisa Marlow
To: Justine Ebenreuter
Cc: Richard Hicks; Aileen Pidgeon
Subject: Ethics amendment approval RO1538
Date: Wednesday, 4 December 2013 11:50:13 AM
Attachments: BUHREC Amendment Study 2 RO-1538.pdf

Dear Justine, This is to let you know that the Chair of BUHREC has approved the amendments to your project 'Promoting Social and Emotional Wellbeing, Coping and Resiliency in Children who Engage in a Range of Maladaptive Eating Practices ' (amendment form attached).

As usual, please be aware that the approval is given subject to the protocol of the study being under taken as described in your application, with amendments, and in accordance with the National Health and Medical Research Council's National Statement on Ethical Conduct in Human Research.

You are reminded that the Primary Investigator must immediately report anything that might warrant review of ethical approval of the project.

If you have any queries or concerns about the above, please let me know.

Best wishes
Lisa

Dr Lisa Marlow
Research Ethics Manager
Office of Research Services

BOND UNIVERSITY
BRINGING AMBITION TO LIFE

Telephone: +61 7 5595 4194
Facsimile: +61 7 5595 1120
Bond University | Gold Coast, Queensland, 4229, Australia
CRICOS Provider Code: 00017B

Gateway Correspondence (Study 2)

PSYCHOLOGY CENTRAL
Helping individuals, groups, couples & families

Peta Stapleton, PhD
Clinical Psychologist
HIC 2578202T

Psychology Central - Suite D
191 Varsity Parade, Varsity Lakes Qld 4227

Tel: 07 55 78 98 68 Fax: 07 56 89 11 50
admin@psychology-central.com.au

27th March 2012

Bond University Research Ethics Committee
Bond University
Gold Coast 4229

To Whom It May Concern,

RE: Accessing Clients for Research Project

This letter is to verify that I give Bond University PhD candidate Justine Ebenreuter permission to access my private practice for her research purposes, and to include any clients who wish to participate in her study.

I can be contacted at the listed address for further information.

Warm Regards,

Peta Stapleton, PhD
Clinical Psychologist

Pathways "Be all you can be!"

Lifeskills > Family > School > Resilience

West End Training Centre
Unit 7, 88 Boundary St, West End QLD 4101
Phone (07) 3844 5844 Fax (07) 3846 4435

Pathways Health and Research Centre
ABN 37 105 007 430

Woolloongabba Clinic
Unit 18/ 8 Catherine St Woollaangabba 4102
Phone (07) 3391 6866 Fax (07) 3217 4866

PO Box 5699, West End 4101
Email info@pathwayshrc.com.au
Website pathwayshrc.com.au

19 October 2011

To whom this may concern,

I give permission for Justine Ebenreuter to conduct research and collect data from both children (4-18 years old) and adults (primarily parents) on behalf of Pathways Health and Research Centre, for her PhD with Bond University.

Yours sincerely,

Kirby Miles

Assistant Director

PRA CONSULTING
Psychologists & Occupational Therapists

Practitioners
Paul Rushton
Liz Moore
Fiona Watson OT
Tim Smyth
Rhonda Stoertebecker
Kamal Dhaliwal
Nihal Kucuk
Liza Kokkoris
Donna Hourigan
John Daniels
Lisa Boman

Specialists in:
- Clinical & Counselling Psychology for children, youth and adults
- Employee Assistance
- Workers' Compensation

PH 07 5526 1212
FAX 07 5526 1414

Head Office
Level 1, Cnr William St and
2431 Gold Coast Hwy
PO Box 450
Mermaid Beach Qld 4218

Shop 6, 32-34 Musgrave St
Kirra Qld 4225

Email:
contact@praconsulting.com.au

Web:
www.praconsulting.com.au

12th July, 2012.

Bond University Research Ethics Committee,
Bond University,
Robina, QLD, 4226.

Dear Sirs,

Re: Client Data Request for Research.

I confirm that I agree to give approval to Bond University's PhD candidate Justine Ebenreuter to access appropriate data provided from my private practice in pursuit of her research aims.

Please contact me on 0400 809 050 if I can be of further assistance to the committee in this matter.

Yours sincerely,

John Daniels,
Psychologist.

From: Suzie Rhydderch
To: Justine Eberreuter
Subject: Research on the Butterfly Foundation/NEDC website
Date: Friday, 2 August 2013 1:01:17 PM
Attachments: Template for advertised research.doc

Dear Justine,

I received your email about the research you are doing, and your hope of handing out a questionnaire at our support groups.

After consultation with our National Manager of Support Services, I am sorry to say we are unable to complete this request, as it is not consistent with our policy of not engaging our participants in research.

However, your research sounds very interesting and we would like to offer you our usual channel of assistance, which is to promote your research on both our Butterfly and NEDC websites, and through the respective Facebook pages. Through those channels, you can provide a link to an online survey.

In order for us to assist you with recruitment, we will need the following information:

1. Please complete the attached Word template with details of your research
2. Please send through a copy of a flyer (if you would like to have a link to this put up on the website)
3. We have received a copy of your ethics approval
4. Please indicate your anticipated completion date – we can advertise your research until this date. If no date is provided, the information will be removed 3 months after it was first uploaded

Many thanks, and I look forward to hearing from you soon.

Suzie

Butterfly
Foundation for Eating Disorders

Suzie Rhydderch
NEDC Research Officer
103 Alexander Street Crows Nest NSW 2065
D: 02 8456 3910 | Office: 02 9412 4499
E: suzie@thebutterflyfoundation.org.au
W: www.thebutterflyfoundation.org.au | www.nedc.com.au

National Support Line: 1800 ED HOPE (1800 33 4673)

BOND UNIVERSITY
BRINGING AMBITION TO LIFE

STUDENT SERVICES
Bond University
Gold Coast, Queensland 4229
Australia
Ph: +61 7 5595 4002
Fax: +61 7 5595 4091
(from overseas)

ABN 88 010 694 121
CRICOS CODE 00017B

24th May 2013

Bond University Human Research Ethics Committee (BUHREC)

Bond University

Robina QLD 4229

To Whom It May Concern,

Re: Assisting with session rooms for PhD purposes

This letter is to verify that I give Bond University PhD candidate Justine Ebenreuter permission to make use of the Bond University Staff and Student Counselling Services session rooms outside the hours of Staff and Students.

Please do not hesitate to call if you require further information about this matter.

Best Wishes,

Mark Stringer
Manager
Student Counsellor
Bond University Staff and Student Counselling

Information Sheets for Families (Study 2)

INFORMATION SHEET FOR FAMILIES

FRIENDS and Adult Resiliency programs

PROJECT TITLE - Promoting social and emotional wellbeing, coping and resiliency in children who engage in a range of maladaptive eating practices.

My name is Justine Ebenreuter and I am currently completing a Doctor of Philosophy (PhD) at Bond University under the supervision of Professor Dr Richard Hicks and Assistant Professor Dr Aileen Pidgeon, in the Department of Humanities and Social Sciences.

I am conducting a research investigation into social and emotional wellbeing of children who engage in a range of differnt eating behaviours. I am specifically interested in identifying particular factors that influence an individual's attitude towards eating.

All parents who enrol their children in the FRIENDS program are being offered the opportunity to take part in this research project, which aims to evaluate the effectiveness of the FRIENDS program. Participation is entirely voluntary and the decision to not take part will have no impact on the intervention your child receives. Below is some information about the FRIENDS program and the proposed study.

What we'll be doing:

Parents will be asked to complete diagnostic interviews, regarding their child, with a trained researcher prior to taking part in the FRIENDS program. This can occur over the phone at your convenience. Parents will also be asked to help their child in responding to questionnaires before, after, and at 3 and 6 months following the intervention to determine whether the gains made during the program have been maintained.

Pre-assessment questionnaires will be distributed at the beginning of the first FRIENDS session. It is important to know that all of the information you provide on the questionnaires is confidential. Your data will be entered into the computer system via a number code. Your name will not be associated with the questionnaire when placed into the database. If you have any other difficulties or questions throughout this process, you can call the researcher at any

time. Additionally, we would like to offer parents the possibility of undertaking an Adult Resilience program running concurrently with the FRIENDS program. To undertake this program, you would need to be available to attend a 2 hour session for 3 consecutive weeks. Additionally we would like you to complete questionnaires about yourself three times: before and after the resilience program, and 6 months later.

Benefits of the Research

The benefits of the research for children, parents and the community include the following;

1. Children who participate in the program will learn important social-emotional skills and also increase their resiliency both of which will foster positive development and reduce the likelihood that they will develop a range of social-emotional disorders linked with the development of a range of maladaptive eating behaviors. By learning these skills children will become more confident and adept at dealing with life challenges or stressful situations.

2. Because the implementation of the FRIENDS for Life program encourages parental involvement, these family members also learn the resilience skills taught by the program. Thus, involvement of family in the program allows generalization of the skills across settlings and promotes maintenance of the social and emotional skills and the adoption of a range of healthy lifestyle choices.

3. Parents will be provided with the opportunity to attend the FRIENDS Adult Resiliency program to assist in the reduction of reported stress, anxiety and depression and to further support the practice of skills with their children in the home environment.

4. Early intervention enhances a child's social and emotional skills and therefore reduces the likelihood that they will later develop social-emotional disorders and eating difficulties.

Confidentiality and Informed Consent

Please understand that you can withdraw from this project at any time without penalty or explanation. All of the information you provide to us is confidential and will only be seen by the small research team working on this project. If you are interested in participating in this study, please sign the consent form attached.

Explanatory Statement (for Parent Pre-Screener Test Battery, Study 2)

BOND UNIVERSITY

Date 1st October 2012

Ethics Reference Number: RO-1538

PROJECT TITLE - Promoting social and emotional wellbeing, coping and resiliency in children who engage in a range of maladaptive eating practices.

My name is Justine Ebenreuter and I am currently completing a Doctor of Philosophy (PhD) at Bond University under the supervision of Professor Dr Richard Hicks and Assistant Professor Dr Aileen Pidgeon, in the Department of Humanities and Social Sciences.

I am conducting a research investigation into social and emotional wellbeing of children and adolescents who engage in a range of disordered eating behaviours. I am specifically interested in identifying particular factors that influence an individual's attitude towards eating.

As part of this study, I will invite your family to complete a brief parent interview and questionnaire that seek to address participant's thoughts and feelings towards psychological, interpersonal, behavioural and social events, and how this impacts eating behaviour. This process should take you no more than 60 minutes. When you have finished completing the questionnaire, you will be required to seal them in an envelope provided at interview.

Participation in this study is **completely voluntary** and you may withdraw at any time without risking any negative consequences. If you choose to withdraw your participation in this study, the information you have provided will be immediately destroyed. All the data collected in this study will be treated with complete **confidentiality** and not made accessible to any person outside of the researchers working on this project. The information I obtain from you will be dealt with in a manner that ensures you remain **anonymous**. Data will be stored in a secured location at Bond University for a period of 5 years in accordance with the guidelines set out by the Bond University Human Research Ethics Committee.

It is anticipated that the data collected during this study will assist us in understanding of the risk and protective factors associated with development and maintenance of range of maladaptive eating practice. Your participation in this study will seek to enhance work towards promoting social and emotional wellbeing, coping and resiliency in individuals who engage in a range of maladaptive eating practices.

The study may be submitted for publication; however, only grouped results will be published. If you have any queries regarding the questionnaire or would like to be informed of the overall research findings, please contact Professor Richard Hicks on the following email: richard_hicks@staff.bond.edu.au or Assistant Professor Dr Aileen Pidgeon apidgeon@staff.bond.edu.au

If you experience distress during participation in this research, you will be referred to a Clinical Psychologist (participating in the study) immediately at the assessment environment or you may be referred to a psychologist in your local area, depending on your preference. Alternatively, for 24 hour support please contact Lifeline crisis support on 13 11 14.

Should you have any complaints concerning the manner in which this research is being conducted please make contact with –

Bond University Human Research Ethics Committee,
c/o Bond University Office of Research Services.
Bond University, Gold Coast, 4229
Tel: +61 7 5595 4194 Fax: +61 7 5595 1120 Email: buhrec@bond.edu.au

We thank you for taking the time to assist us with this research.

Yours sincerely,

Professor Dr Richard Hicks
Principal Researcher

Signed: _____

Assistant Professor Dr Aileen Pidgeon
Co-Researcher

Signed: _____

Justine Ebenreuter
Student Researcher

Signed: _____

Explanatory Statement (for Parent Test Battery, Study 2)

BOND UNIVERSITY

Date 1st October 2012

Ethics Reference Number: RO-1538

PROJECT TITLE - Promoting social and emotional wellbeing, coping and resiliency in children who engage in a range of maladaptive eating practices.

My name is Justine Ebenreuter and I am currently completing a Doctor of Philosophy (PhD) at Bond University under the supervision of Professor Dr Richard Hicks and Assistant Professor Dr Aileen Pidgeon, in the Department of Humanities and Social Sciences.

I am conducting a research investigation into social and emotional wellbeing of children and adolescents who engage in a range of disordered eating behaviours. I am specifically interested in identifying particular factors that influence an individual's attitude towards eating.

As part of this study, I will invite your family to complete a set of questionnaires (child rated) that seek to address participant's thoughts and feelings towards psychological, interpersonal, behavioural and social events, and how this impacts eating behaviour. These should take you no more than 30 to 40 minutes. When you have finished completing the questionnaires, you will be required to seal them in an envelope provided.

Participation in this study is **completely voluntary** and you may withdraw at any time without risking any negative consequences. If you choose to withdraw your participation in this study, the information you have provided will be immediately destroyed. All the data collected in this study will be treated with complete **confidentiality** and not made accessible to any person outside of the researchers working on this project. The information I obtain from you will be dealt with in a manner that ensures you remain **anonymous**. Data will be stored in a secured location at Bond University for a period of 5 years in accordance with the guidelines set out by the Bond University Human Research Ethics Committee.

It is anticipated that the data collected during this study will assist us in understanding of the risk and protective factors associated with development and maintenance of range of maladaptive eating practice. Your participation in this study will seek to enhance work towards promoting social and emotional wellbeing, coping and resiliency in individuals who engage in a range of maladaptive eating practices.

The study may be submitted for publication; however, only grouped results will be published. If you have any queries regarding the questionnaire or would like to be informed of the overall research findings, please contact Professor Richard Hicks on the following email: richard_hicks@staff.bond.edu.au or Assistant Professor Dr Aileen Pidgeon apidgeon@staff.bond.edu.au

If you experience distress during participation in this research, you will be referred to a Clinical Psychologist (participating in the study) immediately at the assessment environment or you may be referred to a psychologist in your local area, depending on your preference. Alternatively, for 24 hour support please contact Lifeline crisis support on 13 11 14.

Should you have any complaints concerning the manner in which this research is being conducted please make contact with –

Bond University Human Research Ethics Committee,
c/o Bond University Office of Research Services.
Bond University, Gold Coast, 4229
Tel: +61 7 5595 4194 Fax: +61 7 5595 1120 Email: buhrec@bond.edu.au

We thank you for taking the time to assist us with this research.

Yours sincerely,

Professor Dr Richard Hicks
Principal Researcher

Signed: _____

Assistant Professor Dr Aileen Pidgeon
Co-Researcher

Signed: _____

Justine Ebenreuter
Student Researcher

Signed: _____

Consent Form (Study 2)

BOND UNIVERSITY

Parent Consent Form

Bond University – Faculty of Humanities and Social Sciences

Researchers: Dr Richard Hicks, Dr Aileen Pidgeon and Justine Ebenreuter,

Project Title - Promoting social and emotional wellbeing, coping and resiliency in children who engage in a range of maladaptive eating practices.

Consent form – for participating in the research project of Justine Ebenreuter

I _____ have read the information provided to me about the Friends programs. I understand that my participation, as well as the participation of my child in this project is voluntary and that we can withdraw at any time without negative consequences. I understand that if I agree to participate in the research project I will also be asked to complete questionnaires. I understand that all information is obtained in the strictest confidence and all of the information I provide regarding my child will be kept confidential. I consent to the publishing of results from this study provided my identity and my child's is not revealed. On the basis of the above understanding, I give permission for my family to participate in the current research program.

Name of child: _____

Name of parent: _____

Signature: _____ Date: _____

Adherence checklist (Study 2)

Session Number	Treatment Group -	Session Content and Important Learning Objectives	✓
1	**Treatment & Comparison Group**:		☐
		- Rapport building and introduction of group participants. ☐	
		- Establishing group guidelines. ☐	
		- Introduction on mood and individual differences in mood. ☐	
	Comparison group only:		☐
		- Parent participants to attend the last 15 minutes of their child's	
	Added Modification (both conditions):		☐
		- Meet the five food groups learning sheets for children age 3 to 13. ☐	
2	**Treatment & Comparison Group**:		☐
		- Affective education and identification of various emotions. ☐	
		- Introducing the relationship between thoughts and feelings. ☐	
	Comparison group only:		☐
		- Parent participants to attend the last 15 minutes of their child's session and review content of session. ☐	
	Added Modification (both conditions):		☐
		- Estimating the five food groups' servings – portion sizes using household items learning sheets for children aged 4 to	
3	**Treatment & Comparison Group**:		☐
		- **F**: Feelings. Identifying physiological symptoms of worry. ☐	
		- **R**: Remember to relax. Have quiet time. Relaxation activities. ☐	
	Comparison group only:		☐
		- Parent participants to attend the last 15 minutes of their child's session and review content of session. ☐	
	Added Modification (both conditions):		☐
		- My pyramid food group healthy serving size sheet for children aged 9 to 13. ☐	
4	**Treatment & Comparison Group**:		☐
		- **I**: I can do it! I can try my best. Identifying self-talk. ☐	
		- Introducing helpful green thoughts and unhelpful red thoughts. ☐	
	Comparison group only:		☐
		- Parent participants to attend the last 15 minutes of their child's session and review content of session. ☐	
	Added Modification (both conditions):		☐
		- The junk food tree – writing activity to replace junk food with healthy foods that grow on trees for children aged 4+. ☐	P 1

Session Number	Treatment Group - Session Content and Important Learning Objectives	☐
5	**Treatment & Comparison Group**:	☐
	- Attention training - looking for positive aspects in all situations. Challenging unhelpful red thoughts. □	
	- **E**: Explore solutions and coping step plans. □	
	- Coping step plans and setting goals. □	
	Comparison group only:	☐
	- Parent participants to attend the last 15 minutes of their child's session and review content of session. □	
	Added Modification (both conditions):	☐
	- Balancing healthy foods with exercise (for children aged 3 to 13). □	
6	**Treatment & Comparison Group**:	☐
	- Problem-solving skills (6 stage problem-solving plan). □	
	- Coping Role models. □	
	- Social support plans. □	
	Comparison group only:	☐
	- Parent participants to attend the last 15 minutes of their child's session and review content of session. □	
	Added Modification (both conditions):	☐
	- What is being active – worksheet (for children aged 4+). □	
7	**Treatment & Comparison Group**:	☐
	- **N:** Now reward yourself. You've done your best! □	
	Comparison group only:	☐
	- Parent participants to attend the last 15 minutes of their child's session and review content of session. □	
	Added Modification (both conditions):	☐
	- Being active is fun – a healthy goal agreement (for children aged 3 to 13). □	
8	**Treatment & Comparison Group**:	☐
	- **D**: Don't forget to practice. □	
	- **S**: Smile. Stay calm for life. Reflect on ways to cope in difficult situations. □	
	Comparison group only:	☐
	- Parent participants to attend the last 15 minutes of their child's session and review content of session. □	
	Added Modification (both conditions):	☐
	- Limiting TV time - a healthy goal agreement (for children aged 7 to 13). □	

Queensland Government Educational Worksheets (Study 2)

Meet the five food groups learning sheets for children aged 3 to 13

Chef Solus and the Explorers Introduce The Food Groups

Grains Group

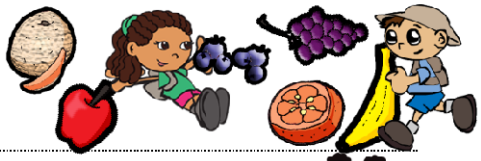
Grains are foods like cereal, bread, spaghetti, rice and crackers. Grains give you energy.
Try to make half of your servings **whole** grains. You can tell if something is a whole grain because the name usually has the word "**whole**" in it.

