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**Emotion Regulation in Adolescents and
Young Adults with Autism Spectrum Disorders**

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Abstract

Emotion regulation is important for mental health, well-being, social decision making, and financial success, yet limited investigations have been conducted into emotion regulation in adolescents and young adults with autism spectrum disorders (ASD). The aim of this series of studies was to investigate emotion regulation in adolescents and young adults with ASD, report on the prevalence of emotion regulation issues, and to evaluate a group cognitive behavioural intervention aimed at improving emotion regulation skills. Focus groups and interviews were conducted with adolescents and young adults with ASD, parents of adolescents and young adults with ASD, teachers, and psychologists ($N = 26$), to capture a preliminary picture of emotion regulation in this population, and to probe for triggers of troublesome emotions and successful coping strategies. Next, an online survey was launched ($N = 179$) to estimate rates of depression and anxiety in this population, and to reveal potential predictors of mood disorder symptoms to be considered for intervention. From the information gathered from the survey, and interventions already evaluated in previous literature, it was concluded that there was a need for an evaluation of a cognitive behavioural intervention targeting depression in adolescents with ASD. Therefore, the final study of this project was a pilot randomised controlled trial of a cognitive behavioural intervention targeting symptoms of depression. Despite recruitment difficulties ($N = 20$), there was preliminary evidence to suggest the intervention may be successful in reducing symptoms of depression in this population. The trial is further illustrated by qualitative findings and case studies.

Declaration by author

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Publications during candidature

Santomauro, D., Sheffield, J., & Sofronoff, K. (2015). Depression in adolescents with ASD: A pilot RCT of a group intervention. *Journal of Autism and Developmental Disorders*. Advance online publication. doi:10.1007/s10803-015-2605-4

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Contributions by others to the thesis

Tony Attwood and Michelle Garnett developed the *Exploring Depression* programme evaluated as part of this project. Additionally they conducted two full-day workshops to train the probationary clinical psychologists to deliver the programme. The probationary clinical psychologists who helped deliver the programme included John van Beusekom, Jason Coates, Lindsay Cote, Anqi Ho, Emma Hyland, Ashleigh Kunde, Breanna Lancaster, Clarissa Lui, Stacey Lynch, Cora MacHatch, Sam Morrison, Carla Newcombe, Maria Reeve, Lucy Xiao Shi, Elizabeth Spitzer, Bronwyn Steele, Kirsty Taylor, Hugh Walker, and Annette Vasey. Lastly, Kate Sofronoff and Jeanie Sheffield supervised the author and the psychologists delivering the programme.

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Asperger Syndrome, Autism Spectrum Disorders, Depression, Cognitive Behaviour Therapy, Randomised Controlled Trial, Emotion Regulation

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List of Abbreviations

AD	Autistic Disorder
ADHD	Attention Deficit Hyperactive Disorder
AQ	Autism-Spectrum Quotient
AS	Asperger's Disorder
ASASC	Australian Scale for Autism Spectrum Conditions
ASD	Autism Spectrum Disorders
ASDI	Asperger Syndrome (and High-Functioning Autism) Diagnostic Interview
BDI	Beck Depression Inventory
CBT	Cognitive Behavioural Therapy
CFI	Comparative Fit Index
DASS	Depression Anxiety Stress Scale
DSM	Diagnostic and Statistical Manual
ERQ	Emotion Regulation Questionnaire
fMRI	Functional Magnetic Resonance Imaging
GFI	Goodness-of-Fit Index
HFA	High Functioning Autism
IQ	Intelligence Quotient
OCD	Obsessive Compulsive Disorder
PDD-NOS	Pervasive Developmental Disorder Not Otherwise Specified
PFC	Pre-Frontal Cortex
RMET	Reading the Mind in the Eyes Task
RMSEA	Root Mean Square Error of Approximation
SIAS	Social Interaction Anxiety Scale

SRMR	Standardised Root Mean Square Residual
SSQ	Sensory Sensitivities Questionnaire
TAS	Toronto Alexithymia Scale
ToM	Theory of Mind
WASI	Wechsler Abbreviated Scale of Intelligence

CHAPTER ONE

Overview of Research Project

The aim of this research was to explore the prevalence of emotion regulation issues in adolescents with autism spectrum disorders (ASD), and to evaluate a group cognitive behavioural intervention aimed at improving emotion regulation skills. First, Chapter Two covers what is already known about emotion regulation in typically developing adolescents, focusing on two important emotion regulation strategies: cognitive reappraisal and expressive suppression. Then, evidence to suggest that individuals with ASD experience emotion regulation difficulties will be discussed. Chapter Three reports on the first study, which aimed to investigate emotion regulation issues in this population from the various perspectives of those best placed to experience these issues. Seven focus groups with parents, teachers, and psychologists ($N = 26$), and seven one-on-one interviews with adolescents and young adults with ASD were conducted. Across the groups, participants discussed the triggers for troublesome emotions, difficulties with emotional awareness, emotion regulation strategies, and the consequences of their troublesome emotions. Both depression and anxiety were reported as the most frequently experienced troublesome emotions with the greatest consequences. Overall, the study gave insight into potential triggers and strategies that could be used to inform the development of an emotion regulation intervention. The study also highlighted the need for quantitative investigations into the prevalence of depression and anxiety symptoms in adolescents and young adults with ASD, leading into Study Two discussed in Chapter Four.

Study Two investigated the prevalence of mood disorder symptoms in a sample of adolescents and young adults with ASD through an online survey. A path model for emotion regulation was evaluated to explore the predictive nature of

alexithymia, sensory sensitivities, cognitive reappraisal, and expressive suppression on symptoms of anxiety and depression. One hundred and seventy nine participants with ASD aged between 16 and 30 years completed an online survey. Descriptive analyses revealed 65% and 73% of participants reported moderate symptoms of depression and anxiety respectively, and 71% indicated symptoms of alexithymia. The results also revealed potential predictors of depression and anxiety, and suggest adolescents and young adults with ASD typically do present with emotion regulation issues. Cognitive reappraisal and suppression were directly associated with depression symptoms, but were only indirectly associated with anxiety symptoms. This study highlighted the need for an intervention targeting emotion regulation skills in ASD using cognitive reappraisal, leading into Chapter Five.

Chapter Five elaborates on the need for an intervention to improve emotion regulation skills. The potential consequences of depression are far more severe than the potential consequences of anxiety (i.e. suicide), and in Study Two, cognitive reappraisal only directly predicted depression symptoms rather than anxiety symptoms. There are also already interventions targeting anxiety in adolescents and young adults with ASD. However to the author's knowledge there are no interventions targeting depression in this population. Therefore a new group cognitive behavioural depression intervention is suggested. A new intervention is introduced and discussed for its suitability for this population.

Chapter Six then describes Study Three, which was a randomised controlled trial of the new group cognitive behavioural intervention for depression in adolescents with ASD. Twenty depressed adolescents with ASD were randomly assigned to either partake in the intervention or join the wait-list control group. Recruitment for this study was extremely difficult, and given the small sample size, this trial was treated as

a pilot study. Evidence for feasibility and acceptability are presented. There was some evidence to suggest that depression levels dropped for the intervention group and not for the wait-list control group for one of the two measures of depression used. Follow-up analyses revealed that depression symptoms tend to drop post-intervention and four weeks post-intervention, but tend to return to baseline levels after three months. Chapter Seven then focuses on the qualitative feedback from the participants on the programme. Here the benefit of the social aspect of the group based cognitive behavioural intervention and suggested improvements to the programme are discussed. Lastly, the implications of the findings of the research project are discussed in Chapter Eight along with suggestions for future research.

CHAPTER TWO

Autism Spectrum Disorders

2.1. Rationale for Research

Emotion regulation is the process responsible for identifying, monitoring, and modifying emotional reactions to emotional triggers, and has been revealed in previous research to benefit interpersonal functioning, well-being, and financial success (Côté, Gyurak, & Levenson, 2010; Gross & John, 2003). The use of dysfunctional emotion regulation strategies however has been linked to mood disorders such as depression and anxiety (Campbell-Sills, Barlow, Brown, & Hofmann, 2006; Dennis, 2007; Ehring et al., 2011; Joormann & Gotlib, 2010). Currently, there are limited investigations into emotion regulation skills in adolescents and young adults with ASD, with the majority of investigations examining children (e.g., Ashburner, Ziviani, & Rodger, 2010; Konstantareas & Steward, 2006). Previous research has revealed increased rates of depression and anxiety in this population (MacNeil, Lopes, & Minnes, 2009; White, Ollendick, and Bray, 2011; White, Oswald, Ollendick, & Scahill, 2009), and given the link revealed between emotion regulation and mood disorders, emotion regulation in adolescents and young adults with ASD should be further investigated with the eventual aim to evaluate an emotion regulation intervention.

Here a review of the literature will be conducted, first to describe ASD, second to discuss what is known about emotion regulation in typical samples and ASD samples, and last to emphasise the need to further investigate emotion regulation in adolescents and young adults with ASD.

2.2. Autism Spectrum Disorders

Autism spectrum disorders (ASD) are characterised by a triad of characteristics, which include qualitative impairment in social interaction, communication, and restrictive repetitive and stereotyped behaviours and interests (American Psychiatric Association, 2000). They are developmental disorders, and include several diagnoses that fall along the autism spectrum. These are Autistic Disorder (AD), Rett's Disorder, Childhood Disintegrative Disorder, Asperger's Disorder (commonly referred to as Asperger's Syndrome; AS), and Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS; American Psychiatric Association, 2000). There is also high functioning autism (HFA), which is not an official diagnosis but is a term used to describe individuals with a diagnosis of AD who have "greater ability" than individuals with typical AD (Mazefsky, Kao, & Oswald, 2011; Gillberg, Gillberg, Rastam, & Wentz, 2001). The current project focuses on AD, AS, and PDD-NOS as no participants had Rett's Disorder or Childhood Disintegrative Disorder. This also falls in line with revisions to diagnostic criteria of ASD within the Diagnostic and Statistical Manual-V (DSM-V; American Psychiatric Association, 2013; see 2.2.1.1. below).

2.2.1. Diagnosis of an Autism Spectrum Disorder

Between 2000 and 2013, a diagnosis of an ASD was prescribed according to the Diagnostic and Statistical Manual-IV-TR (DSM-IV-TR; American Psychiatric Association, 2000). A diagnosis of an ASD according to the DSM-IV-TR will vary slightly between the different disorders. Diagnoses of both AD and AS require the presentation of qualitative impairment in social interaction. This is categorised by the presentation of at least two of impairments in nonverbal behaviour (e.g., facial expressions, eye contact), difficulties developing relationships appropriate to the

developmental level of the individual, diminished spontaneous seeking to share enjoyment, interests, or achievements with others, and diminished social or emotional reciprocity. Additionally, both AS and AD require the presentation of restricted, repetitive, and stereotyped patterns of behaviours or interests, which is characterised by either a preoccupation with a restricted pattern of interest that is abnormal in intensity, inflexible adherence to specific, non-functional routines, repetitive motor mannerisms (e.g., hand flapping), or a preoccupation with parts of objects (American Psychiatric Association, 2000).

However, unlike AS, AD also requires the presentation of qualitative impairments in communication, which is characterised by either a delay in development or total absence of spoken language, difficulties initiating and sustaining conversations, repetitive or peculiar language, or lack of spontaneous make believe or imitative play appropriate to the developmental level of the individual (American Psychiatric Association, 2000). Furthermore, a diagnosis of AD requires the individual to show a delay in social interaction, language, or imaginative play prior to the age of 3, whereas AS requires the absence of delay in language development, cognitive development, self-help skills, non-social adaptive behaviour, and environmental curiosity. Furthermore, for a diagnosis of AD, the presentation of impairments must not be better described by a diagnosis of Rett's Disorder or Childhood Disintegrative Disorder, and for a diagnosis of AS, the presentation of impairments must not be better described by a diagnosis of another ASD or schizophrenia. A diagnosis of PDD-NOS is issued when an individual has a pervasive developmental disorder but does not adequately fit the criteria for one of the above diagnoses.

2.2.1.1. Changes in the Diagnostic and Statistical Manual – 5. When this research began in 2011, the most up to date DSM was the DSM-IV-TR. Therefore, the diagnostic criteria used for this research was the criteria specified in the DSM-IV-TR. However in 2013, the DSM-V was released (American Psychiatric Association, 2013). As one of the changes in the DSM-V, Rett’s Disorder and Childhood Disintegrative Disorder have been removed, which does not impact the current research as no participants in any of the studies were diagnosed with either of these disorders. Furthermore, AS, AD, and PDD-NOS have all been merged into a single disorder of ASD. The diagnostic criteria for ASD are only slightly different to those of either AS, AD, or PDD-NOS. For an individual to be diagnosed with ASD they must still present with persistent deficits in social communication, social interaction, and restrictive, repetitive patterns of behaviours, interests, or activities (American Psychiatric Association, 2013). However the diagnostic criteria now recognises that individuals with ASD can develop strategies to mask these characteristics later in life and so the diagnostic criteria now states individuals can receive a diagnosis if they have a history of meeting the criteria. Individuals with ASD are also classified into three levels: level 1 – requiring support, level 2 – requiring substantial support, and level 3 – requiring very substantial support. All individuals with a diagnosis of AS, AD, and PDD-NOS under the DSM-IV-TR are automatically classified with a diagnosis of ASD under the DSM-V (American Psychiatric Association, 2013).

2.2.2. Social Interaction Deficits

Individuals with a diagnosis of ASD typically display several social impairments, including impaired non-verbal communication skills, misunderstanding or disregard of social cues, and limited ability to initiate speech to start and sustain conversation or to request information (Koning & Magill-Evans, 2001a; Myles &

Simpson, 2002; VanMeter, Fein, Morris, Waterhouse, & Allen, 1997; Volkmar, Carter, Sparrow, & Cicchetti, 1993). For example, Koning and Maggil-Evans (2001a) tested 21 adolescents with AS and 21 typical adolescents using the Social Skills Rating System (Gresham & Elliot, 1990), which measures empathy, self-control, cooperation, and assertiveness, and the Social Competence Scale of the Child Behaviour Checklist (Achenbach, 1991), which measures quantity and quality of peer friendships. These scales revealed that the adolescents with AS displayed significantly poorer assertion, cooperation, and self-control skills, and reported having significantly fewer friends compared to the typical adolescents. Furthermore, Koning and Maggil-Evans (2001a) also illustrated how individuals with AS show poor social-perception by testing their sample of adolescents with AS on the Child and Adolescent Social Perception Measure (Koning & Maggil-Evans, 2001b). This measure required the participants to watch videos of individuals having a conversation, however the conversation is muted to the participant. The participants were then required to determine the emotions of the individuals in the video from non-verbal cues. Not only did the participants with AS show greater difficulty identifying the emotions of the individuals in the video compared to typical participants, but they also found difficulty discovering cues to take reference from to complete the task (e.g., hand gestures).

2.2.3. Restrictive Repetitive and Stereotyped Behaviours and Interests

Individuals with ASD also display non-social atypical behaviours. These behaviours can include whole body rocking and flapping of the hands, among other motor mannerisms that typically occur when the individual is excited or anxious (American Psychiatric Association, 2000; Attwood, 2007). Furthermore, individuals with ASD tend to create their own non-functional routines, to which they adhere

strictly (Attwood, 2007). It is believed these routines help form predictability throughout the lives of individuals with ASD and therefore alleviate anxiety, but can cause severe distress to individuals with ASD if they are interrupted (Attwood, 2007). Additionally, individuals with ASD, especially the high-functioning individuals (AS and HFA), tend to hold special interests; as high as 82% of individuals with ASD hold special interests (Hippler & Klicpera, 2003). These special interests tend to be elaborated on in great detail by those with ASD, regardless of the interest of the listener (Attwood, 1998; Wing, 1981).

2.2.4. Epidemiology

The prevalence of ASD varies between the different diagnoses. The DSM-IV-TR reports the prevalence of AD to be between 2 and 20 per 10,000 individuals (American Psychiatric Association, 2000). However recent studies have revealed a significant increase in reported cases of ASD. For example, Baird et al. (2006) reported a prevalence of 38.9 per 10,000 individuals diagnosed with AD in the United Kingdom. More recently, Fombonne (2009) reviewed 18 published studies investigating prevalence rates of AD since 2000 and found that prevalence rates ranged between 7.2 to 40.5 per 10,000 individuals between the studies, with an average of 20.6 per 10,000. Fombonne (2009) also reported the prevalence rate of PDD-NOS to be 37.1 per 10,000, and AS to be 6 per 10,000. In a further review of epidemiology studies, Fombonne and Tidmarsh (2003) reported the prevalence of AS to be between .3 and 48.4 per 10,000; a huge range, which the authors attributed to different methodologies between the studies reviewed. Overall, the prevalence of ASD has been reported to be 62.5 per 10,000 in Australia (MacDermott, Williams, Ridley, Glasson, & Wray, 2007), 116 per 10,000 in the United Kingdom (Baird et al., 2006), and approximately 1% of the population in Australia and the United Kingdom

(Baron-Cohen et al., 2009; Buckley, 2006). There are generally more males diagnosed with ASD with a ratio of about four males with ASD to one female with ASD (Fombonne, 2009; Wing, 1981).

There are many theories behind what causes ASD, however research is yet to reveal a definitive answer. Genetics seems to have a large role in the development of ASD, with twin studies revealing an estimated heritability ranging between 64% and 92% (Freitag, 2007; Ronald et al., 2006). Additionally, parents of children with ASD are more likely to present with traits of autism and other psychiatric disorders (Yirmiya & Shaked, 2005, Bishop et al., 2004). However environmental factors also seem to have an impact. Increased exposure to lead and mercury, inadequate vitamin D, and maternal metabolic conditions have been implicated as factors causing ASD (Karkowiak et al., 2012; Kočovská et al., 2014; Patrick & Ames, 2014; Yassa, 2014). While research is ongoing into the cause of ASD, it seems that autism may not have a single cause, and may arise from a complex interaction of both genetic and environmental triggers.