Vegetables Group

Vegetables are foods like broccoli, carrots, green beans, potatoes, spinach, and corn.
Vegetables help keep you healthy and feeling good.
You should try to eat at least one dark green vegetable or one orange vegetable each day.

Fruit Group

Some fruits are apples, pears, cantaloupe melon, watermelon, grapes, and blueberries.
Fruits fight off infections and help you heal when you get hurt.
Fruits are a tasty snack to eat every day.

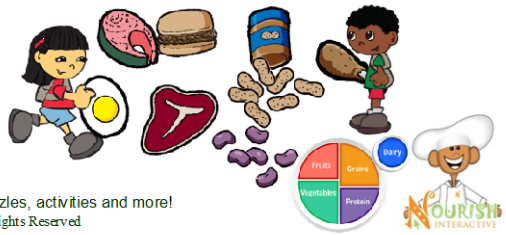


Milk Group

The milk group includes foods like milk, yogurt, cheese, ice cream and pudding.
Foods from the milk group have calcium, which helps to grow strong bones and healthy teeth.

Meat & Beans Group

The meats and beans group includes foods like hamburgers, chicken, fish, eggs, beans and nuts.
Foods from the meat and beans group are full of protein to help you build strong muscles.
Try to eat leaner, less fatty meats to keep your heart healthy.

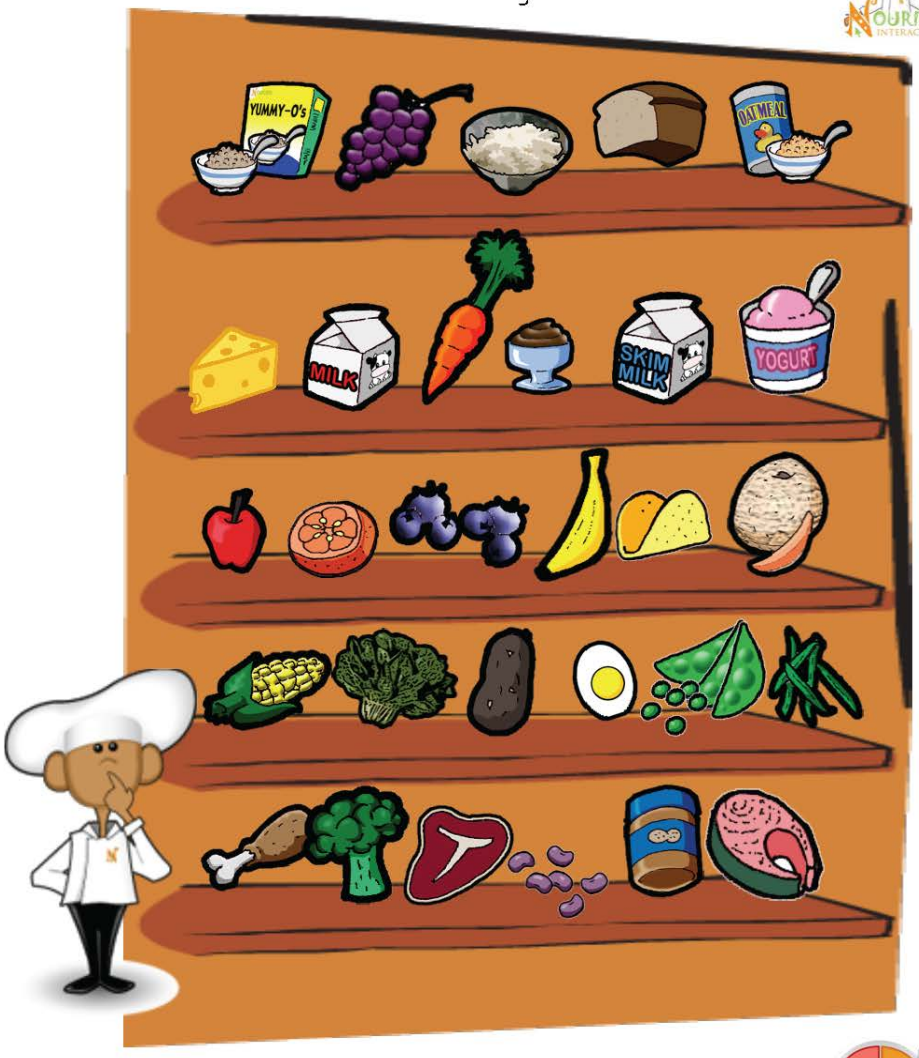


Visit www.ChefSolus.com for printable worksheets for kids, nutrition education games, puzzles, activities and more!

Chef Solus Food Groups in the Kitchen Worksheet

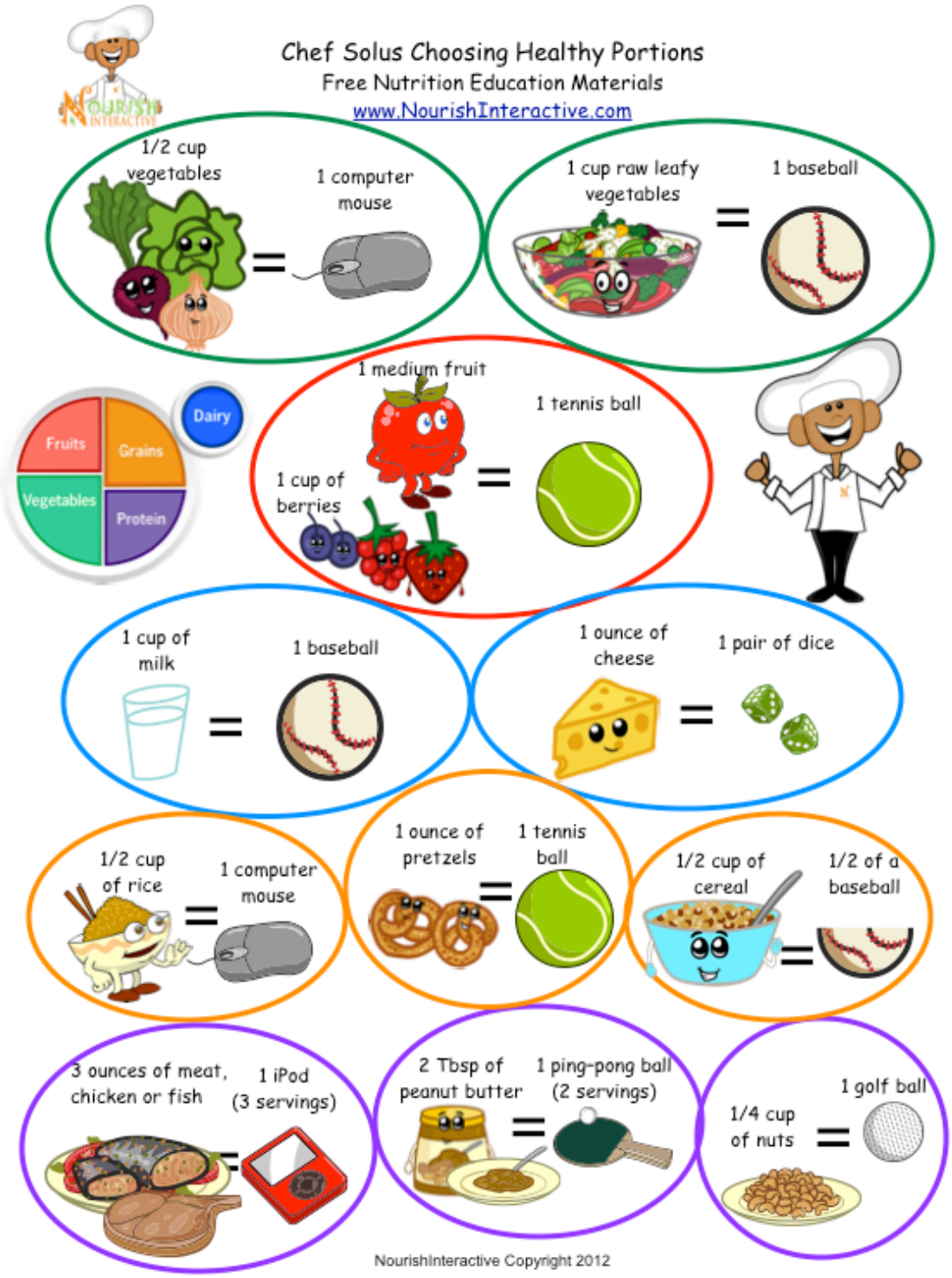
Help Chef Solus organize his pantry. He likes to place healthy foods together in the same food group.

Cross out the food item that does not belong on the shelf.



More Nutrition Fun www.ChefSolus.com

Estimating the five food groups' servings portion sizes using household items learning sheets for children aged 4 to 13

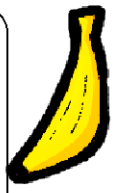


My pyramid food group healthy serving size sheet for children aged 9 to 13

The Food Groups: What makes a Serving?

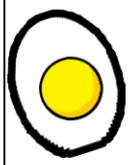
In each food group, look at these different Food Guide My Plate examples of the serving size, showing 1 healthy serving of each food group. How do these compare with what your portions look like?

Grains Food Group
1 slice bread, waffle or pancake
½ bagel, hamburger bun, or English muffin
½ cup cooked rice, pasta or cereal
1 cup ready to eat cereal



Vegetables Food Group
¾ cup (6 fluid ounces) 100% vegetable juice
1 cup raw, leafy vegetables or salad
½ cup cooked or canned vegetables

Fruits Food Group
1 medium apple, orange or banana
½ cup fruit (canned, cooked or raw)
½ cup (4 fluid ounces) 100% fruit juice
¼ cup dried fruit (raisins, apricots or prunes)



Milk Food Group
1 cup milk or yogurt
2 ounces processed cheese (American)
1 ½ ounces natural cheese (cheddar)

Meat and Beans Food Group
1 tablespoons of peanut butter counts as 1 ounce
¼ cup nuts or 20-24 almonds
1 medium size egg
2-3 ounces of poultry, meat or fish (2-3 servings)
¼ cup of beans

Visit ChefSolus.com for Free online nutrition games, fun activities and parent and child nutritional tools!

More Nutrition Fun www.ChefSolus.com

The junk food tree – writing activity to replace junk food with healthy foods that grow on trees for children aged 4+

Chef Solus and the Junk Food Tree

Help Chef Solus fix this tree. Replace the junk food with your favorite healthy food. Write down some healthy foods that belong in a tree.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

More Nutrition Fun www.ChefSolus.com

Balancing healthy foods with exercise for children 3 to 13

Exercise is FUN! - Track your Move-It Minutes:

Color the box every time you exercise	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
15 Move-It minutes							
15 Move-It minutes							
15 Move-It minutes							
15 Move-It minutes							
Extra Move-It minutes							

My favorite Move-It activities are: _____

More Nutrition Fun www.ChefSolus.com
Copyright © Nourish Interactive, All Rights Reserved

What is being active – worksheet for children aged 4+

Explorers Are Active Worksheet

Explorers need to exercise their hearts every day for at least one ho
Write **active** or **not active** under each picture.

not active

Being active is fun – a healthy good agreement for children aged 3 to 13

Exercise is FUN! - Track your Move-It Minutes:

Write in your activities!	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
15 Move-It minutes							
15 Move-It minutes							
15 Move-It minutes							
15 Move-It minutes							
Color in the Star when you have done 1 hour!	☆	☆	☆	☆	☆	☆	☆
Extra Move-It minutes							

My favorite Move-It activities are:

Chef Solus - Pick Your TV Shows - 2 hours or less!

Write in Your TV programs	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30 minutes Time/channel							
30 minutes Time/channel							
30 minutes Time/channel							
30 minutes Time/channel							
Color the star for each day you watched 2 hours or less of TV	☆	☆	☆	☆	☆	☆	☆
Have Fun and Be Active Everyday							

List some activities you can do instead of watching TV:_____

Test Battery (Study 2)

DEMOGRAPHICS

Please provide the following information

Name: _____

Age: _____

Gender: _____

Ethnicity:

To which of the following groups do you belong? (*Please cross **X** the one that best describes you*):

- □ Australian
- □ Aboriginal / Torres Strait islander
- □ European
- □ Indian
- □ American
- □ African
- □ Asian

Modified Mini Screen (MMS)

Patient Name: _____ Date: _____

Section A – Please circle "yes" or "no" for each question.

1. Have you been consistently depressed or down, most of the day, nearly every day, for the past two weeks? Yes No
2. In the past two weeks, have you been less interested in most things or less able to enjoy the things you used to enjoy most of the time? Yes No
3. Have you felt sad, low, or depressed most of the time for the last two years? Yes No
4. In the past month, did you think that you would be better off dead or wish you were dead? Yes No
5. Have you ever had a period of time when you were feeling up, hyper, or so full of energy or full of yourself that you got into trouble, or that other people thought you were not your usual self? (Do not consider times when you were intoxicated on drugs or alcohol.) Yes No
6. Have you ever been so irritable, grouchy, or annoyed for several days, that you had arguments, had verbal or physical fights, or shouted at people outside your family? Have you or others noticed that you have been more irritable or overreacted, compared to other people, even when you thought you were right to act this way? Yes No

Section B – Please circle "yes" or "no" for each question.

7. Have you had one or more occasions when you felt intensely anxious, frightened, uncomfortable, or uneasy, even when most people would not feel that way? Did these intense feelings get to be their worst within ten minutes? (If the answer to both questions is "yes," circle "yes"; otherwise circle "no.") Yes No
8. Do you feel anxious or uneasy in places or situations where you might have the panic-like symptoms we just spoke about? Or do you feel anxious or uneasy in situations where help might not be available or escape might be difficult? Examples: O being in a crowd, O standing in a line, O being alone away from home or alone at home, O crossing a bridge, O traveling in a bus, train, or car? Yes No
9. Have you worried excessively or been anxious about several things over the past six months? (If you answer "no" to this question, answer "no" to Question 10 and proceed to Question 11.) Yes No
10. Are these worries present most days? Yes No
11. In the past month, were you afraid or embarrassed when others were watching you or when you were the focus of attention? Were you afraid of being humiliated? Examples: O speaking in public, O eating in public or with others, O writing while someone watches, O being in social situations. Yes No

continued on other side

12. In the past month, have you been bothered by thoughts, impulses, or images that you couldn't get rid of that were unwanted, distasteful, inappropriate, intrusive, or distressing? Examples: O being afraid that you would act on some impulse that would be really shocking, O worrying a lot about being dirty, contaminated, or having germs, O worrying a lot about contaminating others, or that you would harm someone even though you didn't want to, O having fears or superstitions that you would be responsible for things going wrong, O being obsessed with sexual thoughts, images, or impulses, O hoarding or collecting lots of things, O having religious obsessions. Yes No
13. In the past month, did you do something repeatedly without being able to resist doing it? Examples: O washing or cleaning excessively, O counting or checking things over and over, O repeating, collecting, or arranging things, O other superstitious rituals. Yes No
14. Have you ever experienced, witnessed, or had to deal with an extremely traumatic event that included actual or threatened death or serious injury to you or someone else? Examples: O serious accidents, O sexual or physical assault, O terrorist attack, O being held hostage, O kidnapping, O fire, O discovering a body, O sudden death of someone close to you, O war, O natural disaster. Yes No
15. Have you re-experienced the awful event in a distressing way in the past month? Examples: O dreams, O intense recollections, O flashbacks, O physical reactions. Yes No

Section C – Please circle "yes" or "no" for each question.

16. Have you ever believed that people were spying on you, or that someone was plotting against you, or trying to hurt you? Yes No
17. Have you ever believed that someone was reading your mind or could hear your thoughts, or that you could actually read someone's mind or hear what another person was thinking? Yes No
18. Have you ever believed that someone or some force outside of yourself put thoughts in your mind that were not your own, or made you act in a way that was not your usual self? Or, have you ever felt that you were possessed? Yes No
19. Have you ever believed that you were being sent special messages through the TV, radio, or newspaper? Did you believe that someone you did not personally know was particularly interested in you? Yes No
20. Have your relatives or friends ever considered any of your beliefs strange or unusual? Yes No
21. Have you ever heard things other people couldn't hear, such as voices? Yes No
22. Have you ever had visions when you were awake or have you ever seen things other people couldn't see? Yes No

Children's Eating and Mealtime Behaviour Inventory

Identification number ☐☐☐ Questionnaire number ☐

Child's name: _____

		Never	Seldom	Some-times	Often	Always	Is this a problem for you?
1	My child chews food as expected for his/her age	5	4	3	2	1	YES NO
2	My child enjoys eating	5	4	3	2	1	YES NO
3	My child asks for food which he/she shouldn't have	1	2	3	4	5	YES NO
4	My child feeds his/her self as expected for his/ her age	5	4	3	2	1	YES NO
5	My child gags at mealtimes	1	2	3	4	5	YES NO
6	I feel confident my child eats enough	5	4	3	2	1	YES NO
7	My child vomits at mealtime	1	2	3	4	5	YES NO
8	My child takes food between meals without asking	1	2	3	4	5	YES NO
9	My child chokes at mealtimes	1	2	3	4	5	YES NO
10	My child makes foods for him/her self when not allowed	1	2	3	4	5	YES NO
11	I get upset when my child doesn't eat	1	2	3	4	5	YES NO
12	At home my child eats food he/she shouldn't have	1	2	3	4	5	YES NO
13	My child uses cutlery as expected for his/her age	5	4	3	2	1	YES NO
14	At friends' homes my child eats food he/she shouldn't eat	1	2	3	4	5	YES NO
15	My child asks for food between meals	1	2	3	4	5	YES NO
	IF YOU ARE A SINGLE PARENT SKIP TO NUMBER 19						
16	My child's behaviour at meals upsets my spouse	1	2	3	4	5	YES NO
17	My child interrupts conversations with my spouse at meals	1	2	3	4	5	YES NO
18	I get upset with my spouse at meals	1	2	3	4	5	YES NO
	IF YOU HAVE ONLY ONE CHILD SKIP NUMBER 19						
19	My child's behaviour at meals upsets our other children	1	2	3	4	5	YES NO
	For office use only *Total problem column score:*						Number of YES

Source: Archer, Rosenbaum & Streiner, (1991).