2.2.5. Comorbidities

A diagnosis of ASD can be comorbid with other diagnoses. For individuals with low-functioning ASD (e.g., AD), intellectual impairment is the most prominent comorbidity, with rates ranging between 26% and 76% of children with AD having comorbid Mental Retardation (Bryson, Clark, & Smith; 1988; Bryson, Bradley, Thompson, & Wainwright, 2008; Chakrabarti & Fombonne, 2001; Honda, Shimizu, Misumi, Niimi, & Ohashi, 1996). Additionally there is evidence that suggests ASD can be comorbid with Attention Deficit Hyperactive Disorder (ADHD) and Obsessive Compulsive Disorder (OCD; Ivarsson & Melin, 2008; Reiersen & Todd, 2008), despite the fact that the DSM-IV-TR states that a diagnosis of ADHD cannot be made

if there is a diagnosis of ASD (American Psychiatric Association, 2000). Ghaziuddin, Weidmer-Mikhail, and Ghaziuddin (1998) reported 29% of individuals with AS concurrently displayed symptoms for ADHD, and 3% displayed symptoms for a diagnosis of OCD.

For high-functioning individuals with ASD, the most common comorbidities are anxiety and mood disorders. Several studies have revealed significantly increased levels of anxiety in individuals with ASD (e.g., Bellini, 2004; MacNeil et al., 2009; Russell & Sofronoff, 2005; White et al., 2009). Reported rates of anxiety in individuals with ASD ranges from 14% to 84% (Bradley, Summers, Wood, & Bryson, 2004; de Bruin, Ferdninand, Meester, de Nijs, & Verheij, 2006; Gadow, Devincent, Pomeroy, & Azizian, 2005; Green, GilChrist, Burton, & Cox, 2000; Kim, Szatmari, Bryson, Streiner, & Wilson, 2000; Muris, Steerman, Merckelbach, Holdrinet, & Meesters, 1998; Strang et al., 2012). Similar to anxiety, several studies have revealed significantly greater levels of depression in individuals with ASD compared to typical children or adults (Berthoz & Hill, 2005). Additionally, prevalence rates of co-morbid depression with ASD range between 17% and 44% (Ghaziuddin et al., 1998; Green et al., 2000; Kim et al., 2000; Ming, Brimacombe, Chaaban, Zimmer-Bier, Wagner, 2008; Strang et al., 2012), suggesting there may be issues around mood regulation.

2.2.6. Theory of Mind

Interestingly, many symptoms of ASD, such as impairments in social interaction and reciprocity can be explained by a difficulty of understanding other people's mental states. This explanation has been dubbed the Theory of Mind (ToM) hypothesis. The premise that individuals with ASD exhibit ToM difficulties was suggested following a study by Baron-Cohen, Leslie, and Frith (1985) who tested 20 children with AD, 14 children with Down syndrome, and 27 typical children on a

first-order false belief task. A first-order false belief task requires the participant to infer a belief for a character in a story (typically about the location of an object), and the character's belief should be different from fact. Baron-Cohen et al. (1985) used the Sally-Anne task, which tells the story of Sally who places her marble into a basket and leaves the scene. Anne then takes the marble out of the basket and places it into a box. Sally then returns, and the participant is asked where will Sally look for the marble. If a participant is able to infer the mental states of others, they should be able to answer that Sally will look in the basket for the marble because that is where she placed it before she left the scene. If they are not able to infer the mental states of others, then they will typically answer that Sally will look in the box, because that is where the marble actually is. While 85% and 86% of the children with Down syndrome and typical children respectively passed the task, only 20% of the children with AD passed the Sally-Anne task. These results suggested that some children with autism have difficulties with ToM. Further evidence to support the suggestion that children with AD have difficulties with first-order ToM tasks has been found through replication (e.g., Perner, Frith, Leslie, & Leekam, 1989; Ozonoff, Rogers, & Pennington, 1991b; Happé, 1995), however it has been noted that ToM difficulties may not be universal to all individuals with ASD (Happé, 1994).

In the studies cited above, there were some participants with autism who passed the first-order ToM task, suggesting they did not have ToM difficulties. However, when tested on second-order false belief tasks, the numbers who passed drop significantly. Second-order ToM tasks require the participant to infer a belief that one character in a story holds about another character in the story. For example, Baron-Cohen (1989) tested 10 children with AD who had passed a first-order false belief task, and 10 children with Down syndrome and typical children. The children

were told a story about a man and a woman in a park, and the man wants to buy ice-cream from an ice-cream van in the park. The man has no money and so the ice-cream vendor tells them both he will be there all day. Both the man and the woman return to their homes. The man gets money and is about to leave his house when he sees the ice-cream truck driver driving past. The ice-cream vendor tells the man he is going to the church to sell ice-cream, and so the man follows. The woman then tries to find the man at his house but is told by his mother he has gone to buy ice-cream. The child is then asked where the woman thinks the man has gone to buy ice-cream. If the child says the park, then they pass the test, if they say the church, then they fail the test. Baron-Cohen (1989) revealed that all 10 children with AD failed the task, compared to 40% and 10% of the children with Down syndrome and typical children respectively, suggesting that children with AD are unable to attribute the mental states of others at an advanced level.

However, findings differ for individuals with higher functioning ASD.

Ozonoff et al. (1991b) tested 13 participants with HFA, 10 participants with AS, and 20 typical participants, all aged between 8 and 20. The participants underwent first-order and second-order ToM tasks, and the results revealed that the participants with HFA performed significantly worse than typical participants, while the participants with AS performed similarly to the typical participants. The success of the participants with AS on ToM tasks has been replicated by Bowler (1992). However several studies using more advanced ToM tasks (such as the strange stories test and the Faux-pas test) have revealed participants with AS to perform worse than typical participants (Beaumont & Sofronoff, 2008; Kaland, Callesen, Møller-Nielsen, Lykke, & Smith, 2008; Spek, Scholte, Van Berckelaer-Onnes, 2010). Overall, there is evidence to suggest that ToM deficits are not universal to individuals with ASD.

While group means differ, there is overlap in performance between individuals with ASD and typical individuals. Furthermore, ToM deficits alone do not explain many of the symptoms with which those with ASD present (e.g., repetitive behaviours, restricted interests, preoccupation with parts of objects; Frith & Happé, 1994).

2.2.7. Weak Central Coherence

A second theory originated from Frith (1989) who discussed the tendency for typical individuals to combine together various pieces of information in context to form an overall picture or meaning. Weak central coherence theory proposes that individuals with ASD do not show this tendency and have a bias to perceive stimuli as its individual components. This theory is best at explaining the perceptual and visuo-spatial differences evident for individuals with ASD, and the tendency for individuals with ASD to be preoccupied with parts of objects (Pellicano, Maybery, Durkin, & Maley, 2006). Shah and Frith (1983) tested 20 children with AD, 20 children with mild Mental Retardation, and 20 typical children, on an embedded figures task. In this task, the children were presented with a picture (e.g., a pram) and were instructed to place a cut out shape (e.g., a triangle) on the picture where a triangle was hidden. Shah and Frith (1983) found that the children with AD performed better at finding the embedded shape within the picture compared to the other groups of children, suggesting the children with autism had a decreased bias to view the picture as a whole, but rather saw it as its separate components, of which one component was the triangle in the case of the pram picture.

Shah and Frith (1993) then tested 20 children with AD, 12 children with mild Mental Retardation, and 33 typical children on a block design task. Children were asked to reconstruct a pattern presented to them with four blocks. Among the conditions, one condition had the picture the children were to reconstruct presented as

a whole picture and another condition had the picture already segmented into its components. The results illustrated that children with AD performed better than typical children on this task when they were reconstructing the picture presented as a whole. However, when the picture was pre-segmented, the typical children performed similarly to the children with AD. This was suggestive of children with AD perceiving the picture as segmented components while it was presented as a whole picture.

However similarly to ToM, several studies suggest that weak central coherence is not universal across all individuals with ASD. Norbury (2005) tested 20 pre-adolescents and adolescents with ASD, 29 with ASD and language impairment, 21 with language impairment, and 28 typical preadolescents and adolescents. The participants each listened to a recorded sentence and then were presented with a picture, and were to answer whether the picture contextually fitted with the sentence. The picture would be associated with the final word of the sentence, but not necessarily with the entire sentence. For example, the recorded sentence may say “Bill stole from the bank” and the picture could either show a picture of money (relevant) or a river (irrelevant). Furthermore, the recorded sentence may say “Bill fished from the bank” and again the picture could either show a picture of money (irrelevant) or a river (relevant). Following analysis it was revealed that the participants with language impairment alone, and the participants with ASD and language impairment both performed significantly worse than the participants with ASD without language impairment and the typical children. This suggests that the participants with ASD without language impairment were able to compare the picture to the entire sentence (were able to see “the bigger picture”) just as well as the typical participants.

2.2.8. Executive Dysfunction

The proposition that ASD symptoms are the product of executive dysfunction arose from studies such as Rumsey (1985) who revealed that adults with AD performed worse than matched controls on an executive task; the Wisconsin Card Sorting Test. This test requires participants to match a series of cards with one of four decks in front of them, all varying in colour, shape of symbols, and number of symbols on the cards. An implicit rule is set on how to categorise the cards (either by colour, shape, or number) and the experimenter provides feedback to the participant if they place a card into the incorrect deck according to this rule. After 10 correct placements, the rule is changed and the participant is now given negative feedback if they continue to follow the previous implicit rule. It is a test of set maintenance skills, cognitive flexibility, and inhibition. It has been used as a tool for identifying individuals with frontal lobe damage (Robinson, Heaton, Lehman, & Stilson, 1980). Evidence for executive functioning difficulties was also revealed by Pellicano et al. (2006), who tested 40 children with ASD and 40 typical children on several executive functioning tasks, including the Tower of London (which is similar to the Tower of Hanoi) and a Set-shifting task (similar to the Wisconsin Card Sorting test). They revealed that the children with ASD performed significantly worse than the typical children on both of these executive functioning tasks. The executive dysfunction in ASD has been described to best explain the restrictive and repetitive patterns of behaviours and interests that individuals with ASD present with (Pellicano et al., 2006).

Again, similarly to ToM and weak central coherence theory, not all individuals with ASD fit this presentation of executive dysfunction. Ozonoff et al. (1991a) reported that 96% of their participants with ASD performed worse than the

mean of the typical participants. Though this is a considerable proportion, it also demonstrates that there were 4% of individuals with ASD that met or exceeded the mean of the typical participants, and that there would still be a fair amount of overlap once the percentage of typical participants who scored less than the mean (assuming it is a normal distribution should theoretically be about 50%) was taken into account. Furthermore, Pellicano et al. (2006) reported that only 48% and 55% of children with ASD scored more than one standard deviation below the mean of the typical children on the Tower of London task and the set-shifting task respectively.

2.2.9. No Universal Theory

It has been recognised in the literature that the presence and severity of the symptoms of individuals with ASD are not universal and are quite heterogeneous (e.g., Bachevalier & Loveland, 2006; Happé & Ronald, 2008; Wass, 2011). An individual with ASD may pass a ToM task, and fail a central coherence task, or vice versa, or fail both, or fail neither. Wass (2011) stated that it was regrettable that studies have a tendency to report and compare group means, and ignore individual differences within the ASD samples, which potentially results in a loss of vital information on why there is heterogeneity. Fortunately, several studies have reported frequencies (Baron-Cohen et al., 1985; Baron-Cohen, 1989; Ozonoff et al., 1991a; Pellicano et al., 2006), illustrating that though there are group differences formed by the individuals with ASD who perform poorly on the tasks in question (whether they be ToM, central coherence, or executive function tasks), there are still individuals within that group that do just as well as typical participants, suggesting that the theory corresponding to the task they passed may not explain their characteristics.

Another interesting note is that correlations between measures of these three theories have been mixed. While Ozonoff et al. (1991a) reported to having tested

participants who passed ToM tasks, but performed poorly on executive functioning tasks, they also reported that executive functioning scores were correlated with performance on ToM tasks in children with ASD, but not in typical children. However, recent evidence suggests that ToM, central coherence, and executive functioning are independent and dissociable. Pellicano et al. (2006) reported that after controlling for age and ability (verbal and non-verbal) of their ASD participants, there were no significant correlations between performances on ToM tasks and central coherence tasks (e.g., embedded figures task, pattern construction task). Interestingly, before controlling for age and ability, there were significant positive correlations between several of the central coherence tasks and the ToM tasks. This means that before controlling for age and ability, the children with ASD who had weak central coherence actually performed better on the ToM tasks. Similarly, Pellicano et al. (2006) also revealed that after controlling for age and ability, there was only a correlation between one task measuring weak central coherence (Developmental Test of Visual-Motor Integration) and several executive functioning tasks. Generally, participants who did better on this central coherence task also performed better on the executive functioning tasks.

In addition to these correlation reports, several studies have investigated specific factors that can potentially explain the variance in characteristics. Best, Moffat, Power, Owens, and Johnstone (2008) tested 60 participants on first- and second-order false belief tasks, the block design test, an ambiguous figures test (a measure of cognitive flexibility, an aspect of executive functioning), and the Social Communication Questionnaire (a screen measure for ASD). Following analysis, it was revealed that the ToM tasks (false belief), the central coherence task (block design), and the executive functioning task (ambiguous figures) each significantly

contributed to a model for discriminating individuals whose scores indicated ASD on the Social Communication Questionnaire from individuals whose scores did not indicate ASD. This suggests that all three factors are needed to adequately account for the characteristics of individuals with ASD.

Additionally, a number of factor analytic studies have revealed that the presentation of ASD related behaviours can be explained by several factors. Mandy and Skuse (2008) reviewed seven factor analysis studies, and of those studies, six revealed that multiple factors were needed to adequately capture the variance of participant characteristics. Again, this lends support to the hypothesis that some behavioural characteristics are better explained by different theories, and that individuals with ASD may fit best the picture proposed by a particular theory based on their individual differences and their presentation of behaviours. Given this, it would be important to investigate what theory or factor for ASD best explains difficulties with emotion regulation. But first the prevalence of emotion regulation difficulties in ASD needs to be investigated.

2.3. Emotion Regulation

Due to the novelty and encompassing nature of emotion regulation as a construct, researchers have highlighted the need for papers to clearly define emotion regulation (Bridges, Denham, & Ganiban, 2004; Cole, Martin, & Dennis, 2004). Eisenberg and Spinrad (2004, p. 338) defined emotion regulation as “the process of initiating, avoiding, inhibiting, maintaining, or modulating the occurrence, form, intensity, or duration of internal feeling states, emotion-related physiological, attentional processes, motivational states, and/or the behavioral concomitants of emotion in the service of accomplishing affect-related biological or social adaptation or achieving individual goals.” This definition illustrates the complexity of emotion regulation as a construct. However Bridges et al., (2004) discussed how emotion regulation should be associated with a

subsequent decrease in the experience of the emotion. Some emotion regulation strategies may be ineffective in achieving this, and may in fact be counter-productive. A common example of an ineffective emotion regulation strategy is expressive suppression (Goldin, McRae, Ramel, & Gross, 2008; Roberts, Levenson, & Gross, 2008). Expressive suppression involves inhibiting the behavioural expression of an emotion (e.g., masking one's emotions). However, it often leads to no change in the experience of the emotion, and can even exacerbate the emotion (Roberts et al., 2008). Suppression is considered response-focused as it occurs late in the emotional response process, once the emotion is already being experienced (Goldin et al., 2008).

The spontaneous use of dysfunctional emotion regulation strategies, such as suppression, has been associated with mood disorders such as depression and anxiety (Campbell-Sills et al., 2006; Dennis, 2007; Ehring, Tuschen-Caffier, Schnülle, Fischer, & Gross, 2011; Joormann & Gotlib, 2010). Campbell-Sills et al. (2006) exposed a combined sample of individuals with anxiety disorders, and individuals with mood disorders, to a distressing video clip. The participants then completed a Responses to Emotions Questionnaire that measured the extent to which participants used certain emotion regulation strategies. Participants also completed the Meta Evaluation Scales (Mayer & Stevens, 1994), which include an acceptability subscale, where participants rate the acceptability of the emotions they are presently feeling. The participants with anxiety and mood disorders reported using greater levels of suppression while watching the video compared with non-depressed and non-anxious participants who had also watched the video and completed the questionnaires. Moreover, the participants with anxiety and mood disorders reported significantly lower ratings of acceptability of their emotions. Interestingly, Campbell-Sills et al.

(2006) also revealed that the relationship between negative emotion and use of suppression was significantly mediated by perceived acceptability of their mood.

Ehring et al. (2011) also exposed individuals who had experienced at least one major depressive episode in their past, and controls, to videos intended to induce a sad mood. The participants completed the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) that measured an individual's typical use of emotion regulation strategies, a second strategies questionnaire that assessed what emotion regulation strategies the participant used while watching the videos, and the Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004) that was used to assess the participants' ratings of acceptance of their own emotions. The results revealed that the recovered-depressed participants did not differ significantly from controls in their typical use of emotion-regulation strategies. However, the recovered-depressed participants reported that they spontaneously suppressed their emotions significantly more than controls while watching the sad mood inducing videos. Furthermore, the recovered-depressed participants reported significantly lower acceptance of their emotions.

While strategies such as expressive suppression may achieve a short-term goal, they may fail to regulate the experience of a distressing emotion, and may lead to unintended negative consequences for the individual. For this thesis, such strategies are considered dysfunctional. Functional strategies however result in a reduced experience of the emotion, and tend not to be coupled with unintended negative consequences. A frequently researched functional strategy is cognitive reappraisal, which involves reinterpreting or reformulating the meaning of a situation, event, or stimuli to reduce the experience of an emotion (Banks et al., 2007; Goldin et al., 2008). Cognitive reappraisal involves reinterpreting or reformulating the meaning of a

situation or stimuli in order to reduce negative emotions (Banks et al., 2007; Goldin et al., 2008). It is an antecedent-focused strategy, meaning that it has an early influence in the emotional response process (Goldin et al., 2008). It typically results in reduced expression and experience of negative emotion, including reduced physiological responses (Goldin et al., 2008; Gross, 1998). Therefore, cognitive reappraisal is considered a functional strategy because it tends to reduce the experience of the emotion.

Not only does emotion regulation influence people's emotional states, but it also influences their social decision making. Van't Wout, Chang, and Sanfey (2010) investigated the effects of cognitive reappraisal and suppression in social interactions involving economic consequences. Participants of this study were instructed to participate in an ultimatum game, which requires the division of \$10 between two people. One player must decide how much they keep, and how much the other player keeps. The second player then has a choice whether to accept or reject the proposed division of the \$10 made by the first player. If the second player rejects the proposal, neither player gets any money. In this study the participants unknowingly played with a computer, which systematically offered fair (e.g., split \$5 / \$5) and unfair offers (e.g., split \$2 / \$8). Participants always played the role of the second player initially and then eventually swapped to take the role of the first player. Before playing the game, participants were divided into three groups. One group was instructed to use cognitive reappraisal during the game, the second group was instructed to use suppression during the game, and the third group was not instructed to partake in any emotion regulation strategies. The results revealed that the participants who were instructed to use cognitive reappraisal while playing the game accepted significantly more unfair offers than controls and participants instructed to use suppression.