Strengths and Difficulties Questionnaire S 11-17

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain . Please give your answers on the basis of how things have been for you over the last six months.

Your name..... Male/Female

Date of birth.....

	Not True	Somewhat True	Certainly True
I try to be nice to other people. I care about their feelings	☐	☐	☐
I am restless, I cannot stay still for long	☐	☐	☐
I get a lot of headaches, stomach-aches or sickness	☐	☐	☐
I usually share with others, for example CD's, games, food	☐	☐	☐
I get very angry and often lose my temper	☐	☐	☐
I would rather be alone than with people of my age	☐	☐	☐
I usually do as I am told	☐	☐	☐
I worry a lot	☐	☐	☐
I am helpful if someone is hurt, upset or feeling ill	☐	☐	☐
I am constantly fidgeting or squirming	☐	☐	☐
I have one good friend or more	☐	☐	☐
I fight a lot. I can make other people do what I want	☐	☐	☐
I am often unhappy, depressed or tearful	☐	☐	☐
Other people my age generally like me	☐	☐	☐
I am easily distracted, I find it difficult to concentrate	☐	☐	☐
I am nervous in new situations. I easily lose confidence	☐	☐	☐
I am kind to younger children	☐	☐	☐
I am often accused of lying or cheating	☐	☐	☐
Other children or young people pick on me or bully me	☐	☐	☐
I often volunteer to help others (parents, teachers, children)	☐	☐	☐
I think before I do things	☐	☐	☐
I take things that are not mine from home, school or elsewhere	☐	☐	☐
I get along better with adults than with people my own age	☐	☐	☐
I have many fears, I am easily scared	☐	☐	☐
I finish the work I'm doing. My attention is good	☐	☐	☐

Your Signature .....

Today's Date .....

Thank you very much for your help

DEPRESSION SELF-RATING SCALE FOR CHILDREN
(Birleson 1978)

Instructions:
This self-rating scale was developed for children between the ages of 8 and 14 years of age. Please explain to the child that the scale is a way of getting to know how children really feel about things. Give the scale to the child with the directions below. If children have difficulty in reading any of the items, clinicians may read out the statements in a neutral tone of voice that indicates no preference in what they wish to hear.

Please read these statements and tick the answer that best describes how you have felt <u>during the past week</u>. It is important to answer as honestly as you can. The correct answer is to say <u>how you have really felt</u>.

		Mostly		**Never**	
			Sometimes		
1.	I look forward to things as much as I used to..	[ ]	[ ]	[ ]	___
2.	I sleep very well..... ……	[ ]	[ ]	[ ]	___
3.	I feel like crying.....	[ ]	[ ]	[ ]	___
4.	I like to go out to play.....	[ ]	[ ]	[ ]	___
5.	I feel like running away.....	[ ]	[ ]	[ ]	___
6.	I get tummy aches.....	[ ]	[ ]	[ ]	___
7.	I have lots of energy.....	[ ]	[ ]	[ ]	___
8.	I enjoy my food.....	[ ]	[ ]	[ ]	___
9.	I can stick up for myself.....	[ ]	[ ]	[ ]	___
10.	I think life isn't worth living.....	[ ]	[ ]	[ ]	___
11.	I am good at the things I do.....	[ ]	[ ]	[ ]	___
12.	I enjoy the things I do as much as I used to…	[ ]	[ ]	[ ]	___
13.	I like talking with my family.....	[ ]	[ ]	[ ]	___
14.	I have bad dreams.....	[ ]	[ ]	[ ]	___
15.	I feel very lonely.....	[ ]	[ ]	[ ]	___
16.	I am easily cheered up.....	[ ]	[ ]	[ ]	___
17.	I feel so sad I can hardly stand it.....				
…….	[ ]	[ ]	[ ]	___	
18.	I feel very bored.....	[ ]	[ ]	[ ]	___

Thank you. **Score** ____

Eating Practices Questionnaire (MEPQ-25)

Please tick ☑ the box under the word that shows how often each of these things happen to you. There are no right or wrong answers.

		Never	Rarely	Some times	Often	Very Often	Always
1	I think I look bigger than everyone else.	☐	☐	☐	☐	☐	☐
2	If I keep my stomach empty I think I will feel better.	☐	☐	☐	☐	☐	☐
3	I do not like people seeing me eat.	☐	☐	☐	☐	☐	☐
4	I want to cry when I see myself in the mirror.	☐	☐	☐	☐	☐	☐
5	I want to be thin to fit in.	☐	☐	☐	☐	☐	☐
6	I think my size makes me unpopular.	☐	☐	☐	☐	☐	☐
7	When I'm bored I eat.	☐	☐	☐	☐	☐	☐
8	I cheer myself up with food.	☐	☐	☐	☐	☐	☐
9	I always want to eat.	☐	☐	☐	☐	☐	☐
10	Even when I am full I can eat more.	☐	☐	☐	☐	☐	☐
11	People tell me to stop eating.	☐	☐	☐	☐	☐	☐
12	People tell me I am too thin.	☐	☐	☐	☐	☐	☐
13	I only eat the same foods at every meal.	☐	☐	☐	☐	☐	☐
14	People become upset when I do not eat.	☐	☐	☐	☐	☐	☐
15	People try to force food on me.	☐	☐	☐	☐	☐	☐
16	I am the last to finish my meals.	☐	☐	☐	☐	☐	☐
17	Even when I am exhausted I make sure I exercise.	☐	☐	☐	☐	☐	☐
18	I panic when I cannot exercise.	☐	☐	☐	☐	☐	☐

		Never	Rarely	Some times	Often	Very Often	Always
19	I think I know ways to control my weight.	☐	☐	☐	☐	☐	☐
20	I stop myself from eating before I am full.	☐	☐	☐	☐	☐	☐
21	I am not hungry when I am tired.	☐	☐	☐	☐	☐	☐
22	I cannot eat if I am nervous.	☐	☐	☐	☐	☐	☐
23	I take food wherever I go.	☐	☐	☐	☐	☐	☐
24	I leave something on my plate.	☐	☐	☐	☐	☐	☐
25	I eat my whole meal.	☐	☐	☐	☐	☐	☐

Appendix C. BUHREC Approval (Study 3)

BOND UNIVERSITY
BRINGING AMBITION TO LIFE

HUMAN RESEARCH ETHICS COMMITTEE
Bond University
Gold Coast, Queensland 4229
Australia
Ph: +61 7 5595 4194
Fax: +61 7 5595 1120
(from overseas)
Email: buhrec@bond.edu.au

ABN 88 010 694 121
CRICOS CODE 000178

5 August 2013

Richard Hicks, Justine Ebenreuter and Aileen Pidgeon
Faculty of Humanities and Social Sciences
Bond University

Dear Dick, Justine and Aileen

Protocol No: **RO1699**
Project Title: **Promoting social and emotional wellbeing, coping and resiliency in parents whose children who engage in a range of difficult eating practices**

I am pleased to confirm that your project was reviewed under the Full review procedure of Bond University's Human Research Ethics Committee and you have been granted approval to proceed.

As a reminder, BUHREC's role is to monitor research projects until completion. The Committee requires, as a condition of approval, that all investigations be carried out in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Research Involving Humans and Supplementary Notes. Specifically, approval is dependent upon your compliance, as the researcher, with the requirements set out in the National Statement as well as the research protocol and listed in the Declaration which you have signed.

Please be aware that the approval is given subject to the protocol of the study being undertaken as described in your application with amendments, where appropriate. As you may be aware the Ethics Committee is required to annually report on the progress of research it has approved. We would greatly appreciate if you could advise us when you have completed data collection and when the study is completed

Should you have any queries or experience any problems, please contact early in your research project: Telephone: (07) 559 53554, Facsimile: (07) 559 51120, Email: buhrec@bond.edu.au.

We wish you well with your research project.

Yours sincerely

Dr Mark Bahr
Chair

BUHREC Approval of Ammendments (Study 3)

From: Lisa Marlow
To: Justine Ebenreuter
Cc: Aileen Pidgeon; Richard Hicks
Subject: Ethics amendment RO1699
Date: Friday, 22 November 2013 4:46:34 PM
Attachments: Amendment Form Nov 2013.pdf

Dear Justine, this is to let you know that the Chair of BUHREC has approved the amendments to your project 'Promoting social and emotional wellbeing, coping and resiliency in parents whose children who engage in a range of difficult eating practices (PhD project study 3)' (amendment form attached).

As usual, please be aware that the approval is given subject to the protocol of the study being under taken as described in your application, with amendments, and in accordance with the National Health and Medical Research Council's National Statement on Ethical Conduct in Human Research.

You are reminded that the Primary Investigator must immediately report anything that might warrant review of ethical approval of the project.

If you have any queries or concerns about the above, please let me know.

Best wishes
Lisa

Dr Lisa Marlow
Research Ethics Manager
Office of Research Services

BOND UNIVERSITY
BRINGING AMBITION TO LIFE

Telephone: +61 7 5595 4194
Facsimile: +61 7 5595 1120
Bond University | Gold Coast, Queensland, 4229, Australia
CRICOS Provider Code: 00017B

Gateway Correspondence (Study 3)

PSYCHOLOGY CENTRAL
Helping individuals, groups, couples & families

Peta Stapleton, PhD
Clinical Psychologist
HIC 2578202T

Psychology Central - Suite D
191 Varsity Parade, Varsity Lakes Qld 4227

Tel: 07 55 78 98 68 Fax: 07 56 89 11 50
admin@psychology-central.com.au

27th March 2012

Bond University Research Ethics Committee
Bond University
Gold Coast 4229

To Whom It May Concern,

RE: Accessing Clients for Research Project

This letter is to verify that I give Bond University PhD candidate Justine Ebenreuter permission to access my private practice for her research purposes, and to include any clients who wish to participate in her study.

I can be contacted at the listed address for further information.

Warm Regards,

Peta Stapleton, PhD
Clinical Psychologist

From: Suzie Rhydderch
To: Justine Ebenreuter
Subject: Research on the Butterfly Foundation/NEDC website
Date: Friday, 2 August 2013 1:01:17 PM
Attachments: Template for advertised research.doc

Dear Justine,

I received your email about the research you are doing, and your hope of handing out a questionnaire at our support groups.

After consultation with our National Manager of Support Services, I am sorry to say we are unable to complete this request, as it is not consistent with our policy of not engaging our participants in research.

However, your research sounds very interesting and we would like to offer you our usual channel of assistance, which is to promote your research on both our Butterfly and NEDC websites, and through the respective Facebook pages. Through those channels, you can provide a link to an online survey.

In order for us to assist you with recruitment, we will need the following information:

1. Please complete the attached Word template with details of your research
2. Please send through a copy of a flyer (if you would like to have a link to this put up on the website)
3. We have received a copy of your ethics approval
4. Please indicate your anticipated completion date – we can advertise your research until this date. If no date is provided, the information will be removed 3 months after it was first uploaded

Many thanks, and I look forward to hearing from you soon.

Suzie

Butterfly
Foundation for Eating Disorders

Suzie Rhydderch
NEDC Research Officer
103 Alexander Street Crows Nest NSW 2065
D: 02 8456 3910 | Office: 02 9412 4499
E: suzie@thebutterflyfoundation.org.au
W: www.thebutterflyfoundation.org.au | www.nedc.com.au

National Support Line: 1800 ED HOPE (1800 33 4673)

Eating Disorders Association Resource Centre
12 Chatsworth Rd., Greenslopes. Q. 4120
Email: admin@eda.org.au
www.eda.org.au

19.11.13

To whom it may concern,

The EDA give their approval to Bond University's Justine Ebenreuter MCCP MAP, to access appropriate data provided from the EDA Eating Disorder Recovery Groups in pursuit of her research aims.

Kind Regards,

Desi Achilleos
Coordinator EDA

24th May 2013

BOND UNIVERSITY
BRINGING AMBITION TO LIFE

STUDENT SERVICES
Bond University
Gold Coast, Queensland 4229
Australia
Ph: +61 7 5595 4002
Fax: +61 7 5595 4091
(from overseas)

ABN 88 010 694 121
CRICOS CODE 00017B

Bond University Human Research Ethics Committee (BUHREC)

Bond University

Robina QLD 4229

To Whom It May Concern,

Re: Assisting with session rooms for PhD purposes

This letter is to verify that I give Bond University PhD candidate Justine Ebenreuter permission to make use of the Bond University Staff and Student Counselling Services session rooms outside the hours of Staff and Students.

Please do not hesitate to call if you require further information about this matter.

Best Wishes,

Mark Stringer
Manager
Student Counsellor
Bond University Staff and Student Counselling

Information Sheets for FRIENDS Adult Resiliency program (Study 3)

Support for carers of people with significant eating difficulties

My name is Justine Ebenreuter and I am currently completing a Doctor of Philosophy (PhD) at Bond University under the supervision of Professor Dr Richard Hicks and Assistant Professor Dr Aileen Pidgeon, in the Department of Humanities and Social Sciences.

I am conducting a research investigation into support for carers of people with significant eating difficulties. When people engage in a range of difficult eating behaviours, this can place huge challenges on family and friends as carers. In this role they are an important resource for the individual to facilitate change. Because of these challenges carers are increasingly seen as requiring support for themselves.

What we'll be doing:

Parents/Carers will be asked to complete diagnostic interviews with a trained researcher prior to taking part in the FRIENDS Adult Resiliency program. This can occur over the phone at your convenience.

Parents/Carers will also be asked to respond to questionnaires before, after, and at 3 and 6 months following the intervention to determine whether the gains made during the program have been maintained.

Pre-assessment questionnaires will be distributed at the beginning of the first FRIENDS Adult Resiliency session. It is important to know that all of the information you provide on the questionnaires is confidential. Your data will be entered into the computer system via a number code. Your name will not be associated with the questionnaire when placed into the database. If you feel discomfort while answering the questionnaires, we encourage you to call one of the registered psychologists working with this project for support. If you have any other difficulties or questions throughout this process, you can call the researchers or chief investigator at any time.

Adult Resiliency Program

The Adult Resiliency Program is an interactive program developed to provide individuals with positive coping skills to better navigate difficult life experiences.

- Bond University is offering **free** 3 x 2 hour treatment sessions. To undertake this program, you would need to be available to attend a 2 hour session for 3 consecutive weeks.
- Additionally we would like you to complete questionnaires about yourself three times: before and after the resilience program, and 6 months later.
- Sessions will be conducted at the Bond University Medical Clinic
- You must be over 18 years to participate
- The free treatment is being offered as part of a University study into carers of individuals with significant eating difficulties.

Confidentiality and Informed Consent

Please understand that you can withdraw from this project at any time without penalty or explanation. All of the information you provide to us is confidential and will only be seen by the small research team working on this project. If you are interested in participating in this study, please sign the consent form attached.

BUHREC Reference Number: RO-1699. The research project is under the supervision of Professor Dr Richard Hicks and Assistant Professor Dr Aileen Pidgeon, in the Department of Humanities and Social Sciences.

Explanatory Statement (Study 3)

BOND UNIVERSITY

Date 1st August 2013

Ethics Reference Number: RO-1699

PROJECT TITLE - Promoting social and emotional wellbeing, coping and resiliency in parents whose children engage in a range of difficult eating behaviours.

My name is Justine Ebenreuter and I am currently completing a Doctor of Philosophy (PhD) at Bond University under the supervision of Professor Dr Richard Hicks and Assistant Professor Dr Aileen Pidgeon, in the Department of Humanities and Social Sciences.

This research project will evaluate the effects of a cognitive behavior intervention on improving the social and emotional wellbeing of parents of children who engage in a range of difficult eating behaviours.

As part of this study, you are invited to attend the Resiliency for Life Adult program (3 x 2 hour sessions) and complete a package of questionnaires that seeks to address participant's thoughts and feelings towards psychological, interpersonal, behavioural and social events, linked to difficulties managing children's difficult eating behaviours. These questionnaires should take you no more than 30 to 40 minutes. Upon completing the questionnaires, you will be required to seal them in an envelope provided. Pre and post-assessment questionnaires will be distributed at the beginning and end of the Resiliency for Life Adult program, respectively. Parents will also be asked to complete questionnaires at a 1 and 3-month follow-up time point. These will be mailed to each parent and a reply-paid envelope will be provided.

As part of the research process, parents will be assigned to one of two groups. Each parent will be assigned to either the Resiliency for Life Adult program or will be placed in a wait-list group (e.g. no intervention). At 1 month after completion the wait-list group will be invited to enrol in the Adult Resilience for Life Program, by email or phone. Wait-listed parents will be offered the same Resiliency for Life Adult program as the corresponding group and they will be asked to complete the same set of questionnaires.

Participation in this study is **completely voluntary** and you may withdraw at any time without risking any negative consequences. If you choose to withdraw your participation in this study, the information you have provided will be immediately destroyed. All the data collected in this study will be treated with complete **confidentiality.** The information I obtain from you will be dealt with in a manner that ensures you remain **anonymous** to any person outside of the researchers working
on this project. The study may be submitted for publication; however, only grouped results will be published. Data will be stored in a secured location at Bond University for a period of 5 years in accordance with the guidelines set out by the Bond University Human Research Ethics Committee.

It is anticipated that the data collected during this study will assist us in understanding of the risk and protective factors associated with development and maintenance of range of maladaptive eating practice. Your participation in this study will seek to enhance work towards promoting social and emotional wellbeing, coping and resiliency in individuals who engage in a range of difficult eating practices.

If you have any queries regarding the questionnaire or would like to be informed of the overall research findings, please contact Professor Richard Hicks on the following email: richard_hicks@staff.bond.edu.au or Assistant Professor Dr Aileen Pidgeon apidgeon@staff.bond.edu.au

If you experience distress during participation in this research, you will be referred to a Psychologist (participating in the study) immediately at the assessment environment or you may be referred to a psychologist in your local area, depending on your preference. Alternatively, for 24 hour support please contact Lifeline crisis support on 13 11 14.

Should you have any complaints concerning the manner in which this research is being conducted please make contact with –

Bond University Human Research Ethics Committee,
c/o Bond University Office of Research Services.
Bond University, Gold Coast, 4229
Tel: +61 7 5595 4194 Fax: +61 7 5595 1120 Email: buhrec@bond.edu.au

We thank you for taking the time to assist us with this research.

Yours sincerely,

Professor Dr Richard Hicks
Principal Researcher

Signed: _____

Assistant Professor Dr Aileen Pidgeon
Co-Researcher

Signed: _____

Justine Ebenreuter
Student Researcher

Signed: _____

Consent Form (Study 3)

BOND UNIVERSITY

Parent Consent Form

Bond University – Faculty of Humanities and Social Sciences

Researchers: Dr Richard Hicks, Dr Aileen Pidgeon and Justine Ebenreuter,

Project Title - Promoting social and emotional wellbeing, coping and resiliency in parents whose children engage in a range of difficult eating behaviours.

Consent form – for participating in the research project of Justine Ebenreuter

I _____ have read the information provided to me about the Friends programs. I understand that my participation is voluntary and that I can withdraw at any time without negative consequences. I understand that if I agree to participate in the research project I will also be asked to complete questionnaires. I understand that all information is obtained in the strictest confidence and all of the information I provide will be kept confidential. I consent to the publishing of results from this study provided my identity is not revealed. On the basis of the above understanding, I give permission for my family to participate in the current research program.

Name: _____

Signature: _____ Date: _____

Adherence checklist (Study 3)

Adherence checklist - adult CBT FRIENDS for Life Date _____

Session Number	Treatment Group -	Session Content and Important Learning Objectives	✓
1	**Treatment Group**:		☐
		Introduction to the Group ☐	
	Learn to be Mindful:		☐
		Developing awareness, of body language and signals, self-regulation. ☐	
	Feeling Relaxed:		☐
		Attention and relaxation training. ☐	
	Inner Helpful Thoughts:		☐
		The Thought-Feeling-Behaviour Pathway, using thoughts to change feelings. ☐	
	Wait-list Group:.		☐
		No intervention	
2	**Treatment Group**:		☐
	Feeling Like a Resilient Person: ☐		☐
		Being resilient, developing resilience and use of safety cues	
	Role Models, Support Teams and Helping Others: ☐		☐
		Identifying role models and creating support networks.	
	Improving Your Communication Skills:		☐
		Dealing with conflict in a positive way, managing anger and handling conflict. ☐	
	Wait-list Group:		☐
		No intervention.	
3	**Treatment Group**:		☐
	Coping Step Plans:		☐
		6-stage problem solving plan.	
	Exercise and Eat Healthy:		☐
		practices. ☐	
	Be Prepared for Challenges:		☐
		Brainstorming ways to cope and facing challenging situations in your life. ☐	
	Wait-list Group:		☐
		No intervention.	

Test Battery (Study 3)

DEMOGRAPHICS

Please provide the following information

Name: _____

Age: _____

Gender: _____

Ethnicity:

To which of the following groups do you belong? (*Please cross **X** the one that best describes you*):

- □ Australian
- □ Aboriginal / Torres Strait islander
- □ European
- □ Indian
- □ American
- □ African
- □ Asian

Carer interview – adapted from the Experience of care giving inventory (ECGI).

Participant/Parental Carer:

Name of Child in care:

It is widely accepted that family plays an important role in the care of a child with significant eating difficulties - caring may place a heavy burden on families:

1. How much of your day is taken up with your child's feeding/eating routine?

2. Do your child's daily feeding/eating behaviours interfere with your regular household routine? If so how?

3. Do your child's feeding/eating behaviours interfere with other family member's mealtime routines? If so how?

4. Do your child's feeding/eating behaviours interfere with social events in and out of the home? If so how?

5. Do your child's feeding/eating behaviours interfere with your job? If so how?

6. How have you coped with any concerns you may have had around your child's feeding/eating behaviours?

7. Are there positive personal experiences you have had when trying to find solutions to your child's daily feeding/eating behaviours – which may have been challenging?

Modified Mini Screen (MMS)

Patient Name: _____ **Date:** _____

Section A – Please circle "yes" or "no" for each question.

1. Have you been consistently depressed or down, most of the day, nearly every day, for the past two weeks? Yes No
2. In the past two weeks, have you been less interested in most things or less able to enjoy the things you used to enjoy most of the time? Yes No
3. Have you felt sad, low, or depressed most of the time for the last two years? Yes No
4. In the past month, did you think that you would be better off dead or wish you were dead? Yes No
5. Have you ever had a period of time when you were feeling up, hyper, or so full of energy or full of yourself that you got into trouble, or that other people thought you were not your usual self? (Do not consider times when you were intoxicated on drugs or alcohol.) Yes No
6. Have you ever been so irritable, grouchy, or annoyed for several days, that you had arguments, had verbal or physical fights, or shouted at people outside your family? Have you or others noticed that you have been more irritable or overreacted, compared to other people, even when you thought you were right to act this way? Yes No

Section B – Please circle "yes" or "no" for each question.

7. Have you had one or more occasions when you felt intensely anxious, frightened, uncomfortable, or uneasy, even when most people would not feel that way? Did these intense feelings get to be their worst within ten minutes? (If the answer to both questions is "yes," circle "yes"; otherwise circle "no.") Yes No
8. Do you feel anxious or uneasy in places or situations where you might have the panic-like symptoms we just spoke about? Or do you feel anxious or uneasy in situations where help might not be available or escape might be difficult? Examples: O being in a crowd, O standing in a line, O being alone away from home or alone at home, O crossing a bridge, O traveling in a bus, train, or car? Yes No
9. Have you worried excessively or been anxious about several things over the past six months? (If you answer "no" to this question, answer "no" to Question 10 and proceed to Question 11.) Yes No
10. Are these worries present most days? Yes No
11. In the past month, were you afraid or embarrassed when others were watching you or when you were the focus of attention? Were you afraid of being humiliated? Examples: O speaking in public, O eating in public or with others, O writing while someone watches, O being in social situations. Yes No

continued on other side

12. In the past month, have you been bothered by thoughts, impulses, or images that you couldn't get rid of that were unwanted, distasteful, inappropriate, intrusive, or distressing? Examples: O being afraid that you would act on some impulse that would be really shocking, O worrying a lot about being dirty, contaminated, or having germs, O worrying a lot about contaminating others, or that you would harm someone even though you didn't want to, O having fears or superstitions that you would be responsible for things going wrong, O being obsessed with sexual thoughts, images, or impulses, O hoarding or collecting lots of things, O having religious obsessions. Yes No
13. In the past month, did you do something repeatedly without being able to resist doing it? Examples: O washing or cleaning excessively, O counting or checking things over and over, O repeating, collecting, or arranging things, O other superstitious rituals. Yes No
14. Have you ever experienced, witnessed, or had to deal with an extremely traumatic event that included actual or threatened death or serious injury to you or someone else? Examples: O serious accidents, O sexual or physical assault, O terrorist attack, O being held hostage, O kidnapping, O fire, O discovering a body, O sudden death of someone close to you, O war, O natural disaster. Yes No
15. Have you re-experienced the awful event in a distressing way in the past month? Examples: O dreams, O intense recollections, O flashbacks, O physical reactions. Yes No

Section C – Please circle "yes" or "no" for each question.

16. Have you ever believed that people were spying on you, or that someone was plotting against you, or trying to hurt you? Yes No
17. Have you ever believed that someone was reading your mind or could hear your thoughts, or that you could actually read someone's mind or hear what another person was thinking? Yes No
18. Have you ever believed that someone or some force outside of yourself put thoughts in your mind that were not your own, or made you act in a way that was not your usual self? Or, have you ever felt that you were possessed? Yes No
19. Have you ever believed that you were being sent special messages through the TV, radio, or newspaper? Did you believe that someone you did not personally know was particularly interested in you? Yes No
20. Have your relatives or friends ever considered any of your beliefs strange or unusual? Yes No
21. Have you ever heard things other people couldn't hear, such as voices? Yes No
22. Have you ever had visions when you were awake or have you ever seen things other people couldn't see? Yes No

The 14-Item Resilience Scale (RS-14)

Please read each statement and circle the number to the right of each statement that best indicates your feelings about the statement. Respond to all statements.

	Strongly Disagree						**Strongly Agree**
1. I usually manage one way or another.	1	2	3	4	5	6	7
2. I feel proud that I have accomplished things in life.	1	2	3	4	5	6	7
3. I usually take things in stride.	1	2	3	4	5	6	7
4. I am friends with myself.	1	2	3	4	5	6	7
5. I feel that I can handle many things at a time.	1	2	3	4	5	6	7
6. I am determined.	1	2	3	4	5	6	7
7. I can get through difficult times because I've experienced difficulty before.	1	2	3	4	5	6	7
8. I have self-discipline.	1	2	3	4	5	6	7
9. I keep interested in things.	1	2	3	4	5	6	7
10. I can usually find something to laugh about.	1	2	3	4	5	6	7
11. My belief in myself gets me through hard times.	1	2	3	4	5	6	7
12. In an emergency, I'm someone people can generally rely on.	1	2	3	4	5	6	7
13. My life has meaning.	1	2	3	4	5	6	7
14. When I'm in a difficult situation, I can usually find my way out of it.	1	2	3	4	5	6	7

DASS21 *Name:* *Date:*

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all

1 Applied to me to some degree, or some of the time

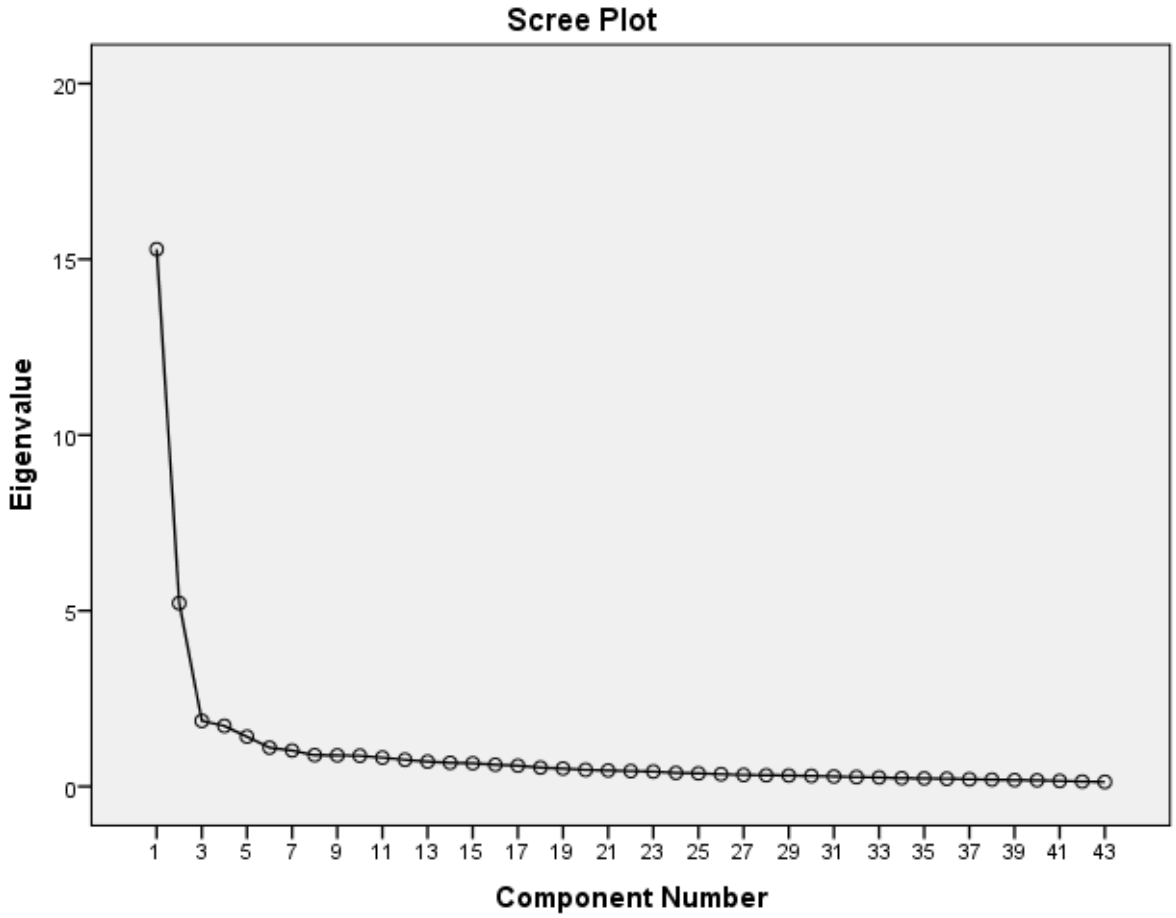
2 Applied to me to a considerable degree, or a good part of time

3 Applied to me very much, or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (eg, in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

Appendix D. SPSS Output (Study 1)

Principal components analysis for construct validity



KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.947
Bartlett's Test of Sphericity	Approx. Chi-Square	9205.348
	df	903
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total
1	7.362	29.447	29.447	5.378
2	3.538	14.153	43.600	3.238
3	1.642	6.570	50.170	3.861
4	1.427	5.709	55.879	3.480
5	1.195	4.782	60.660	3.927
6	.891	3.565	64.226	
7	.875	3.500	67.726	
8	.833	3.332	71.057	
9	.770	3.079	74.136	
10	.731	2.925	77.061	
11	.643	2.572	79.633	
12	.592	2.369	82.002	
13	.546	2.185	84.187	
14	.533	2.131	86.318	
15	.474	1.896	88.214	
16	.455	1.821	90.035	
17	.371	1.483	91.518	
18	.350	1.398	92.917	
19	.333	1.333	94.250	
20	.299	1.195	95.445	
21	.281	1.125	96.570	
22	.235	.938	97.508	
23	.224	.897	98.405	
24	.205	.820	99.225	
25	.194	.775	100.000	

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Pattern Matrix[a]

	Component				
	1	2	3	4	5
35. I think my size makes me unpopular	.886				
3. I think I look bigger than everyone else	.822				
33. I want to be thin to fit in	.817				
9. I want to cry when I see myself in the mirror	.787				
4. If I keep my stomach empty I think I will feel better	.682				
8. I do not like people seeing me eat	.614				
38. People tell me to stop eating	.348	.307			
11. When I'm bored I eat		.860			
13. I cheer myself up with food		.799			
29. Even when I am full I can eat more		.726			
20. I always want to eat		.708			
39. People tell me I am too thin			.816		
36. People try to force food on me			.722		
40. People become upset when I do not eat	.356		.635		
18. I am the last to finish my meals			.420		
25. I only eat the same foods at every meal			.343	-.315	
30. Even when I am exhausted I make sure I exercise				-.885	
31. I panic when I cannot exercise				-.754	
6. I think I know ways to control my weight				-.447	
26. I stop myself from eating before I am full				-.332	
54 I eat my whole meal					.740
44 I leave something on my plate					.715
12. I cannot eat if I am nervous					.592
10. I am not hungry when I am tired				-.309	.582
21. I take food wherever I go			.360		-.450

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 17 iterations.

Component Correlation Matrix

Component	1	2	3	4	5
1	1.000	.107	.230	-.232	.222
2	.107	1.000	-.101	.092	-.351
3	.230	-.101	1.000	-.312	.239
4	-.232	.092	-.312	1.000	-.182
5	.222	-.351	.239	-.182	1.000

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

Cronbach's alpha for internal consistency (Study 1)

Case Processing Summary

		N	%
Cases	Valid	325	98.8
	Excluded[a]	4	1.2
	Total	329	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.862	.849	25

	Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
3. I think I look bigger than everyone else	42.3692	237.925	.697	.713	.846
4. If I keep my stomach empty I think I will feel better	43.0123	239.389	.743	.683	.845
8. I do not like people seeing me eat	42.9415	241.784	.754	.655	.845
9. I want to cry when I see myself in the mirror	43.0708	238.912	.772	.744	.844
33. I want to be thin to fit in	42.8831	254.783	.463	.511	.856
35. I think my size makes me unpopular	43.3477	248.258	.638	.682	.850
11. When I'm bored I eat	42.1723	280.557	-.023	.474	.870
13. I cheer myself up with food	42.4338	280.969	-.027	.493	.869
20. I always want to eat	42.2954	276.721	.066	.429	.867
29. Even when I am full I can eat more	42.4738	277.090	.059	.456	.867
38. People tell me to stop eating	43.9846	276.021	.137	.196	.864
39. People tell me I am too thin	43.5692	263.524	.351	.508	.859
25. I only eat the same foods at every meal	43.1108	253.661	.613	.478	.852
40. People become upset when I do not eat	43.1908	248.698	.630	.625	.850
36. People try to force food on me	43.5138	252.559	.627	.635	.851
18. I am the last to finish my meals	42.5508	267.791	.250	.211	.862
30. Even when I am exhausted I make sure I exercise	42.7231	265.479	.313	.462	.860
31. I panic when I cannot exercise	43.1723	251.291	.589	.595	.852
26. I stop myself from eating before I am full	43.1385	263.465	.431	.338	.857
6. I think I know ways to control my weight	41.8523	263.867	.393	.266	.858
10. I am not hungry when I am tired	42.5662	269.320	.267	.346	.861
12. I cannot eat if I am nervous	42.2677	265.524	.295	.338	.861
21. I take food wherever I go	43.0646	278.524	.029	.194	.868
44 I leave something on my plate	42.8308	260.061	.479	.602	.856
54 I eat my whole meal	43.1938	261.311	.522	.622	.855

Correlation for dependability test-retest reliability (Study 1)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Total_Time1_MEPQscore	206	.84	3.87	2.3315	.66490
Total_Time2_MEPQscore	206	.54	3.68	2.3177	.66299
Valid N (listwise)	206				

Correlations

		Total_Time1_MEPQscore	Total_Time2_MEPQscore
Total_Time1_MEPQscore	Pearson Correlation	1	.933**
	Sig. (2-tailed)		.000
	N	206	206
Total_Time2_MEPQscore	Pearson Correlation	.933**	1
	Sig. (2-tailed)	.000	
	N	206	206

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations for criterion-related validity

Correlations

		Total_Time1_MEPQscore	TotalScore_DSRS_C	TotalScore_EAT26
Total_Time1_MEPQscore	Pearson Correlation	1	.712**	.806**
	Sig. (2-tailed)		.000	.000
	N	90	90	90
TotalScore_DSRS_C	Pearson Correlation	.712**	1	.707**
	Sig. (2-tailed)	.000		.000
	N	90	90	90
TotalScore_EAT26	Pearson Correlation	.806**	.707**	1
	Sig. (2-tailed)	.000	.000	
	N	90	90	90