Furthermore, participants who were instructed to use cognitive reappraisal made significantly more fair offers to the computer when compared to controls and participants instructed to use suppression, even though the computer had made unfair offers. The authors suggested that after using reappraisal the participants did not allow negative events from the previous interaction to influence their behaviour in the following interactions.

These studies together illustrate that the use of functional emotion regulation strategies is not only beneficial in modulating personal emotional states, but can also be beneficial for functional social interactions. Modulating personal emotional states and social interactions are both tasks that individuals with ASD find difficult (Cederlund, Hagberg, & Gillberg, 2010; Glaser & Shaw, 2011; Konstantareas & Stewart, 2006).

2.4. Emotion Regulation Difficulties in Autism Spectrum Disorders

Several studies have investigated emotion regulation abilities of children with ASD. Konstantareas and Stewart (2006) exposed children with ASD and controls to a mildly frustrating situation, in this case giving the children a novel toy to play with and then taking it away abruptly after a few seconds, and observed their behaviour in response. Following the removal of the toy from the child, the children with ASD displayed less effective emotion regulation strategies compared to controls. Furthermore, the parents of the children were given the Children's Behavior Questionnaire (Goldsmith & Rothbart, 1991) to assess differences in temperament of the children. Parents of children with ASD rated their children's attention-shifting ability, and sooth-ability as significantly lower than parents of non-ASD children. These results illustrated some of the difficulties that children with ASD have with emotion regulation.

Similar results arise from parent and teacher reports. Glaser and Shaw (2011) compared emotion regulation skills between children with Autism, children with 22q13 deletion syndrome, and controls. The parents of the children completed the Temperament and Atypical Behavior Scale (Gomez & Baird, 2005), which assesses dysfunctional emotion and self-regulatory behaviours in children. The results revealed that after controlling for the mental age of the children, the parents of children with Autism reported their child to have significantly more emotion regulation difficulties than parents of both the children with 22q13 deletion syndrome and typical children. Similarly, Ashburner et al., (2010) revealed that teachers of students who had ASD perceived those students as having poorer emotion regulation skills than typical students, providing further evidence that children with ASD are reported to demonstrate emotion regulation difficulties.

However, research into emotion regulation difficulties in adolescents and young adults with ASD has been limited. Samson, Huber, and Gross (2012) were the first to investigate the use of reappraisal and suppression in an adult sample with AS. The authors asked 27 adults with AS and 27 typical adults to complete the ERQ (Gross & John, 2003). They found that the adults with AS reported using cognitive reappraisal significantly less than the typical adults, and used expressive suppression significantly more than the typical adults. This suggests that adults with AS were less likely to use functional emotion regulation strategies and more likely to use dysfunctional emotion regulation strategies. These studies, together with co-morbidity studies noted previously showing increased rates of anxiety and mood disorders in samples with ASD, suggest that adolescents with ASD likely do have emotion regulation difficulties (Bellini, 2004; Berthoz & Hill, 2005; Ghaziuddin et al., 1998). Nevertheless, for any sort of intervention to be proposed, the direct prevalence and

impact of emotion regulation difficulties for adolescents and young adults with ASD should be further investigated.

2.5. Theories Behind Emotion Regulation Difficulties in Autism Spectrum Disorders

There have been several explanations proposed in the literature as to why individuals with ASD have emotion regulation difficulties. A neuro-physiological explanation was proposed by Laurent and Rubin (2004) and Gomez and Baird (2005), who both hypothesised that sensory sensitivities during development might be the reason that individuals with ASD have difficulties with emotion regulation.

Greenspan (1996) proposed previously that children learn to regulate themselves through interaction with their external environments. As individuals with ASD have sensory hypersensitivities (Baranek et al., 2007) their interactions with their external environments are atypical, and therefore their development of functional emotion regulation skills may be diminished.

A developmental explanation for emotion regulation difficulties in ASD was suggested by Glaser and Shaw (2011). As Kopp (1989) stated that the development of language gives children the capacity to employ sophisticated emotion regulation strategies and vocalise their needs and emotions, Glaser and Shaw (2011) suggested that impairments in language proficiency and communication skills might have a negative impact on the development of emotion regulation strategies.

Research into the neurology of emotion regulation and autism further suggests emotion regulation difficulties in this population. In typical populations, functional magnetic resonance imaging (fMRI) studies have revealed activation in the limbic system and pre-frontal cortex (PFC) during emotion regulation tasks. Specifically, activation has been illustrated in the amygdala, dorsolateral-PFC, dorsomedial-PFC,

ventrolateral-PFC, orbitofrontal cortex, and the anterior cingulate cortex (Banks et al., 2007; Goldin et al., 2008; Modinos, Ormel, & Aleman, 2010). In contrast, anatomical abnormalities and reduced activation have been revealed in each of these brain regions in samples of participants with ASD (Ashwin, Baron-Cohen, Wheelwright, O’Riordan, & Bullmore, 2007; Chan et al., 2011; Groen, Teluij, Buitelaar, & Tendolkar, 2010; Hardan et al., 2006; Morgan et al., 2010; Wicker et al., 2008), suggesting the potential for the neural system of emotion regulation to be abnormal in individuals with ASD.

2.6. The Need to Further Investigate Emotion Regulation in Autism Spectrum Disorders

It is evident that adolescents with ASD may have significant difficulties with regulating their own emotions. Not only is there evidence to suggest that children and adults with ASD have emotion regulation difficulties (Ashburner et al., 2010; Glaser & Shaw, 2011; Konstantareas & Steward, 2006), but there is evidence to suggest increased depression and anxiety in adolescents with ASD (Bellini, 2004; Berthoz & Hill, 2005; Ghaziuddin et al., 1998), which are potential products of emotion regulation difficulties. Furthermore, neurological scans suggest abnormalities in areas of the brain associated with emotion regulation in individuals with ASD (Ashwin et al., 2007; Chan et al., 2011; Groen et al., 2010; Hardan et al., 2006; Morgan et al., 2010; Wicker et al., 2008). However, the problem still remains that to the author’s knowledge, no studies have investigated the prevalence or severity of emotion regulation difficulties specifically in adolescents with ASD, and the next step in resolving this potential issue would be to assess these. Focus groups that include adolescents and young adults with ASD, would be an appropriate initial step. These focus groups would ask participants about their issues with emotion regulation, if any,

in what context they have these issues, and how these issues present in their cognition and behaviour. It would be useful to include parents and teachers of adolescents with ASD in separate focus groups to obtain an external perspective of their emotion regulation difficulties. These focus groups would also provide valuable information on what strategies work, which could be utilised in an intervention.

Once the focus groups are complete, further information can be collected from a large online survey for adolescents and young adults with ASD. Prevalence rates of depression and anxiety could be estimated and predictors of depression and anxiety could be explored. Lastly, if the online survey reveals a high rate of depression and anxiety in adolescents and young adults with ASD, an intervention will be trialled.

CHAPTER THREE

Qualitative Investigations of Emotion Regulation in Adolescents and Young Adults with Autism Spectrum Disorders

3.1. Introduction

As discussed in Chapter two, while there is evidence to suggest emotion regulation difficulties exist for adolescents and young adults with ASD, there has been limited investigation of these issues. A qualitative approach might be beneficial as a preliminary investigation into emotion regulation difficulties. This could provide insight into what potentially triggers emotions that adolescents and young adults find difficult to regulate, how emotion regulation difficulties affect their lives, and what strategies they use to try to regulate their emotions. Qualitative methods are useful when the aims of a study are exploratory, and have been used in research on anxiety in children with ASD (Ozsivadjian, Knott, & Magiati, 2012), illustrating clinically useful information from the perspectives of the participants. The aim of the current study was to explore the potential triggers, emotion regulation strategies, consequences, and any additional issues brought up through focus groups and interviews with different groups involved in the emotion regulation of adolescents and young adults with ASD. These groups include parents of adolescents and young adults with ASD, psychologists who have adolescents and young adults with ASD as clients, teachers and teacher aides who work with students with ASD, and the adolescents and young adults themselves.

3.2. Methods

3.2.1. Participants

In total there were 33 participants included in the thematic analysis. Three parent focus groups were conducted with 11 parents. Data from two of the parents

were excluded from the analysis as their children with ASD were younger than the required age (13 years) and therefore were not representative of adolescents. The mean age of the children the parents represented was 15.43 years ($SD = 1.99$), ranged between 13 and 19, and all were male. Additionally 3 focus groups with teachers were conducted involving 13 teachers, teacher aides and special education teachers, who worked with adolescent students with ASD. A final focus group involving four psychologists who specialise in ASD was also conducted. Recruitment for these focus groups was achieved through advertisements placed in the University of Queensland newsletter and a support association's newsletter, as well as an email sent out to the mail-list of the support association.