**. Correlation is significant at the 0.01 level (2-tailed).

SPSS Output for Study 2 - a multivariate repeated-measures analysis of variance

SPSS output (Study 2)

Descriptive Statistics

	Intervention group	Mean	Std. Deviation	N
ZMEPQ.1	Active_Waitlist	-.1691895	.89833414	30
	Friends_Alone	.7944550	.80087691	30
	Friends_With_Parents	.8459474	1.04175344	30
	Total	.4904043	1.02273999	90
ZMEPQ.2	Active_Waitlist	-.0073561	.74385061	30
	Friends_Alone	-.7159903	.71230681	30
	Friends_With_Parents	-.4658841	.70820853	30
	Total	-.3964101	.77209042	90
ZMEPQ.3	Active_Waitlist	.0539445	.83222873	30
	Friends_Alone	.2304900	.92660505	30
	Friends_With_Parents	-.5664170	1.03011774	30
	Total	-.0939942	.98453636	90
ZANX.1	Active_Waitlist	.1452103	1.04870832	30
	Friends_Alone	.5936537	1.10738839	30
	Friends_With_Parents	.3502130	.96680860	30
	Total	.3630257	1.04713416	90
ZANX.2	Active_Waitlist	.3117750	1.13973431	30
	Friends_Alone	-.3929219	.67513799	30
	Friends_With_Parents	-.6235500	.63788839	30
	Total	-.2348990	.92975596	90
ZANX.3	Active_Waitlist	.2092736	.99083828	30
	Friends_Alone	-.0085418	.98249043	30
	Friends_With_Parents	-.5851120	.57531701	30
	Total	-.1281267	.92513189	90
ZDEP.1	Active_Waitlist	.1965638	.94914110	30
	Friends_Alone	.5417491	.83800595	30
	Friends_With_Parents	.3853370	.96087889	30
	Total	.3745500	.91834273	90
ZDEP.2	Active_Waitlist	.3961241	.85628257	30
	Friends_Alone	-.7257280	.53018884	30
	Friends_With_Parents	-.5369548	.72685316	30
	Total	-.2888529	.86365221	90
ZDEP.3	Active_Waitlist	.3799435	.90432943	30
	Friends_Alone	.1965638	1.05628310	30
	Friends_With_Parents	-.8335984	.92870881	30
	Total	-.0856970	1.09524401	90
ZSDQ.1	Active_Waitlist	.1236841	.75341754	30
	Friends_Alone	.6903822	.92935391	30

	Friends_With_Parents	.4137796	1.13010548	30
	Total	.4092820	.96781863	90
ZSDQ.2	Active_Waitlist	.1641625	.70298494	30
	Friends_Alone	-.4295212	.64002028	30
	Friends_With_Parents	-.7600951	.85782698	30
	Total	-.3418179	.82591905	90
ZSDQ.3	Active_Waitlist	.3867939	.75444797	30
	Friends_Alone	.0629665	.98103652	30
	Friends_With_Parents	-.6521526	1.13791114	30
	Total	-.0674641	1.05428080	90

Multivariate Tests[a]

Effect			Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Between Subjects	Intercept	Pillai's Trace	.000	.000[b]	4.000	84.000	1.000	.000
		Wilks' Lambda	1.000	.000[b]	4.000	84.000	1.000	.000
		Hotelling's Trace	.000	.000[b]	4.000	84.000	1.000	.000
		Roy's Largest Root	.000	.000[b]	4.000	84.000	1.000	.000
	Intervention	Pillai's Trace	.252	3.065	8.000	170.000	.003	.126
		Wilks' Lambda	.753	3.199[b]	8.000	168.000	.002	.132
		Hotelling's Trace	.321	3.330	8.000	166.000	.001	.138
		Roy's Largest Root	.298	6.325[c]	4.000	85.000	.000	.229
Within Subjects	Time	Pillai's Trace	.739	28.266[b]	8.000	80.000	.000	.739
		Wilks' Lambda	.261	28.266[b]	8.000	80.000	.000	.739
		Hotelling's Trace	2.827	28.266[b]	8.000	80.000	.000	.739
		Roy's Largest Root	2.827	28.266[b]	8.000	80.000	.000	.739
	Time * Intervention	Pillai's Trace	.960	9.345	16.000	162.000	.000	.480
		Wilks' Lambda	.234	10.664[b]	16.000	160.000	.000	.516
		Hotelling's Trace	2.441	12.053	16.000	158.000	.000	.550
		Roy's Largest Root	2.033	20.587[c]	8.000	81.000	.000	.670

a. Design: Intercept + Intervention

Within Subjects Design: Time

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Tests of Between-Subjects Effects

Transformed Variable: Average

Source	Measure	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	MEPQ	.000	1	.000	.000	1.000	.000
	ANX	.000	1	.000	.000	1.000	.000
	DEP	.000	1	.000	.000	1.000	.000
	SDQ	.000	1	.000	.000	1.000	.000
Intervention	MEPQ	.484	2	.242	.453	.637	.010
	ANX	4.059	2	2.030	3.083	.051	.066
	DEP	6.389	2	3.195	6.293	.003	.126
	SDQ	5.190	2	2.595	4.664	.012	.097
Error	MEPQ	46.499	87	.534			
	ANX	57.273	87	.658			
	DEP	44.169	87	.508			
	SDQ	48.402	87	.556			

Custom hypothesis tests (Study 2)

Multivariate Test Results

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.252	3.065	8.000	170.000	.003	.126
Wilks' lambda	.753	3.199[a]	8.000	168.000	.002	.132
Hotelling's trace	.321	3.330	8.000	166.000	.001	.138
Roy's largest root	.298	6.325[b]	4.000	85.000	.000	.229

a. Exact statistic

b. The statistic is an upper bound on F that yields a lower bound on the significance level.

Univariate Test Results

Transformed Variable: AVERAGE

Source	Measure	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	MEPQ	.484	2	.242	.453	.637	.010
	ANX	4.059	2	2.030	3.083	.051	.066
	DEP	6.389	2	3.195	6.293	.003	.126
	SDQ	5.190	2	2.595	4.664	.012	.097
Error	MEPQ	46.499	87	.534			
	ANX	57.273	87	.658			
	DEP	44.169	87	.508			
	SDQ	48.402	87	.556			

Custom hypothesis tests - intervention group (Study 2)

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.252	3.065	8.000	170.000	.003	.126
Wilks' lambda	.753	3.199[a]	8.000	168.000	.002	.132
Hotelling's trace	.321	3.330	8.000	166.000	.001	.138
Roy's largest root	.298	6.325[b]	4.000	85.000	.000	.229

Each F tests the multivariate effect of Intervention group. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

b. The statistic is an upper bound on F that yields a lower bound on the significance level.

Univariate Tests

Measure		Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
MEPQ	Contrast	.484	2	.242	.453	.637	.010
	Error	46.499	87	.534			
ANX	Contrast	4.059	2	2.030	3.083	.051	.066
	Error	57.273	87	.658			
DEP	Contrast	6.389	2	3.195	6.293	.003	.126
	Error	44.169	87	.508			
SDQ	Contrast	5.190	2	2.595	4.664	.012	.097
	Error	48.402	87	.556			

The F tests the effect of Intervention group. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

Pairwise Comparisons

Measure	(I) Intervention group	(J) Intervention group	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
						Lower Bound	Upper Bound
MEPQ	Active_Waitlist	Friends_Alone	-.144	.189	1.000	-.605	.317
		Friends_With_Parents	.021	.189	1.000	-.440	.482
	Friends_Alone	Active_Waitlist	.144	.189	1.000	-.317	.605
		Friends_With_Parents	.165	.189	1.000	-.296	.626
	Friends_With_Parents	Active_Waitlist	-.021	.189	1.000	-.482	.440
		Friends_Alone	-.165	.189	1.000	-.626	.296
ANX	Active_Waitlist	Friends_Alone	.158	.209	1.000	-.353	.669
		Friends_With_Parents	.508	.209	.052	-.003	1.020
	Friends_Alone	Active_Waitlist	-.158	.209	1.000	-.669	.353
		Friends_With_Parents	.350	.209	.295	-.161	.862
	Friends_With_Parents	Active_Waitlist	-.508	.209	.052	-1.020	.003
		Friends_Alone	-.350	.209	.295	-.862	.161
DEP	Active_Waitlist	Friends_Alone	.320	.184	.256	-.129	.769
		Friends_With_Parents	.653*	.184	.002	.204	1.102
	Friends_Alone	Active_Waitlist	-.320	.184	.256	-.769	.129
		Friends_With_Parents	.333	.184	.222	-.117	.782
	Friends_With_Parents	Active_Waitlist	-.653*	.184	.002	-1.102	-.204
		Friends_Alone	-.333	.184	.222	-.782	.117
SDQ	Active_Waitlist	Friends_Alone	.117	.193	1.000	-.353	.587
		Friends_With_Parents	.558*	.193	.014	.088	1.028
	Friends_Alone	Active_Waitlist	-.117	.193	1.000	-.587	.353
		Friends_With_Parents	.441	.193	.074	-.029	.911
	Friends_With_Parents	Active_Waitlist	-.558*	.193	.014	-1.028	-.088
		Friends_Alone	-.441	.193	.074	-.911	.029

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Custom hypothesis tests – time (Study 2)

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.739	28.266[a]	8.000	80.000	.000	.739
Wilks' lambda	.261	28.266[a]	8.000	80.000	.000	.739
Hotelling's trace	2.827	28.266[a]	8.000	80.000	.000	.739
Roy's largest root	2.827	28.266[a]	8.000	80.000	.000	.739

Each F tests the multivariate effect of Time. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

Pairwise Comparisons

Measure	(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
						Lower Bound	Upper Bound
MEPQ	1	2	.887*	.070	.000	.715	1.059
		3	.584*	.106	.000	.327	.842
	2	1	-.887*	.070	.000	-1.059	-.715
		3	-.302*	.071	.000	-.475	-.130
	3	1	-.584*	.106	.000	-.842	-.327
		2	.302*	.071	.000	.130	.475
ANX	1	2	.598*	.084	.000	.394	.802
		3	.491*	.091	.000	.268	.714
	2	1	-.598*	.084	.000	-.802	-.394
		3	-.107	.066	.332	-.268	.055
	3	1	-.491*	.091	.000	-.714	-.268
		2	.107	.066	.332	-.055	.268
DEP	1	2	.663*	.084	.000	.458	.869
		3	.460*	.109	.000	.193	.727
	2	1	-.663*	.084	.000	-.869	-.458
		3	-.203*	.080	.040	-.399	-.007
	3	1	-.460*	.109	.000	-.727	-.193
		2	.203*	.080	.040	.007	.399
SDQ	1	2	.751*	.098	.000	.512	.990
		3	.477*	.096	.000	.242	.712
	2	1	-.751*	.098	.000	-.990	-.512
		3	-.274*	.072	.001	-.451	-.098
	3	1	-.477*	.096	.000	-.712	-.242
		2	.274*	.072	.001	.098	.451

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Custom hypothesis tests – intervention group * time (Study 2)

Pairwise Comparisons

Measure	Time	(I) Intervention group	(J) Intervention group	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
							Lower Bound	Upper Bound
MEPQ	1	Active_Waitlist	Friends_Alone	-.964*	.237	.000	-1.543	-.384
			Friends_With_Parents	-1.015*	.237	.000	-1.594	-.436
		Friends_Alone	Active_Waitlist	.964*	.237	.000	.384	1.543
			Friends_With_Parents	-.051	.237	1.000	-.631	.528
		Friends_With_Parents	Active_Waitlist	1.015*	.237	.000	.436	1.594
			Friends_Alone	.051	.237	1.000	-.528	.631
	2	Active_Waitlist	Friends_Alone	.709*	.186	.001	.254	1.163
			Friends_With_Parents	.459*	.186	.048	.004	.913
		Friends_Alone	Active_Waitlist	-.709*	.186	.001	-1.163	-.254
			Friends_With_Parents	-.250	.186	.549	-.705	.205
		Friends_With_Parents	Active_Waitlist	-.459*	.186	.048	-.913	-.004
			Friends_Alone	.250	.186	.549	-.205	.705
	3	Active_Waitlist	Friends_Alone	-.177	.241	1.000	-.765	.412
			Friends_With_Parents	.620*	.241	.035	.032	1.209
		Friends_Alone	Active_Waitlist	.177	.241	1.000	-.412	.765
			Friends_With_Parents	.797*	.241	.004	.209	1.385
		Friends_With_Parents	Active_Waitlist	-.620*	.241	.035	-1.209	-.032
			Friends_Alone	-.797*	.241	.004	-1.385	-.209
ANX	1	Active_Waitlist	Friends_Alone	-.448	.269	.298	-1.106	.209
			Friends_With_Parents	-.205	.269	1.000	-.862	.452
		Friends_Alone	Active_Waitlist	.448	.269	.298	-.209	1.106
			Friends_With_Parents	.243	.269	1.000	-.414	.901
		Friends_With_Parents	Active_Waitlist	.205	.269	1.000	-.452	.862
			Friends_Alone	-.243	.269	1.000	-.901	.414
	2	Active_Waitlist	Friends_Alone	.705*	.219	.005	.170	1.240

			Friends_With_Parents	.935*	.219	.000	.400	1.470
			Active_Waitlist	-.705*	.219	.005	-1.240	-.170
		Friends_Alone	Friends_With_Parents	.231	.219	.887	-.304	.766
		Friends_With_Parents	Active_Waitlist	-.935*	.219	.000	-1.470	-.400
			Friends_Alone	-.231	.219	.887	-.766	.304
			Friends_Alone	.218	.225	1.000	-.331	.767
		Active_Waitlist	Friends_With_Parents	.794*	.225	.002	.245	1.344
	3		Active_Waitlist	-.218	.225	1.000	-.767	.331
		Friends_Alone	Friends_With_Parents	.577*	.225	.036	.027	1.126
		Friends_With_Parents	Active_Waitlist	-.794*	.225	.002	-1.344	-.245
			Friends_Alone	-.577*	.225	.036	-1.126	-.027
			Friends_Alone	-.345	.237	.446	-.924	.233
		Active_Waitlist	Friends_With_Parents	-.189	.237	1.000	-.767	.390
	1		Active_Waitlist	.345	.237	.446	-.233	.924
		Friends_Alone	Friends_With_Parents	.156	.237	1.000	-.422	.735
		Friends_With_Parents	Active_Waitlist	.189	.237	1.000	-.390	.767
			Friends_Alone	-.156	.237	1.000	-.735	.422
			Friends_Alone	1.122*	.185	.000	.670	1.574
		Active_Waitlist	Friends_With_Parents	.933*	.185	.000	.481	1.385
	2		Active_Waitlist	-1.122*	.185	.000	-1.574	-.670
DEP		Friends_Alone	Friends_With_Parents	-.189	.185	.932	-.641	.263
		Friends_With_Parents	Active_Waitlist	-.933*	.185	.000	-1.385	-.481
			Friends_Alone	.189	.185	.932	-.263	.641
			Friends_Alone	.183	.249	1.000	-.425	.792
		Active_Waitlist	Friends_With_Parents	1.214*	.249	.000	.605	1.822
	3		Active_Waitlist	-.183	.249	1.000	-.792	.425
		Friends_Alone	Friends_With_Parents	1.030*	.249	.000	.422	1.639
		Friends_With_Parents	Active_Waitlist	-1.214*	.249	.000	-1.822	-.605
			Friends_Alone	-1.030*	.249	.000	-1.639	-.422
			Friends_Alone	-.567	.245	.070	-1.166	.032
SDQ	1	Active_Waitlist	Friends_With_Parents	-.290	.245	.721	-.889	.309

	Friends_Alone	Active_Waitlist	.567	.245	.070	-.032	1.166
		Friends_With_Parents	.277	.245	.788	-.322	.875
	Friends_With_Parents	Active_Waitlist	.290	.245	.721	-.309	.889
		Friends_Alone	-.277	.245	.788	-.875	.322
2	Active_Waitlist	Friends_Alone	.594*	.191	.008	.128	1.060
		Friends_With_Parents	.924*	.191	.000	.458	1.390
	Friends_Alone	Active_Waitlist	-.594*	.191	.008	-1.060	-.128
		Friends_With_Parents	.331	.191	.261	-.135	.797
	Friends_With_Parents	Active_Waitlist	-.924*	.191	.000	-1.390	-.458
		Friends_Alone	-.331	.191	.261	-.797	.135
3	Active_Waitlist	Friends_Alone	.324	.251	.599	-.288	.936
		Friends_With_Parents	1.039*	.251	.000	.427	1.651
	Friends_Alone	Active_Waitlist	-.324	.251	.599	-.936	.288
		Friends_With_Parents	.715*	.251	.016	.103	1.327
	Friends_With_Parents	Active_Waitlist	-1.039*	.251	.000	-1.651	-.427
		Friends_Alone	-.715*	.251	.016	-1.327	-.103

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

Time		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
1	Pillai's trace	.268	3.294	8.000	170.000	.002	.134
	Wilks' lambda	.739	3.431[a]	8.000	168.000	.001	.140
	Hotelling's trace	.344	3.566	8.000	166.000	.001	.147
	Roy's largest root	.312	6.637[b]	4.000	85.000	.000	.238
2	Pillai's trace	.477	6.662	8.000	170.000	.000	.239
	Wilks' lambda	.555	7.179[a]	8.000	168.000	.000	.255
	Hotelling's trace	.742	7.696	8.000	166.000	.000	.271
	Roy's largest root	.651	13.842[b]	4.000	85.000	.000	.394
3	Pillai's trace	.327	4.155	8.000	170.000	.000	.164
	Wilks' lambda	.682	4.422[a]	8.000	168.000	.000	.174
	Hotelling's trace	.452	4.685	8.000	166.000	.000	.184
	Roy's largest root	.418	8.890[b]	4.000	85.000	.000	.295

Each F tests the multivariate simple effects of Intervention group within each level combination of the other effects shown. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

b. The statistic is an upper bound on F that yields a lower bound on the significance level.