Lastly, due to difficulty recruiting participants with ASD who were willing to participate in the group setting of a focus group, seven personal interviews were conducted with adolescent and young adult individuals with ASD. Of the seven participants, one was female. Five participants had a diagnosis of AS, one had a diagnosis of HFA, and one had a diagnosis of PDD-NOS. The mean age of the participants with ASD was 20.71 ($SD = 3.09$) with ages ranging between 14 and 23. Participants with ASD were also recruited via advertisements in newsletters as well as by word of mouth. Diagnoses of ASD for the interview participants and the children of the parents' focus groups were obtained during the screening process via interview. To be eligible, participants required a diagnosis of an ASD from a medical practitioner, paediatrician, psychiatrist, psychologist, or multi-disciplinary team to participate. No participants or parents reported intellectual disability, thus there were no exclusions from the study. Recruitment continued until it was evident that additional focus groups and interviews were no longer revealing novel information (i.e. until data saturation was achieved). Written informed consent was obtained from

all participants and ethical approval was obtained from the School of Psychology at the University of Queensland.

3.2.2. Procedure

Two of the parent focus groups were conducted in a private room at the University of Queensland, Brisbane, Australia. The third parent focus group was conducted in a high school attended by their children with ASD. The remaining focus groups were all held at locations of convenience to the participants (generally at their work place). The interviews with participants with ASD were either conducted in a place of convenience for them, over the phone, or via Skype. The interviewer used an interview guide to promote discussion (see Table 16, Appendix A, page 194) with questions reworded to reference the individual with ASD when required (e.g., your child, your student). All focus groups and interviews were audio-recorded, with participant consent, and then transcribed for analysis.

3.2.3. Data Analysis

The interviews were transcribed and the transcriptions were then reviewed for errors before being imported into NVivo 9 (QSR International Pty Ltd, 2010), a qualitative data analysis program that allows users to easily review transcripts, code text, and form themes. In this program the transcriptions were then reviewed for thematic analysis following the guide published by Braun and Clarke (2006), which describes six steps for conducting thematic analysis. The first step involved familiarising oneself with the data. Familiarity was achieved as the recordings were transcribed, read, and analysed by the interviewer (DS). The second step involved generating initial codes for the data. Semantic content perceived as important to the research questions were given initial codes. Step three involved searching for themes amongst the initial codes. Once all the transcriptions had been coded, they were

viewed from a broader perspective and collated into potentially meaningful themes. Potential themes and their coded content were reviewed once again in step four for appropriateness and coherence. At this stage, many potential themes that were similar were designated as subthemes under the umbrella of an overarching theme. During step five, each theme was reviewed again and named based on the content of that theme. The final step was to write up the analysis and conduct member checking. A draft of the results and discussion for this paper was sent to participants who opted to provide feedback. Upon review of the transcripts it was evident that the emerging themes were consistent across the groups. Therefore in the final analysis the data were pooled. Small differences between the groups are discussed in detail below.

3.3. Results and Discussion

In this study, parents, psychologists, teachers, adolescents and young adults with ASD were asked a series of questions about emotion regulation. The aim of this study was to investigate the extent to which emotion regulation was an issue during adolescence and young adulthood in individuals with ASD, and to obtain insight from different perspectives. From the thematic analysis of the transcripts, there is evidence to suggest that emotion regulation is an ongoing issue for adolescents and young adults with ASD, with participants reporting disturbances from feelings of depression, anxiety, anger, and loneliness. Furthermore, participants discussed the triggers of troublesome emotions, difficulties with emotional awareness, emotion regulation strategies, and the consequences of troublesome emotions. These themes, their subthemes, and example quotations can be seen across Tables 1 to 4.

3.3.1. Triggers of Troublesome Emotions

Participants in the focus groups and interviews all reported a variety of triggers that are typically associated with troublesome emotions. There were six

subthemes that emerged from the data. One of these themes was *social triggers*, where every group of participants described bullying and ostracism as major triggers of negative emotions, which typically happened while the individuals with ASD were at school. Both bullying and ostracism have previously been documented in children with ASD (Sofronoff, Dark, & Stone, 2011; Wainscot, Naylor, Sutcliffe, Tantam, & Williams, 2008). Participants also talked about general social triggers of anxiety, such as having to complete social tasks (e.g., a mock interview for a school assignment), or even engaging socially with others. As a condition characterised by social deficits, it is unsurprising that social situations for individuals with ASD would likely lead to emotions such as social anxiety (Bellini, 2004; Kuusikko et al., 2008). Major social events such as family gatherings and school events were still viewed by parents as triggers for emotional distress, and participants with ASD reported many miscellaneous social issues as triggers of their emotions (e.g., friendship issues, new social situations).

A second trigger subtheme that emerged from the data was *school or employment*. All groups spoke about how assessment tasks were extremely anxiety provoking for individuals with ASD. The behaviours of leaving assignments or tasks to the last minute and poor organisational skills were often referred to as causes of stressors in the school and work environment. This is supported by the executive dysfunction model of ASD, in which some of symptoms of ASD are explained by a reduced capacity for executive functioning (Pellicano et al., 2006). Reduced planning, organisational skills, and impulse control could have a negative impact on academic performance (Mackinlay, Charman, & Karmiloff-Smith, 2006; Zingerevich, & LaVesser, 2009), which in turn could lead to emotional dysregulation. Bullying that occurred in both school and the workplace was also mentioned as an emotional trigger

of anxiety, depression and anger. All groups also talked about clashes between teachers and students with ASD as another trigger, and the misperception of the student with ASD “just being naughty” by both teachers and other parents as an underlying factor in an unsupportive environment.

Additionally, a third major trigger subtheme emerged, which reflected *sensory triggers*, where participants discussed negative emotional responses to loud noises, tactile sensations, light and smells. This subtheme was related to both *social* and *school or employment* subthemes as many of the sensory triggers occurred in the school or workplace environment, or were due to the proximity of a large number of people (e.g., a noisy classroom). It was also related to a fourth subtheme of triggers, which was *biological*. Some parents talked about how their adolescents with ASD were very picky eaters due to sensory issues. Hunger was seen as a trigger of negative emotions, as was lack of sleep. Research is mixed as to whether children with high food refusal also show reduced nutrition (Bandini et al., 2010; Cermak, Curtin, & Bandini, 2010; Hare, Jones, & Evershed, 2006). In cases where nutrition and hunger is a concern, it is plausible that these may lead to troublesome emotions or at least be a catalyst for another trigger. Furthermore, sleep disturbances in children with ASD have been documented in previous studies (e.g., Richdale, 1999) and while questionnaire reports of sleep disturbances in adolescents and young adults with ASD give the impression of improvement from childhood, physiological measures indicate sleep disturbances are still an issue for adolescents and young adults with ASD (Godbout, Bergeron, Limoges, Stip, & Mottron, 2000; Øyane, & Bjorvatn, 2005).

The last two subthemes of emotional triggers were *change* and *fear of failure*. Big changes, such as moving houses and divorce of parents, were seen as triggers of negative emotions as they would likely be for typical children. In addition, however,

there were changes from routine, such as holidays, school camps, and again school sporting events, and seemingly minute deviations from routine such as a change in their class timetable. Interestingly, changes in routine have been shown to be associated with increased evening cortisol levels in children with autism (Corbett, Schupp, Levine, & Mendoza, 2009), suggesting changes in routine to cause significant distress. The participants with ASD themselves frequently mentioned a trigger for their anxiety being a fear of failure, or a fear of not reaching their own expectations or the expectations of others. These included fear of not achieving good grades at school, of not having enough money to achieve what they would like, of disappointing a bank or organisation, and of not being prepared for a situation. Research with children with ASD illustrates greater fears of situational factors rather than fear of failures (Evans, Canavera, Kleinpeter, Maccubin, & Taga, 2005; Matson, & Love, 1990). However as participants with ASD develop into their adolescence and young adulthood, their hierarchy of fears may change.

Table 1

The overarching theme of Triggers of Emotions and its subthemes

Theme	Subtheme	Example Quotes
Triggers of Emotions	Social Triggers	<i>...people did keep an eye out for me, yeah; I was the thing to be bullied... (Liz, 21 year old female with ASD)</i>
	School or Employment	<i>Patrick can become worried about homework, exams... he'll be quite stressed...you can't reason with him, so he has this overriding anxiety. (Hayley, mother of a 19 year old boy with ASD)</i>
	Sensory Triggers	<i>...cannot go to swimming carnivals, cannot go to sporting carnivals... behaviour will deteriorate for 10 weeks... because it's just he's had an overload. (David, father of a 16 year old boy with ASD)</i>
	Biological	<i>And I found the underweight is really detrimental to mood... they are not getting enough nutrition, or there's sensory issues, they can't chew, eat comfortably... we're not going to get very far on an anxiety management programme until the weight comes up and he's stabilised. (Emma, clinical psychologist specialising in ASD)</i>
	Change	<i>I told him he was going to be taken out of the Wednesday group to go into the Friday group and the chairs started flying everywhere... (Ray, special education teacher at a state high school)</i>
	Fear of failure	<i>A lot of the times I get scared that I'm going to fail... say it's a job that I'm going for...I'll automatically think that I've failed... my anxiety builds up from there. (Corey, 21 year old male with ASD)</i>

3.3.2. Difficulties of Emotional Awareness

Following emotional triggers, participants in the focus groups and interviews often talked about the difficulties with emotional awareness. Again several subthemes emerged from the data. The first was *alexithymia*, which is the difficulty in recognising and labelling emotions. Alexithymia was mainly discussed by parents, teachers and psychologists, describing the difficulties adolescents and young adults with ASD face when it comes to articulating their emotions. Alexithymia has been identified in both children and adults with ASD in previous research (Berthoz, & Hill, 2005; Rieffe, Terwogt, & Kotronopoulou, 2007; Silani et al., 2007). As one of the first steps in modifying an emotion is identifying the emotion, this finding suggests that an intervention targeting emotion regulation in adolescents and young adults with ASD should also teach skills to identify one's emotions. Participants also discussed the *need for external notification*, where they would rely on external rather than internal cues or explicit external notification in order to be able to appropriately label what they were feeling. External cues included other people's behaviours, feedback from others, and the monitoring of their own involuntary behaviour (such as observing that they are being aggressive or their hands are shaking). The most frequently given example of external notification was from a counsellor or friend verbally informing them what they may be feeling, and helping them explicitly learn each emotion. This may be a potential tool for any intervention intending to improve emotion regulation skills in adolescents and young adults with ASD.