Univariate Tests

Measure	Time		Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
MEPQ	1	Contrast	19.618	2	9.809	11.614	.000	.211
		Error	73.476	87	.845			
	2	Contrast	7.750	2	3.875	7.441	.001	.146
		Error	45.305	87	.521			
	3	Contrast	10.511	2	5.255	6.035	.004	.122
		Error	75.758	87	.871			
ANX	1	Contrast	3.024	2	1.512	1.391	.254	.031
		Error	94.564	87	1.087			
	2	Contrast	14.246	2	7.123	9.885	.000	.185
		Error	62.690	87	.721			
	3	Contrast	10.109	2	5.055	6.657	.002	.133
		Error	66.063	87	.759			
DEP	1	Contrast	1.793	2	.896	1.064	.349	.024
		Error	73.266	87	.842			
	2	Contrast	21.648	2	10.824	21.050	.000	.326
		Error	44.736	87	.514			
	3	Contrast	25.675	2	12.838	13.774	.000	.240
		Error	81.085	87	.932			
SDQ	1	Contrast	4.818	2	2.409	2.668	.075	.058
		Error	78.546	87	.903			
	2	Contrast	13.160	2	6.580	12.039	.000	.217
		Error	47.551	87	.547			
	3	Contrast	16.957	2	8.478	8.999	.000	.171
		Error	81.968	87	.942			

Each F tests the simple effects of Intervention group within each level combination of the other effects shown.

These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

Custom hypothesis tests – intervention group * time (Study 2)

Pairwise Comparisons

Measure	Intervention group	(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
							Lower Bound	Upper Bound
MEPQ	Active_Waitlist	1	2	-.162	.122	.563	-.459	.136
			3	-.223	.183	.677	-.669	.223
		2	1	.162	.122	.563	-.136	.459
			3	-.061	.122	1.000	-.360	.237
		3	1	.223	.183	.677	-.223	.669
			2	.061	.122	1.000	-.237	.360
	Friends_Alone	1	2	1.510*	.122	.000	1.213	1.808
			3	.564*	.183	.008	.118	1.010
		2	1	-1.510*	.122	.000	-1.808	-1.213
			3	-.946*	.122	.000	-1.245	-.648
		3	1	-.564*	.183	.008	-1.010	-.118
			2	.946*	.122	.000	.648	1.245
	Friends_With_Parents	1	2	1.312*	.122	.000	1.014	1.609
			3	1.412*	.183	.000	.966	1.859
		2	1	-1.312*	.122	.000	-1.609	-1.014
			3	.101	.122	1.000	-.198	.399
		3	1	-1.412*	.183	.000	-1.859	-.966
			2	-.101	.122	1.000	-.399	.198
ANX	Active_Waitlist	1	2	-.167	.145	.759	-.520	.187
			3	-.064	.158	1.000	-.451	.322
		2	1	.167	.145	.759	-.187	.520
			3	.103	.115	1.000	-.178	.383
		3	1	.064	.158	1.000	-.322	.451
			2	-.103	.115	1.000	-.383	.178
	Friends_Alone	1	2	.987*	.145	.000	.633	1.340
			3	.602*	.158	.001	.216	.989
		2	1	-.987*	.145	.000	-1.340	-.633
			3	-.384*	.115	.004	-.664	-.104
		3	1	-.602*	.158	.001	-.989	-.216
			2	.384*	.115	.004	.104	.664
	Friends_With_Parents	1	2	.974*	.145	.000	.620	1.327
			3	.935*	.158	.000	.549	1.322
		2	1	-.974*	.145	.000	-1.327	-.620

			3	-.038	.115	1.000	-.319	.242
		3	1	-.935*	.158	.000	-1.322	-.549
			2	.038	.115	1.000	-.242	.319
		1	2	-.200	.146	.522	-.555	.156
			3	-.183	.190	1.000	-.646	.280
	Active_Waitlist	2	1	.200	.146	.522	-.156	.555
			3	.016	.139	1.000	-.324	.356
		3	1	.183	.190	1.000	-.280	.646
			2	-.016	.139	1.000	-.356	.324
		1	2	1.267*	.146	.000	.912	1.623
			3	.345	.190	.216	-.118	.808
DEP	Friends_Alone	2	1	-1.267*	.146	.000	-1.623	-.912
			3	-.922*	.139	.000	-1.262	-.582
		3	1	-.345	.190	.216	-.808	.118
			2	.922*	.139	.000	.582	1.262
		1	2	.922*	.146	.000	.567	1.278
			3	1.219*	.190	.000	.756	1.682
	Friends_With_Parents	2	1	-.922*	.146	.000	-1.278	-.567
			3	.297	.139	.108	-.043	.637
		3	1	-1.219*	.190	.000	-1.682	-.756
			2	-.297	.139	.108	-.637	.043
		1	2	-.040	.170	1.000	-.455	.374
			3	-.263	.167	.354	-.670	.144
	Active_Waitlist	2	1	.040	.170	1.000	-.374	.455
			3	-.223	.125	.237	-.528	.083
		3	1	.263	.167	.354	-.144	.670
			2	.223	.125	.237	-.083	.528
		1	2	1.120*	.170	.000	.706	1.534
			3	.627*	.167	.001	.220	1.034
SDQ	Friends_Alone	2	1	-1.120*	.170	.000	-1.534	-.706
			3	-.492*	.125	.001	-.798	-.187
		3	1	-.627*	.167	.001	-1.034	-.220
			2	.492*	.125	.001	.187	.798
		1	2	1.174*	.170	.000	.760	1.588
			3	1.066*	.167	.000	.659	1.473
	Friends_With_Parents	2	1	-1.174*	.170	.000	-1.588	-.760
			3	-.108	.125	1.000	-.414	.198
		3	1	-1.066*	.167	.000	-1.473	-.659
			2	.108	.125	1.000	-.198	.414

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

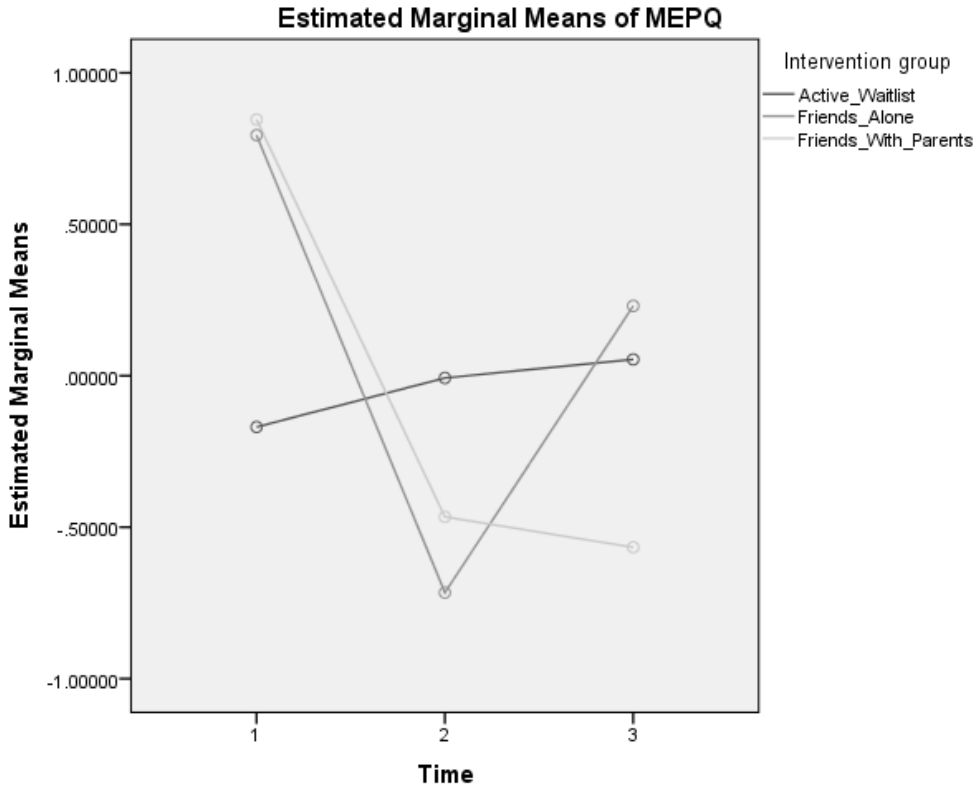
Multivariate Tests

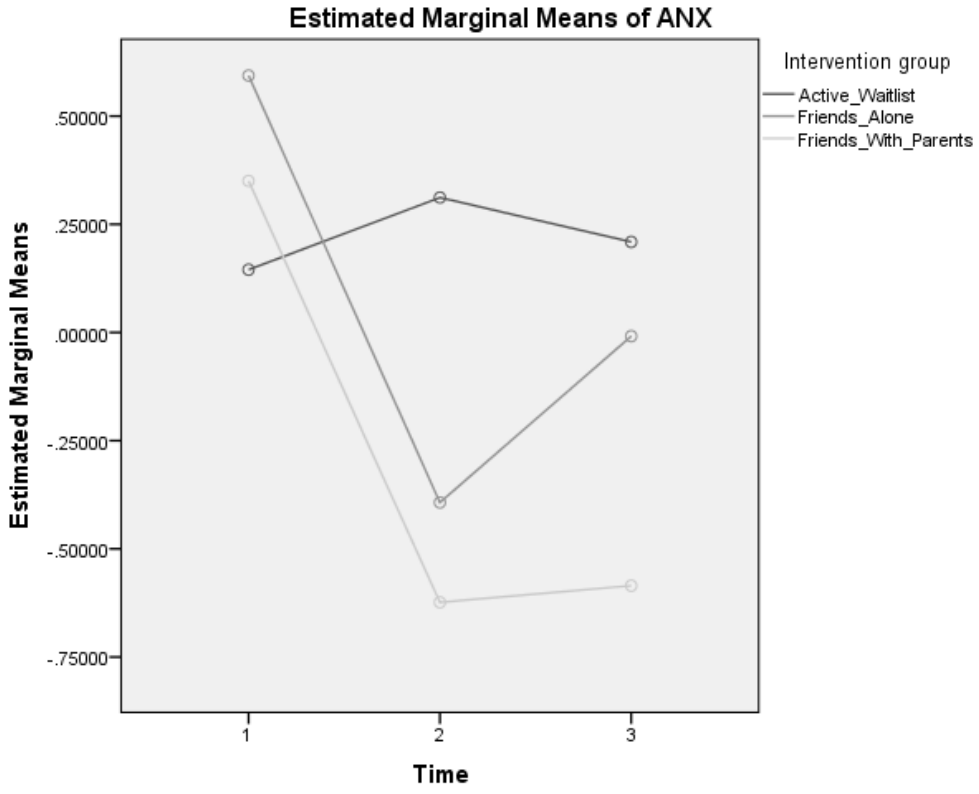
Intervention group		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Active_Waitlist	Pillai's trace	.181	2.207[a]	8.000	80.000	.035	.181
	Wilks' lambda	.819	2.207[a]	8.000	80.000	.035	.181
	Hotelling's trace	.221	2.207[a]	8.000	80.000	.035	.181
	Roy's largest root	.221	2.207[a]	8.000	80.000	.035	.181
Friends_Alone	Pillai's trace	.775	34.506[a]	8.000	80.000	.000	.775
	Wilks' lambda	.225	34.506[a]	8.000	80.000	.000	.775
	Hotelling's trace	3.451	34.506[a]	8.000	80.000	.000	.775
	Roy's largest root	3.451	34.506[a]	8.000	80.000	.000	.775
Friends_With_Parents	Pillai's trace	.615	15.965[a]	8.000	80.000	.000	.615
	Wilks' lambda	.385	15.965[a]	8.000	80.000	.000	.615
	Hotelling's trace	1.596	15.965[a]	8.000	80.000	.000	.615
	Roy's largest root	1.596	15.965[a]	8.000	80.000	.000	.615

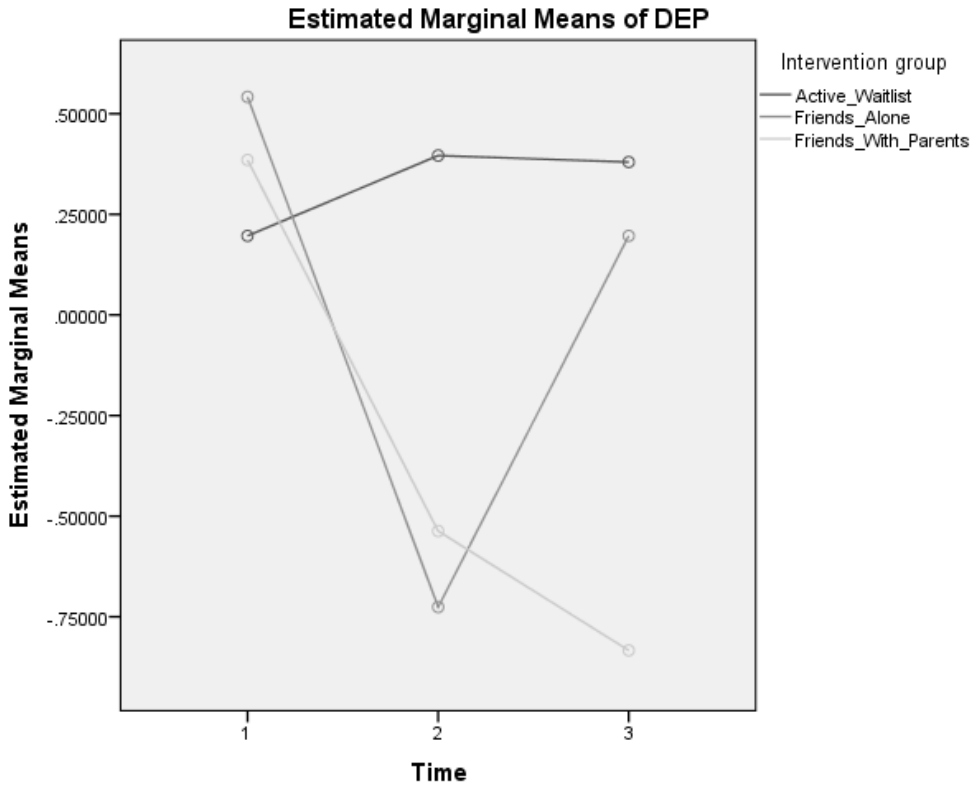
Each F tests the multivariate simple effects of Time within each level combination of the other effects shown. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

Profile Plots (Study 2)






Estimated Marginal Means of DEP
Intervention group
Active_Waitlist
Friends_Alone
Friends_With_Parents
Estimated Marginal Means
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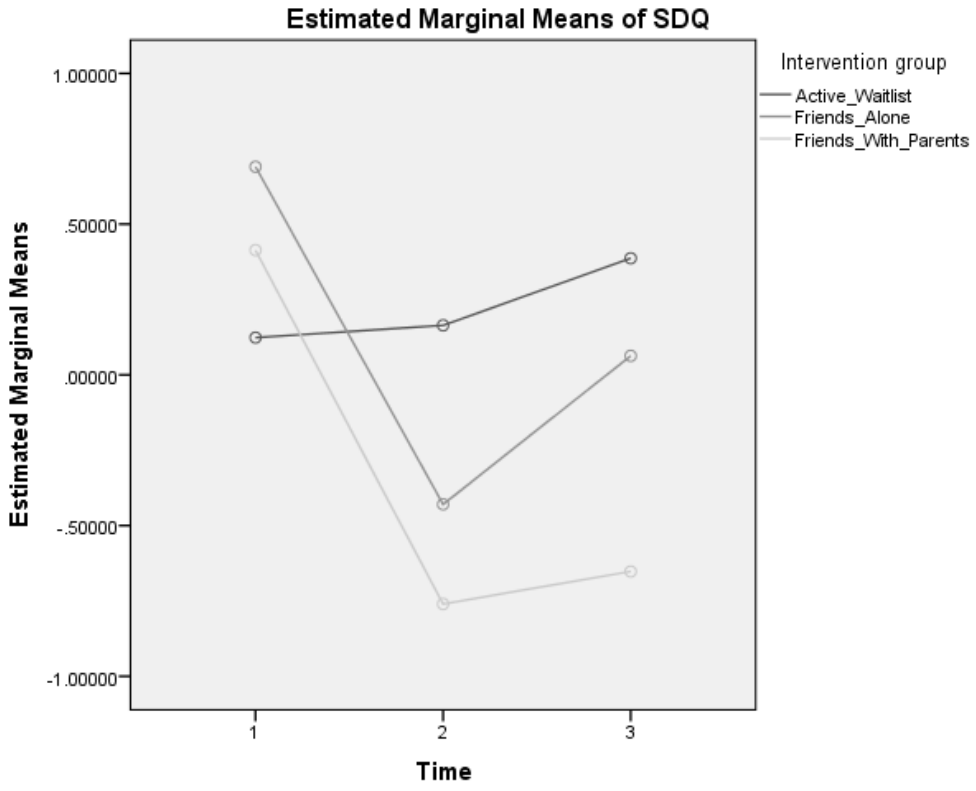
.00000
-.25000
-.50000
-.75000
1
2
3
Time


Estimated Marginal Means of SDQ
Intervention group
Active_Waitlist
Friends_Alone
Friends_With_Parents
Estimated Marginal Means
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.50000
.00000
-.50000
-1.00000
1
2
3
Time

SPSS Output (Study 3)

Descriptive Statistics

	Intervention	Mean	Std. Deviation	N
ZDEP.1	Waitlist	.0518988	.85138989	30
	Adult Friends	1.0483565	.96032993	30
	Total	.5501277	1.03054840	60
ZDEP.2	Waitlist	.1047413	.89897880	30
	Adult Friends	-.5595638	.60500281	30
	Total	-.2274113	.83026508	60
ZDEP.3	Waitlist	.2179751	1.00355538	30
	Adult Friends	-.7860315	.56884399	30
	Total	-.2840282	.95412520	60
ZDEP.4	Waitlist	.3085622	.94921605	30
	Adult Friends	-.3859386	.87891829	30
	Total	-.0386882	.97221324	60
ZANX.1	Waitlist	.0688491	1.23162924	30
	Adult Friends	.2814357	1.02024303	30
	Total	.1751424	1.12637323	60
ZANX.2	Waitlist	.0205339	1.23260919	30
	Adult Friends	-.4143023	.68685122	30
	Total	-.1968842	1.01328338	60
ZANX.3	Waitlist	.2910987	1.03681893	30
	Adult Friends	-.2886829	.69973886	30
	Total	.0012079	.92440006	60
ZANX.4	Waitlist	.2814357	.87000562	30
	Adult Friends	-.2403678	.88911443	30
	Total	.0205339	.91094825	60
ZSTR.1	Waitlist	.0994101	.88695818	30
	Adult Friends	.8284175	.84941617	30
	Total	.4639138	.93618096	60
ZSTR.2	Waitlist	.1846187	1.05155504	30
	Adult Friends	-.5538562	.72834776	30
	Total	-.1846187	.97103540	60
ZSTR.3	Waitlist	.3361008	.85529079	30
	Adult Friends	-.7810793	.73971704	30
	Total	-.2224893	.97253623	60
ZSTR.4	Waitlist	.4402447	.83593644	30
	Adult Friends	-.5538562	.88365889	30
	Total	-.0568058	.98920607	60
ZRES.1R	Waitlist	.0003	1.02583	30
	Adult Friends	.9565	.95635	30