A third issue addressed in the focus groups and interviews was *misidentification of emotions*. Participants often discussed how when the adolescents and young adults with ASD attempt to recognise and label their emotions, they often label them incorrectly. Another issue that all groups of participants discussed was the existence of an *emotional awareness threshold*. Participants often described how the adolescents and young adults with ASD were

not aware of their emotions at all until the emotion became quite extreme. Participants frequently stated that their emotions are “either on or off”. Parents and teachers discussed how a negative emotional reaction from an adolescent or young adult with ASD might be caused from something that happened much earlier in the day, which has been building until it reaches the awareness threshold. Adolescents and young adults confirmed that they are often not aware of the triggers of their emotions.

Table 2

The overarching theme of Difficulties of Emotional Awareness and its subthemes

Theme	Subtheme	Example Quotes
Difficulties of Emotional Awareness	Alexithymia	<i>He doesn't know what his feelings are, he cannot articulate how he feels... if there's something troubling him and you ask him he will say nothing because he doesn't articulate if there is something wrong... (Kate, mother of a 16 year old male with ASD)</i>
	Need for External Notification	<i>So if this young lady is behaving in a certain way and people run away, and she's angry and people do this, then she'll label it. (Grace, head of special education services at a state high school)</i>
	Misidentification	<i>...there probably are some that attempt to read those cues themselves...but then some of it is not quite accurate. (Charles, special education teacher at a state high school)</i>
	Emotional Awareness Threshold	<i>...he doesn't identify what emotions he's having, unless it's in the extreme... but even then that's a limited understanding. (Anthony, father of a 14 year old male with ASD)</i>

3.3.3. Emotion Regulation Strategies

Once awareness of the emotions had been established, participants talked about how adolescents and young adults with ASD tried to regulate their troublesome emotions. A variety of emotion regulation strategies were discussed, which formed seven subthemes: *cognitive, pre-emptive, behavioural, external support, drugs, suppression, and suicide and self harm.*

In the *cognitive* category, participants with ASD described how they would try to rationalise their emotions to deal with them, think of something other than what was causing their emotion, and enter their own fantasy world. Moreover, participants discussed *pre-emptive* emotion regulation strategies, which aimed to avoid the known triggers of negative emotions. These attempts to avoid triggers included using organisational skills such as keeping diaries and writing lists and schedules, especially with school assessment or work. In a similar manner, planning ahead for potential triggers was discussed, such as school or social events (camps, holidays, driving tests), where parents particularly talked about providing mental and emotional preparation for events, and having a plan for when an emotional meltdown occurs. The most prominent subtheme across all groups, however, was *behavioural* emotion regulation strategies, with the most discussed technique being avoidance and isolation.

Another common behavioural strategy was physical activity. Many participants with ASD and their parents reported that physical exercise and going for walks really helped them cope with troublesome emotions. Relaxation was another method used to cope with emotions, such as meditating or listening to music. Finally, pursuing interests was a strategy that emerged from the data. These interests included train spotting, reading specific books, watching movies, and playing computer or video games, though it was reported from the participants with ASD that books and playing computer or video games can assist them enter

their fantasy world. Participants with ASD, parents, and teachers also discussed the role of the online community as social support for adolescents and young adults with ASD, where participants sought social support via gaming platforms such as Xbox Live, World of Warcraft, and from general online social communities.

External support was another subtheme of emotion regulation strategies, where adolescents and young adults with ASD sought social support in order to cope with their emotions. In addition to the online communities, participants sought social support from parents, teachers, and friends. This social support typically consisted of just talking over the emotional issue, or general social interaction in order to fend off feelings of depression. Another source of external support was some form of professional help, which included seeing a psychiatrist, a psychologist, or a counsellor.

Many participants reported that adolescents and young adults with ASD also tend to use dysfunctional emotion regulation strategies, such as *suppression* and *suicide and self-harm*. Participants often discussed the use of suppression to cope with their emotions. They discussed how while they still feel the emotion, they try to avoid all behavioural output of that emotion, in the hope of hiding or masking it from others. This was often displayed through withdrawal, but frequently led to outbursts at a later point in time once the trigger of the emotion had long past. Self-harm was also described as an emotion regulation strategy by some participants. Methods discussed were cutting, severe skin picking, and suicidal ideation. Every participant with ASD reported that they had experienced suicidal thoughts.

Lastly, the use of *drugs* (legal or otherwise) by participants with ASD was discussed. Of the 14 participants with ASD represented in this study (either by their parents or representing themselves), 6 reported taking medication in order to help regulate their emotions, most commonly this was antidepressants. Three participants claimed to have used marijuana to help them with their emotions. One said it helped him with sensory triggers,

while the other two said it helped them with anxiety. Interestingly, Janusis and Weyandt (2010), and Murphy (2003) suggested adults with ASD are actually less likely to use illicit substances compared to non-ASD samples. This is consistent with the feedback from parents and teachers in the current study who reported that many of their children/students avoided illicit substances and were less likely to engage in using such substances. While it is possible that teachers and parents may not be aware of their children's or student's use of illicit substances, it is also possible that participant recruitment may have been biased towards individuals with emotion regulation difficulties who may have felt a greater need to use such substances compared to the average population of adolescents and young adults with ASD.

Table 3

The overarching theme of Emotion Regulation Strategies and its subthemes

Theme	Subtheme	Example Quotes
Emotion Regulation Strategies	Cognitive	<i>...if it's something negative about me personally I just think about positive things about myself.</i> (Fred, 21 year old male with ASD)
	Pre-emptive	<i>... it's a matter of looking ahead, seeing what may cause problems and trying to stop it before it happens.</i> (Liz, 21 female with ASD)
	Behavioural	<i>...if I'm having a bad day, I'll go home. If I'm at a social occasion that I suddenly can't bear to be around anymore, I'll leave. I'll retreat is sort of the general strategy.</i> (Max, 23 year old male with ASD)
	External Support	<i>... I generally go online... the thing to do is talk to someone because if you just sit there then nothing much is going to change, it's getting yourself online to talk to people...</i> (Liz, 21 year old female with ASD)
	Drugs	<i>I've found it's the only thing that... I can escape and just sort my own problems out with... I've never had a medication that's done that before you know?</i> (Corey, 21 year old male with ASD)
	Suppression	<i>They suppress it there's no doubt, and they're aware of it, but they do not know how to deal with that anger that builds up so they suppress it but it's really just a volcano waiting to happen.</i> (Edward, special education teacher at a state high school)
	Suicide and Self-harm	<i>There is a risk of suicide in this population... so you can get those as young adults "This is it, I'm an adult now, it's not worked out, it'll never work out, can't stand the pain, I'm out of here".</i> (Adrian, clinical psychologist specialising in ASD)

3.3.4. Consequences of Emotions

The final theme that emerged from the data was *consequences of emotions*, where participants discussed how a difficulty in regulating emotions had a negative effect on their lives. Four subthemes emerged from the data: *academic consequences*, *social consequences*, *consequences for others*, and *worry of long-term consequences*. Participants frequently discussed how their difficulty to regulate emotions had a negative impact on their studies in school and university. Typically this was either due to procrastination as a result of severe anxiety, or lack of motivation as a result of depression. Additionally, teachers explained that if a student with ASD had an emotional episode at school, the remainder of the school day for that student is generally wasted. Academic consequences have been illustrated in previous literature; however it is typically attributed to executive functioning difficulties and not to emotion regulation difficulties (Zingerevich, & LaVesser, 2009).

Participants also discussed the *social consequences* of the emotion regulation difficulties. Consequences included a reduced capacity to form strong relationships with others due to avoidance and isolation emotion regulation strategies, from hiding or suppressing their emotions from others, and from others generally not liking their emotional behaviours. Evidence of these consequences have been found in studies by Koning and Magill-Evans (2001a) and Wainscot et al. (2008), which both suggested that adolescents with ASD had significantly fewer friends compared to typical adolescents. However, the current study sheds light on an alternative potential cause, as typically social consequences have been attributed to social skills difficulties and not emotion regulation difficulties. Participants also discussed how emotional behaviours had a negative effect on the people around them. Verbal harassment and physical altercations were the most common topics of discussion from the focus groups and interviews in regards to consequences for others.