	Total	.4784	1.09509	60
	Waitlist	-.0158	1.08550	30
ZRES.2R	Adult Friends	-.2736	.71504	30
	Total	-.1447	.92053	60
	Waitlist	.0917	1.03691	30
ZRES.3R	Adult Friends	-.3998	.58722	30
	Total	-.1541	.87143	60
	Waitlist	-.0588	1.07955	30
ZRES.4R	Adult Friends	-.3005	.83920	30
	Total	-.1796	.96636	60
	Waitlist	.0324859	.85607262	30
ZCEBI.1	Adult Friends	.1191148	1.10699817	30
	Total	.0758003	.98207168	60
	Waitlist	.2403953	.86459995	30
ZCEBI.2	Adult Friends	.0411487	1.07367592	30
	Total	.1407720	.97167134	60
	Waitlist	.2577211	.86370157	30
ZCEBI.3	Adult Friends	-.4396419	.85617464	30
	Total	-.0909604	.92228688	60
	Waitlist	.4829563	1.00522523	30
ZCEBI.4	Adult Friends	-.7341802	.86510487	30
	Total	-.1256120	1.11407758	60

Multivariate Tests[a]

Effect			Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Between Subjects	Intercept	Pillai's Trace	.000	.000[b]	5.000	54.000	1.000	.000
		Wilks' Lambda	1.000	.000[b]	5.000	54.000	1.000	.000
		Hotelling's Trace	.000	.000[b]	5.000	54.000	1.000	.000
		Roy's Largest Root	.000	.000[b]	5.000	54.000	1.000	.000
	Intervention2	Pillai's Trace	.368	6.295[b]	5.000	54.000	.000	.368
		Wilks' Lambda	.632	6.295[b]	5.000	54.000	.000	.368
		Hotelling's Trace	.583	6.295[b]	5.000	54.000	.000	.368
		Roy's Largest Root	.583	6.295[b]	5.000	54.000	.000	.368
Within Subjects	Time	Pillai's Trace	.761	9.330[b]	15.000	44.000	.000	.761
		Wilks' Lambda	.239	9.330[b]	15.000	44.000	.000	.761
		Hotelling's Trace	3.181	9.330[b]	15.000	44.000	.000	.761
		Roy's Largest Root	3.181	9.330[b]	15.000	44.000	.000	.761
	Time * Intervention2	Pillai's Trace	.800	11.728[b]	15.000	44.000	.000	.800
		Wilks' Lambda	.200	11.728[b]	15.000	44.000	.000	.800
		Hotelling's Trace	3.998	11.728[b]	15.000	44.000	.000	.800
		Roy's Largest Root	3.998	11.728[b]	15.000	44.000	.000	.800

a. Design: Intercept + Intervention2

Within Subjects Design: Time

b. Exact statistic

Multivariate Tests[a]

Effect			Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Between Subjects	Intercept	Pillai's Trace	.000	.000[b]	5.000	54.000	1.000	.000
		Wilks' Lambda	1.000	.000[b]	5.000	54.000	1.000	.000
		Hotelling's Trace	.000	.000[b]	5.000	54.000	1.000	.000
		Roy's Largest Root	.000	.000[b]	5.000	54.000	1.000	.000
	Intervention2	Pillai's Trace	.368	6.295[b]	5.000	54.000	.000	.368
		Wilks' Lambda	.632	6.295[b]	5.000	54.000	.000	.368
		Hotelling's Trace	.583	6.295[b]	5.000	54.000	.000	.368
		Roy's Largest Root	.583	6.295[b]	5.000	54.000	.000	.368
Within Subjects	Time	Pillai's Trace	.761	9.330[b]	15.000	44.000	.000	.761
		Wilks' Lambda	.239	9.330[b]	15.000	44.000	.000	.761
		Hotelling's Trace	3.181	9.330[b]	15.000	44.000	.000	.761
		Roy's Largest Root	3.181	9.330[b]	15.000	44.000	.000	.761
	Time * Intervention2	Pillai's Trace	.800	11.728[b]	15.000	44.000	.000	.800
		Wilks' Lambda	.200	11.728[b]	15.000	44.000	.000	.800
		Hotelling's Trace	3.998	11.728[b]	15.000	44.000	.000	.800
		Roy's Largest Root	3.998	11.728[b]	15.000	44.000	.000	.800

a. Design: Intercept + Intervention2

Within Subjects Design: Time

b. Exact statistic

Tests of Between-Subjects Effects

Transformed Variable: Average

Source	Measure	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	DEP	.000	1	.000	.000	1.000	.000
	ANX	.000	1	.000	.000	1.000	.000
	STR	.000	1	.000	.000	1.000	.000
	RES	.000	1	.000	.000	1.000	.000
	CEBI	.000	1	.000	.000	1.000	.000
Intervention2	DEP	1.750	1	1.750	4.246	.044	.068
	ANX	1.643	1	1.643	2.756	.102	.045
	STR	4.216	1	4.216	15.091	.000	.206
	RES	.001	1	.001	.002	.968	.000
	CEBI	3.852	1	3.852	5.544	.022	.087
Error	DEP	23.910	58	.412			
	ANX	34.582	58	.596			
	STR	16.206	58	.279			
	RES	41.470	58	.715			
	CEBI	40.302	58	.695			

Custom hypothesis tests (Study 3)

Multivariate Test Results

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.368	6.295[a]	5.000	54.000	.000	.368
Wilks' lambda	.632	6.295[a]	5.000	54.000	.000	.368
Hotelling's trace	.583	6.295[a]	5.000	54.000	.000	.368
Roy's largest root	.583	6.295[a]	5.000	54.000	.000	.368

a. Exact statistic

Univariate Test Results

Transformed Variable: AVERAGE

Source	Measure	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	DEP	1.750	1	1.750	4.246	.044	.068
	ANX	1.643	1	1.643	2.756	.102	.045
	STR	4.216	1	4.216	15.091	.000	.206
	RES	.001	1	.001	.002	.968	.000
	CEBI	3.852	1	3.852	5.544	.022	.087
Error	DEP	23.910	58	.412			
	ANX	34.582	58	.596			
	STR	16.206	58	.279			
	RES	41.470	58	.715			
	CEBI	40.302	58	.695			

Custom hypothesis tests – intervention (Study 3)

Pairwise Comparisons

Measure	(I) Intervention	(J) Intervention	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
						Lower Bound	Upper Bound
DEP	Waitlist	Adult Friends	.342*	.166	.044	.010	.673
	Adult Friends	Waitlist	-.342*	.166	.044	-.673	-.010
ANX	Waitlist	Adult Friends	.331	.199	.102	-.068	.730
	Adult Friends	Waitlist	-.331	.199	.102	-.730	.068
STR	Waitlist	Adult Friends	.530*	.136	.000	.257	.803
	Adult Friends	Waitlist	-.530*	.136	.000	-.803	-.257
RES	Waitlist	Adult Friends	.009	.218	.968	-.428	.446
	Adult Friends	Waitlist	-.009	.218	.968	-.446	.428
CEBI	Waitlist	Adult Friends	.507*	.215	.022	.076	.938
	Adult Friends	Waitlist	-.507*	.215	.022	-.938	-.076

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.368	6.295[a]	5.000	54.000	.000	.368
Wilks' lambda	.632	6.295[a]	5.000	54.000	.000	.368
Hotelling's trace	.583	6.295[a]	5.000	54.000	.000	.368
Roy's largest root	.583	6.295[a]	5.000	54.000	.000	.368

Each F tests the multivariate effect of Intervention. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

Univariate Tests

Measure		Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
DEP	Contrast	1.750	1	1.750	4.246	.044	.068
	Error	23.910	58	.412			
ANX	Contrast	1.643	1	1.643	2.756	.102	.045
	Error	34.582	58	.596			
STR	Contrast	4.216	1	4.216	15.091	.000	.206
	Error	16.206	58	.279			
RES	Contrast	.001	1	.001	.002	.968	.000
	Error	41.470	58	.715			
CEBI	Contrast	3.852	1	3.852	5.544	.022	.087
	Error	40.302	58	.695			

The F tests the effect of Intervention. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

Custom hypothesis tests – time (Study 3)

Pairwise Comparisons

Measure	(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
						Lower Bound	Upper Bound
DEP	1	2	.778*	.095	.000	.519	1.037
		3	.834*	.108	.000	.538	1.130
		4	.589*	.131	.000	.230	.948
	2	1	-.778*	.095	.000	-1.037	-.519
		3	.057	.093	1.000	-.198	.311
		4	-.189	.139	1.000	-.567	.190
	3	1	-.834*	.108	.000	-1.130	-.538
		2	-.057	.093	1.000	-.311	.198
		4	-.245	.136	.454	-.616	.125
	4	1	-.589*	.131	.000	-.948	-.230
		2	.189	.139	1.000	-.190	.567
		3	.245	.136	.454	-.125	.616
ANX	1	2	.372*	.084	.000	.144	.600
		3	.174	.121	.936	-.157	.504
		4	.155	.151	1.000	-.257	.566
	2	1	-.372*	.084	.000	-.600	-.144
		3	-.198	.101	.333	-.475	.079
		4	-.217	.157	1.000	-.647	.212
	3	1	-.174	.121	.936	-.504	.157
		2	.198	.101	.333	-.079	.475
		4	-.019	.131	1.000	-.377	.338
	4	1	-.155	.151	1.000	-.566	.257
		2	.217	.157	1.000	-.212	.647
		3	.019	.131	1.000	-.338	.377
STR	1	2	.649*	.111	.000	.346	.951
		3	.686*	.114	.000	.376	.997
		4	.521*	.157	.009	.093	.949
	2	1	-.649*	.111	.000	-.951	-.346
		3	.038	.117	1.000	-.281	.356
		4	-.128	.179	1.000	-.617	.362
	3	1	-.686*	.114	.000	-.997	-.376
		2	-.038	.117	1.000	-.356	.281
		4	-.166	.164	1.000	-.613	.282
	4	1	-.521*	.157	.009	-.949	-.093

		2	.128	.179	1.000	-.362	.617
		3	.166	.164	1.000	-.282	.613
		2	.623*	.067	.000	.441	.805
	1	3	.633*	.079	.000	.417	.848
		4	.658*	.093	.000	.404	.912
		1	-.623*	.067	.000	-.805	-.441
	2	3	.009	.059	1.000	-.152	.171
		4	.035	.103	1.000	-.246	.315
RES		1	-.633*	.079	.000	-.848	-.417
	3	2	-.009	.059	1.000	-.171	.152
		4	.026	.087	1.000	-.211	.262
		1	-.658*	.093	.000	-.912	-.404
	4	2	-.035	.103	1.000	-.315	.246
		3	-.026	.087	1.000	-.262	.211
		2	-.065	.071	1.000	-.260	.130
	1	3	.167	.090	.414	-.079	.413
		4	.201	.109	.424	-.097	.500
		1	.065	.071	1.000	-.130	.260
	2	3	.232*	.082	.037	.009	.454
		4	.266	.118	.169	-.057	.590
CEBI		1	-.167	.090	.414	-.413	.079
	3	2	-.232*	.082	.037	-.454	-.009
		4	.035	.074	1.000	-.167	.236
		1	-.201	.109	.424	-.500	.097
	4	2	-.266	.118	.169	-.590	.057
		3	-.035	.074	1.000	-.236	.167

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's trace	.761	9.330[a]	15.000	44.000	.000	.761
Wilks' lambda	.239	9.330[a]	15.000	44.000	.000	.761
Hotelling's trace	3.181	9.330[a]	15.000	44.000	.000	.761
Roy's largest root	3.181	9.330[a]	15.000	44.000	.000	.761

Each F tests the multivariate effect of Time. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

Custom hypothesis tests – intervention * time (Study 3)

Pairwise Comparisons

Measure	Time	(I) Intervention	(J) Intervention	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
							Lower Bound	Upper Bound
DEP	1	Waitlist	Adult Friends	-.996*	.234	.000	-1.465	-.527
		Adult Friends	Waitlist	.996*	.234	.000	.527	1.465
	2	Waitlist	Adult Friends	.664*	.198	.001	.268	1.060
		Adult Friends	Waitlist	-.664*	.198	.001	-1.060	-.268
	3	Waitlist	Adult Friends	1.004*	.211	.000	.582	1.426
		Adult Friends	Waitlist	-1.004*	.211	.000	-1.426	-.582
	4	Waitlist	Adult Friends	.695*	.236	.005	.222	1.167
		Adult Friends	Waitlist	-.695*	.236	.005	-1.167	-.222
ANX	1	Waitlist	Adult Friends	-.213	.292	.470	-.797	.372
		Adult Friends	Waitlist	.213	.292	.470	-.372	.797
	2	Waitlist	Adult Friends	.435	.258	.097	-.081	.951
		Adult Friends	Waitlist	-.435	.258	.097	-.951	.081
	3	Waitlist	Adult Friends	.580*	.228	.014	.123	1.037
		Adult Friends	Waitlist	-.580*	.228	.014	-1.037	-.123
	4	Waitlist	Adult Friends	.522*	.227	.025	.067	.976
		Adult Friends	Waitlist	-.522*	.227	.025	-.976	-.067
STR	1	Waitlist	Adult Friends	-.729*	.224	.002	-1.178	-.280
		Adult Friends	Waitlist	.729*	.224	.002	.280	1.178
	2	Waitlist	Adult Friends	.738*	.234	.002	.271	1.206
		Adult Friends	Waitlist	-.738*	.234	.002	-1.206	-.271
	3	Waitlist	Adult Friends	1.117*	.206	.000	.704	1.530
		Adult Friends	Waitlist	-1.117*	.206	.000	-1.530	-.704
	4	Waitlist	Adult Friends	.994*	.222	.000	.550	1.439
		Adult Friends	Waitlist	-.994*	.222	.000	-1.439	-.550
RES	1	Waitlist	Adult Friends	-.956*	.256	.000	-1.469	-.444
		Adult Friends	Waitlist	.956*	.256	.000	.444	1.469
	2	Waitlist	Adult Friends	.258	.237	.282	-.217	.733
		Adult Friends	Waitlist	-.258	.237	.282	-.733	.217
	3	Waitlist	Adult Friends	.492*	.218	.028	.056	.927
		Adult Friends	Waitlist	-.492*	.218	.028	-.927	-.056
	4	Waitlist	Adult Friends	.242	.250	.337	-.258	.741
		Adult Friends	Waitlist	-.242	.250	.337	-.741	.258
CEBI	1	Waitlist	Adult Friends	-.087	.255	.736	-.598	.425
		Adult Friends	Waitlist	.087	.255	.736	-.425	.598

2	Waitlist	Adult Friends	.199	.252	.432	-.305	.703
	Adult Friends	Waitlist	-.199	.252	.432	-.703	.305
3	Waitlist	Adult Friends	.697*	.222	.003	.253	1.142
	Adult Friends	Waitlist	-.697*	.222	.003	-1.142	-.253
4	Waitlist	Adult Friends	1.217*	.242	.000	.732	1.702
	Adult Friends	Waitlist	-1.217*	.242	.000	-1.702	-.732

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Multivariate Tests

Time		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
1	Pillai's trace	.340	5.552[a]	5.000	54.000	.000	.340
	Wilks' lambda	.660	5.552[a]	5.000	54.000	.000	.340
	Hotelling's trace	.514	5.552[a]	5.000	54.000	.000	.340
	Roy's largest root	.514	5.552[a]	5.000	54.000	.000	.340
2	Pillai's trace	.273	4.060[a]	5.000	54.000	.003	.273
	Wilks' lambda	.727	4.060[a]	5.000	54.000	.003	.273
	Hotelling's trace	.376	4.060[a]	5.000	54.000	.003	.273
	Roy's largest root	.376	4.060[a]	5.000	54.000	.003	.273
3	Pillai's trace	.486	10.197[a]	5.000	54.000	.000	.486
	Wilks' lambda	.514	10.197[a]	5.000	54.000	.000	.486
	Hotelling's trace	.944	10.197[a]	5.000	54.000	.000	.486
	Roy's largest root	.944	10.197[a]	5.000	54.000	.000	.486
4	Pillai's trace	.537	12.512[a]	5.000	54.000	.000	.537
	Wilks' lambda	.463	12.512[a]	5.000	54.000	.000	.537
	Hotelling's trace	1.159	12.512[a]	5.000	54.000	.000	.537
	Roy's largest root	1.159	12.512[a]	5.000	54.000	.000	.537

Each F tests the multivariate simple effects of Intervention within each level combination of the other effects shown. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

Univariate Tests

Measure	Time		Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
DEP	1	Contrast	14.894	1	14.894	18.085	.000	.238
		Error	47.766	58	.824			
	2	Contrast	6.620	1	6.620	11.275	.001	.163
		Error	34.052	58	.587			
	3	Contrast	15.120	1	15.120	22.725	.000	.282
		Error	38.590	58	.665			
	4	Contrast	7.235	1	7.235	8.646	.005	.130
		Error	48.532	58	.837			
ANX	1	Contrast	.678	1	.678	.530	.470	.009
		Error	74.176	58	1.279			
	2	Contrast	2.836	1	2.836	2.849	.097	.047
		Error	57.742	58	.996			
	3	Contrast	5.042	1	5.042	6.445	.014	.100
		Error	45.374	58	.782			
	4	Contrast	4.084	1	4.084	5.279	.025	.083
		Error	44.876	58	.774			
STR	1	Contrast	7.972	1	7.972	10.571	.002	.154
		Error	43.738	58	.754			
	2	Contrast	8.180	1	8.180	9.999	.002	.147
		Error	47.451	58	.818			
	3	Contrast	18.721	1	18.721	29.282	.000	.335
		Error	37.082	58	.639			
	4	Contrast	14.824	1	14.824	20.037	.000	.257
		Error	42.910	58	.740			
RES	1	Contrast	13.713	1	13.713	13.944	.000	.194
		Error	57.041	58	.983			
	2	Contrast	.997	1	.997	1.180	.282	.020
		Error	48.998	58	.845			
	3	Contrast	3.624	1	3.624	5.104	.028	.081
		Error	41.180	58	.710			
	4	Contrast	.876	1	.876	.938	.337	.016
		Error	54.221	58	.935			
CEBI	1	Contrast	.113	1	.113	.115	.736	.002
		Error	56.791	58	.979			
	2	Contrast	.595	1	.595	.627	.432	.011
		Error	55.109	58	.950			

3	Contrast	7.295	1	7.295	9.864	.003	.145
	Error	42.891	58	.740			
4	Contrast	22.221	1	22.221	25.268	.000	.303
	Error	51.008	58	.879			

Each F tests the simple effects of Intervention within each level combination of the other effects shown. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

Custom hypothesis tests – intervention * time (Study 3)

Pairwise Comparisons

Measure	Intervention	(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
							Lower Bound	Upper Bound
DEP	Waitlist	1	2	-.053	.134	1.000	-.419	.313
			3	-.166	.153	1.000	-.585	.253
			4	-.257	.186	1.000	-.764	.251
		2	1	.053	.134	1.000	-.313	.419
			3	-.113	.132	1.000	-.473	.246
			4	-.204	.196	1.000	-.739	.331
		3	1	.166	.153	1.000	-.253	.585
			2	.113	.132	1.000	-.246	.473
			4	-.091	.192	1.000	-.615	.433
		4	1	.257	.186	1.000	-.251	.764
			2	.204	.196	1.000	-.331	.739
			3	.091	.192	1.000	-.433	.615
	Adult Friends	1	2	1.608*	.134	.000	1.242	1.974
			3	1.834*	.153	.000	1.416	2.253
			4	1.434*	.186	.000	.927	1.942
		2	1	-1.608*	.134	.000	-1.974	-1.242
			3	.226	.132	.544	-.133	.586
			4	-.174	.196	1.000	-.709	.362
		3	1	-1.834*	.153	.000	-2.253	-1.416
			2	-.226	.132	.544	-.586	.133
			4	-.400	.192	.249	-.924	.124
		4	1	-1.434*	.186	.000	-1.942	-.927
			2	.174	.196	1.000	-.362	.709
			3	.400	.192	.249	-.124	.924

			2	.048	.118	1.000	-.275	.371
		1	3	-.222	.171	1.000	-.690	.245
			4	-.213	.213	1.000	-.794	.369
			1	-.048	.118	1.000	-.371	.275
		2	3	-.271	.143	.384	-.662	.121
			4	-.261	.222	1.000	-.868	.346
	Waitlist		1	.222	.171	1.000	-.245	.690
		3	2	.271	.143	.384	-.121	.662
			4	.010	.185	1.000	-.496	.515
			1	.213	.213	1.000	-.369	.794
		4	2	.261	.222	1.000	-.346	.868
			3	-.010	.185	1.000	-.515	.496
ANX			2	.696*	.118	.000	.373	1.019
		1	3	.570*	.171	.009	.103	1.038
			4	.522	.213	.104	-.060	1.103
			1	-.696*	.118	.000	-1.019	-.373
		2	3	-.126	.143	1.000	-.517	.266
			4	-.174	.222	1.000	-.781	.433
	Adult Friends		1	-.570*	.171	.009	-1.038	-.103
		3	2	.126	.143	1.000	-.266	.517
			4	-.048	.185	1.000	-.554	.457
			1	-.522	.213	.104	-1.103	.060
		4	2	.174	.222	1.000	-.433	.781
			3	.048	.185	1.000	-.457	.554
			2	-.085	.157	1.000	-.513	.343
		1	3	-.237	.161	.877	-.676	.202
			4	-.341	.222	.776	-.946	.264
			1	.085	.157	1.000	-.343	.513
		2	3	-.151	.165	1.000	-.602	.299
			4	-.256	.253	1.000	-.948	.437
	Waitlist		1	.237	.161	.877	-.202	.676
		3	2	.151	.165	1.000	-.299	.602
			4	-.104	.232	1.000	-.737	.529
STR			1	.341	.222	.776	-.264	.946
		4	2	.256	.253	1.000	-.437	.948
			3	.104	.232	1.000	-.529	.737
			2	1.382*	.157	.000	.954	1.810
		1	3	1.609*	.161	.000	1.171	2.048
			4	1.382*	.222	.000	.777	1.987
	Adult Friends		1	-1.382*	.157	.000	-1.810	-.954
		2	3	.227	.165	1.000	-.223	.678
			4	-2.220E-016	.253	1.000	-.692	.692

			1	-1.609*	.161	.000	-2.048	-1.171
		3	2	-.227	.165	1.000	-.678	.223
			4	-.227	.232	1.000	-.860	.406
			1	-1.382*	.222	.000	-1.987	-.777
		4	2	2.220E-016	.253	1.000	-.692	.692
			3	.227	.232	1.000	-.406	.860
			2	.016	.094	1.000	-.242	.274
		1	3	-.091	.112	1.000	-.396	.214
			4	.059	.132	1.000	-.300	.418
			1	-.016	.094	1.000	-.274	.242
		2	3	-.107	.083	1.000	-.335	.121
			4	.043	.145	1.000	-.354	.440
	Waitlist		1	.091	.112	1.000	-.214	.396
		3	2	.107	.083	1.000	-.121	.335
			4	.150	.123	1.000	-.184	.485
			1	-.059	.132	1.000	-.418	.300
		4	2	-.043	.145	1.000	-.440	.354
			3	-.150	.123	1.000	-.485	.184
RES			2	1.230*	.094	.000	.972	1.488
		1	3	1.356*	.112	.000	1.051	1.661
			4	1.257*	.132	.000	.898	1.616
			1	-1.230*	.094	.000	-1.488	-.972
		2	3	.126	.083	.816	-.102	.354
			4	.027	.145	1.000	-.370	.423
	Adult Friends		1	-1.356*	.112	.000	-1.661	-1.051
		3	2	-.126	.083	.816	-.354	.102
			4	-.099	.123	1.000	-.434	.235
			1	-1.257*	.132	.000	-1.616	-.898
		4	2	-.027	.145	1.000	-.423	.370
			3	.099	.123	1.000	-.235	.434
			2	-.208	.101	.264	-.484	.068
		1	3	-.225	.127	.493	-.573	.123
			4	-.450*	.155	.030	-.873	-.028
			1	.208	.101	.264	-.068	.484
		2	3	-.017	.115	1.000	-.332	.298
CEBI	Waitlist		4	-.243	.167	.915	-.700	.214
			1	.225	.127	.493	-.123	.573
		3	2	.017	.115	1.000	-.298	.332
			4	-.225	.104	.211	-.511	.060
		4	1	.450*	.155	.030	.028	.873

		2	.243	.167	.915	-.214	.700
		3	.225	.104	.211	-.060	.511
		2	.078	.101	1.000	-.198	.354
	1	3	.559*	.127	.000	.211	.907
		4	.853*	.155	.000	.431	1.276
		1	-.078	.101	1.000	-.354	.198
	2	3	.481*	.115	.001	.166	.796
		4	.775*	.167	.000	.318	1.232
Adult Friends		1	-.559*	.127	.000	-.907	-.211
	3	2	-.481*	.115	.001	-.796	-.166
		4	.295*	.104	.039	.009	.580
		1	-.853*	.155	.000	-1.276	-.431
	4	2	-.775*	.167	.000	-1.232	-.318
		3	-.295*	.104	.039	-.580	-.009

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

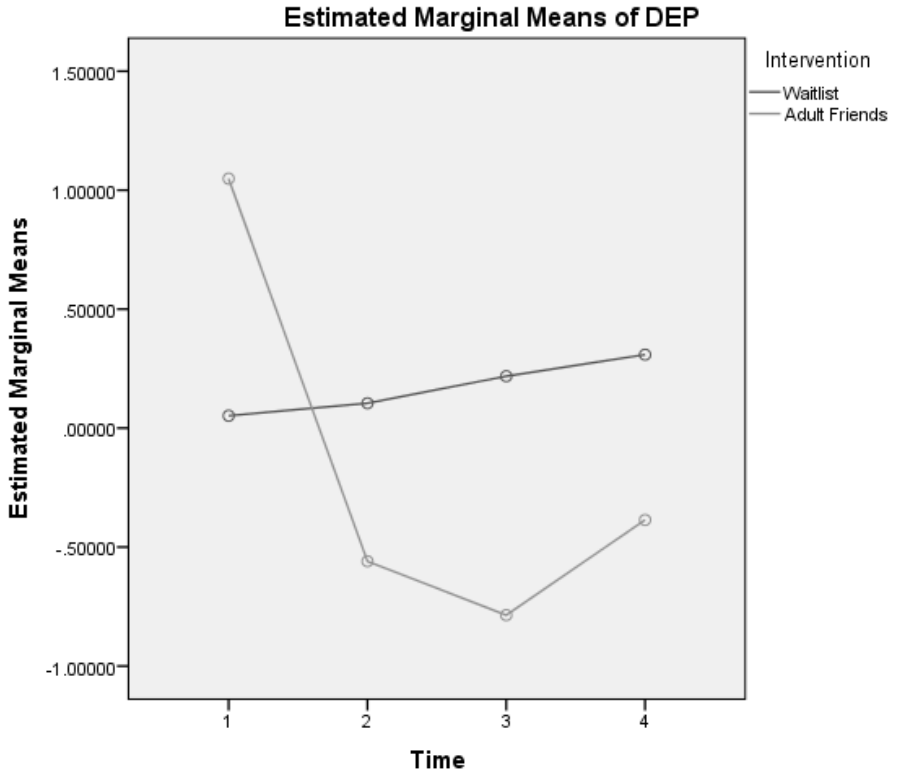
Multivariate Tests

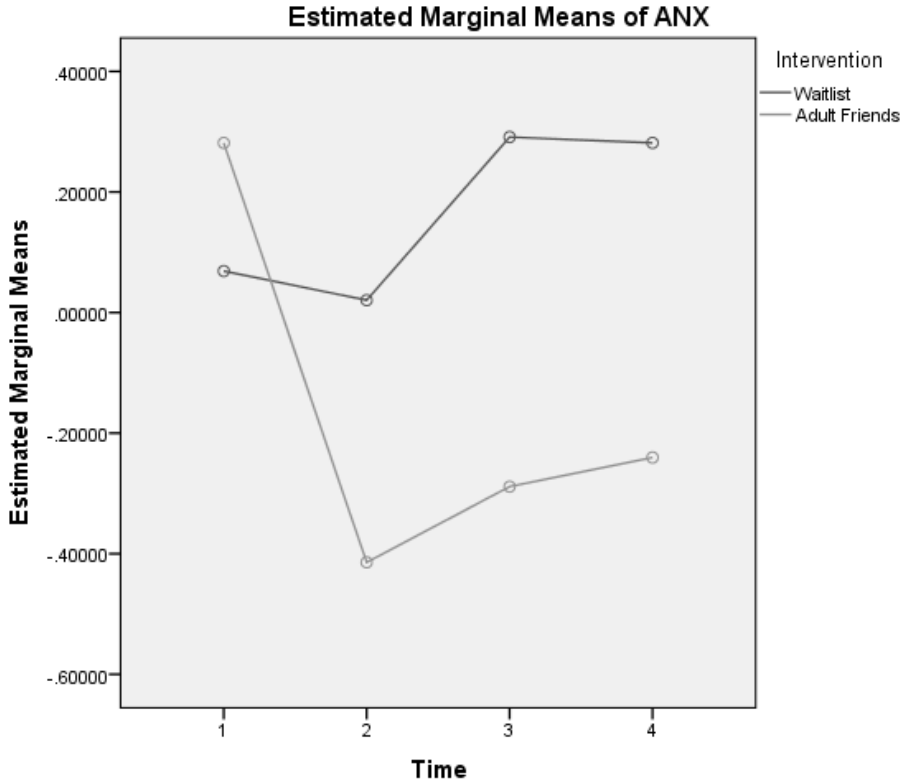
Intervention		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Waitlist	Pillai's trace	.334	1.469[a]	15.000	44.000	.159	.334
	Wilks' lambda	.666	1.469[a]	15.000	44.000	.159	.334
	Hotelling's trace	.501	1.469[a]	15.000	44.000	.159	.334
	Roy's largest root	.501	1.469[a]	15.000	44.000	.159	.334
Adult Friends	Pillai's trace	.870	19.589[a]	15.000	44.000	.000	.870
	Wilks' lambda	.130	19.589[a]	15.000	44.000	.000	.870
	Hotelling's trace	6.678	19.589[a]	15.000	44.000	.000	.870
	Roy's largest root	6.678	19.589[a]	15.000	44.000	.000	.870

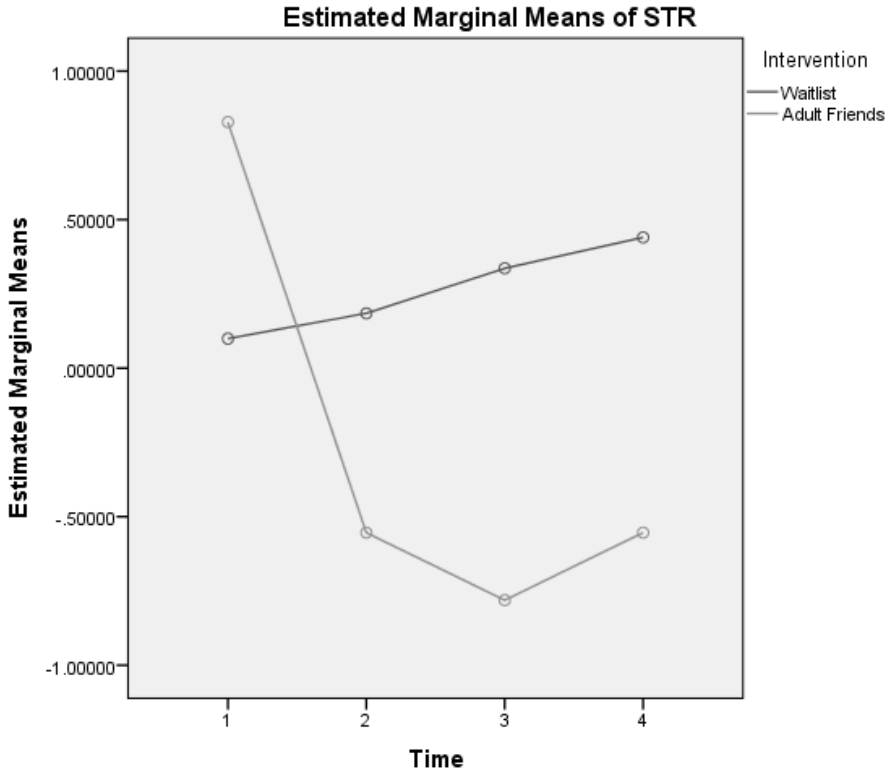
Each F tests the multivariate simple effects of Time within each level combination of the other effects shown. These tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

a. Exact statistic

Profile Plots (Study 3)






Estimated Marginal Means of STR
Estimated Marginal Means
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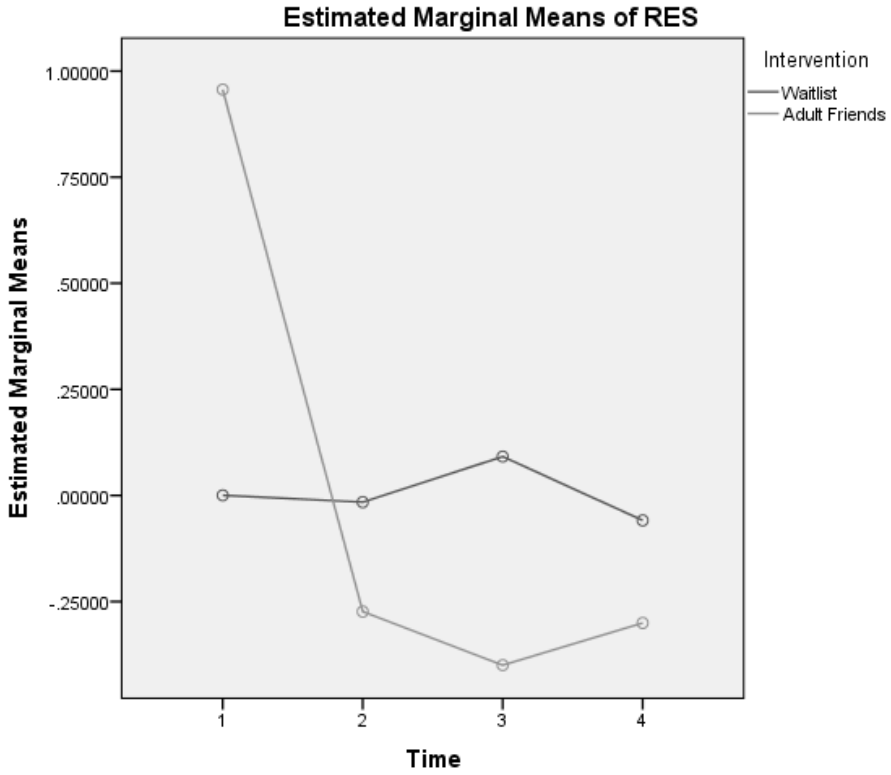
2
3
4
Time
Intervention
Waitlist
Adult Friends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Estimated Marginal Means
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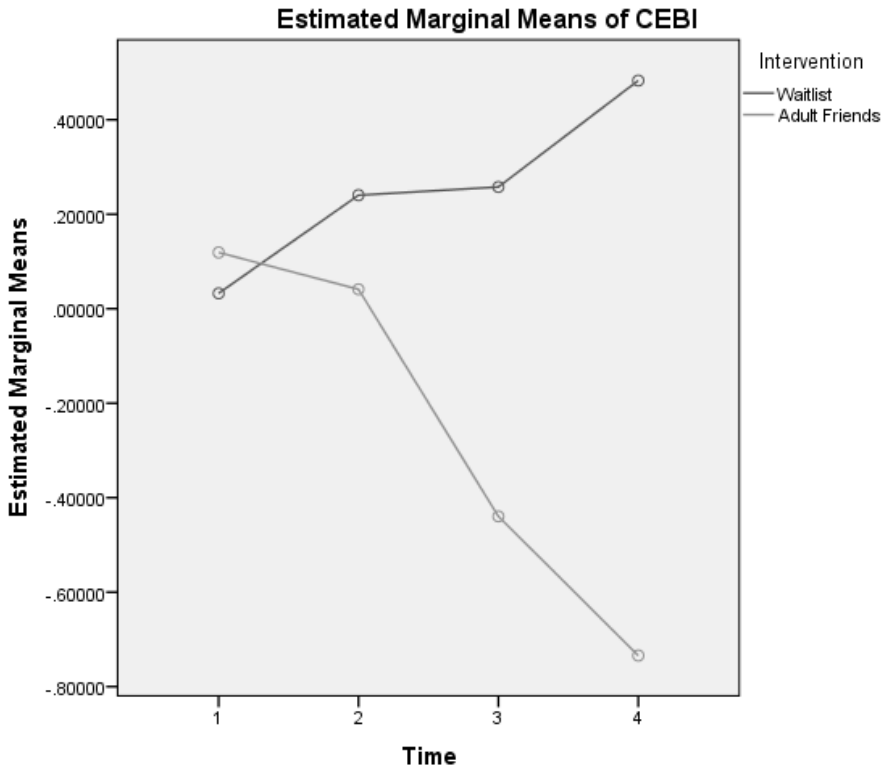
1
2
3
4
Time
Intervention
Waitlist
Adult Friends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Intervention
Waitlist
Adult Friends
Estimated Marginal Means
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1
2
3
4
Time