The last subtheme that emerged from the analysis of the transcripts was

worry about long term consequences. All groups of participants expressed these worries. Parents expressed concerns for their children's employment options due to their inability to regulate their emotions, and their ability to live independently. These worries are legitimate since the rates of employment for adults with ASD are low, ranging between 2% to 35% (Barnard et al., 2001; Bellstedt, Gillberg, & Gillberg, 2005; Benz, Lindstrom, & Yovanoff, 2000; Engstrom, Ekstrom, & Emilsson, 2003). Teachers and psychologists also discussed concerns about employment, but focused more on the impact the adolescents' emotions will have on their ability to form and maintain supportive relationships as adults. The potential for suicide was also an issue addressed in the psychologist focus group, and was identified as a fear for a participant with ASD. This is also a very legitimate concern since the prevalence of suicidal behaviour among adolescents and young adults with ASD ranges from 7% to 42% (Hannon & Taylor, 2013) as opposed to 4% to 8% in typical adolescents and young adults (Cash & Bridge, 2009; Gmitrowicz, Szymczak, Kotlieka-Anezak, & Rabe-Jablonska, 2003; Resch, Peter, & Romuald, 2008). Participants with ASD were also concerned about the effects of their emotions on their employment, and their ability to form and hold relationships, and were also concerned about the long-term effects their emotions have on their health.

Table 4

The overarching theme of Consequences of Emotions and its subthemes

Theme	Subtheme	Example Quotes
Consequences of Emotions	Academic Consequences	<i>...being depressed or anxious... would stop me from doing something that was necessary like doing an assignment... and I wouldn't do it until the last minute and then it just wouldn't nearly be as good as it could have been. (Max, 23 year old male with ASD)</i>
	Social Consequences	<i>...being depressed can really screw you over in a relationship and so can being anxious... my first girlfriend actually broke up with me for precisely that reason... they certainly can have an effect on dealing with people... (Max 23 year old male with ASD)</i>
	Consequences for Others	<i>...for whatever reason they'll feel emotionally, physically, ... backed into a corner, and bang it explodes into a physical nature...I mean we have holes put in walls and windows broken... (Frank, special education teacher at a state high school)</i>
	Worry of Long-term Consequences	<i>...remaining jobless, remaining relationship-less, with all of the problems that that can bring up in terms of depression, and losing touch with reality, being too isolated...and self harm issues. (Emma, clinical psychologist specialising in ASD)</i>

3.3.5. Strengths, Limitations, and Future Directions

While the themes that emerged from the data were endorsed by many participants of the focus groups, it is important to note there is great heterogeneity within this spectrum of conditions. Even the most popularly endorsed themes were not endorsed by every participant. It is also difficult to distinguish between themes that are specific to those with ASD and those that would be shared with typical adolescents and young adults. The current findings would therefore be enhanced with a comparative study with typical adolescent participants and adolescents with emotion regulation difficulties but without ASD. It might be the case that the same issues occur for adolescents with ASD but at a higher rate. It is also important to note that the diagnoses of the participants were recorded by self-report and were not clinically verified. However to the authors' knowledge, this study is the first qualitative study investigating emotion regulation specifically in adolescents and young adults with ASD, and revealing four important stages or themes in emotion regulation in ASD; emotion triggers, emotional awareness, emotion regulation processes, and consequences.

Now that the qualitative method has revealed several important themes for emotion regulation in ASD, quantitative methods are needed to reveal the magnitude of these issues. Firstly, it is important to establish an estimate of the prevalence of emotion regulation difficulties to assess the need for developing an intervention specifically aimed at improving functional emotion regulation skills. Given that anxiety and depression were the two most troublesome mood issues discussed in the focus groups, descriptive analyses of anxiety and depression levels in adolescents and young adults with ASD should be investigated to establish the severity of the problem in this population. This should look more closely at frequencies of significant cases

rather than looking only at group mean differences. Moreover, potential predictors of emotion regulation difficulties should be investigated to inform any decisions in regards to future interventions.

CHAPTER FOUR

A Survey of Emotion Regulation in Adolescents and Young Adults with Autism Spectrum Disorders

4.1. Introduction

As discussed previously, research into emotion regulation in ASD has been limited. A recent study by Samson et al. (2012) was the first to investigate emotion regulation strategies in a sample of 27 adults with ASD, comparing their use of cognitive reappraisal and expressive suppression to a sample of typically developing adults. The authors revealed that their sample of adults with ASD used cognitive reappraisal significantly less, and used suppression significantly more than typically developing adults. However, the influence of emotion dysregulation on well-being was not investigated in ASD. The remainder of the evidence of emotion regulation difficulties in ASD stems from studies with children, or mood disorder studies. For example, Konstantareas and Steward (2006) exposed children with ASD and controls aged between 3 and 10 years to a mildly frustrating situation and observed their behaviour in response. In this study, the children were given a novel toy to play with, and then the toy was taken away abruptly. Following this, the children with ASD displayed less effective emotion regulation strategies compared to controls. Teachers are also more likely to report children with ASD as having poorer emotion regulation skills compared to typical students (Ashburner et al., 2010). Furthermore, while depression and anxiety symptoms have been previously reported in samples of children with ASD (MacNeil et al., 2009; White et al., 2009), they have not commonly been investigated in adolescents and young adults with ASD. Depression and anxiety mean difference scores between typical samples and samples with ASD are generally the focus of studies, and prevalence rates of depression and anxiety are often not

reported. The few studies reporting prevalence rates touch upon the adolescent population but have also recruited children and analysed their results together or have limited sample numbers (e.g., Green et al., 2000; Kim et al., 2000; Strang et al., 2012). The first aim of the current study was to estimate the prevalence of symptoms of depression and anxiety in a larger sample of adolescent and young adults with ASD. The second aim of the current study was to propose and evaluate the utility of a model of emotion regulation for adolescents and young adults with ASD that draws on the existing literature, information from the qualitative study in Chapter Three, and includes the use of cognitive reappraisal and expressive suppression to predict depression and anxiety symptoms in this population.

4.1.1. Model Development

Barrett, Gross, Conner, and Benvenuto (2001) suggested that the ability to identify and label emotions is an essential skill required for conscious emotion regulation to be successful. For an individual to modify their emotional experience, the individual would need to identify that they are having an emotional experience, and be able to describe that emotional experience. A common feature of ASD is an inability to recognise and describe emotions in oneself: alexithymia (Fitzgerald & Bellgrove, 2006). Therefore, one of the factors at the beginning of the path model is alexithymia (see Figure 1). A second factor that is likely to influence emotion regulation is the sensory sensitivity of each individual. Sensory sensitivities are likely to increase the perception of emotional triggers (especially triggers that are linked to external cues), increase the experience of physiological responses to emotional triggers, and increase difficulty regulating negative emotional experiences due to the overwhelming physiological sensations that come with emotional experiences. Sensory sensitivities are prevalent in this population (Minschew & Hobson, 2008), and because sensory

sensitivities may result from low neurological thresholds (Dunn, 1997), they are unlikely to be the product of another measured factor and therefore are hypothesised to belong at the beginning of the path model.

4.1.1.1. Hypothesised role of emotion regulation strategies. It is also predicted that cognitive reappraisal and expressive suppression would have direct effects on depression and anxiety symptoms. Specifically, it is hypothesised that cognitive reappraisal will be associated with decreased depression and anxiety, and suppression will be associated with increased depression and anxiety. It is further hypothesised that these emotion regulation techniques will be mediators for alexithymia based on the suggestion of Barrett et al. (2001) that the conscious emotion regulation process must start with the identification of the emotion. Suppression was also set as a mediator for cognitive reappraisal. Studies measuring cognitive reappraisal and suppression have shown mixed findings as to their independence, which seems to vary between samples of specific populations. For example, suppression and reappraisal have been shown to be independent of each other in samples of western adolescents, undergraduate females, and females with exposure to trauma (Lougheed & Hollenstein, 2012; Moore, Zoellner, & Mollenholt, 2008), but have been illustrated as being related in samples of Taiwanese adolescents and British athletes (Hsieh & Stright, 2012; Uphill, Lane, & Jones, 2012). No studies have reported the relationship between reappraisal and suppression in a sample of adolescents and young adults with ASD, and so to evaluate the significance of their association, this relationship was included in the hypothesised model.

4.1.1.2. Hypothesised role of social interaction anxiety. Another important factor that is theorised to influence the experience of troublesome emotions in individuals with ASD is their social interaction anxiety. Social interaction anxiety is

prevalent in this population and is defined as an individual's worries, fears and difficulties over social situations and interactions (Bellini, 2004; Brown et al., 1997). In this chapter, social interaction anxiety is measured by the Social Interaction Anxiety Scale (SIAS; Brown et al., 1997), which specifically captures whether social situations or actions act as triggers and provoke anxiety in the participant. It is likely that an individual with social interaction anxiety being exposed to social situations and interactions will experience symptoms of anxiety as measured by a general anxiety scale such as the Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995a). It is important to emphasise that while the two may be related, they are distinct constructs. Social interaction anxiety measured by the SIAS focuses on the triggers of anxiety, while the general anxiety measured by the DASS focuses on the experience of anxiety that would follow the trigger. It is therefore predicted that SAIS scores would have a direct positive effect on symptoms of anxiety. However it was also predicted that social interaction anxiety would not account for all variance in symptoms of anxiety as there would be other triggers of anxiety symptoms (for example, sensory sensitivities). Social interaction anxiety was also predicted to be a mediator for sensory sensitivities, alexithymia, and suppression. Sensory sensitivities may lead to social interaction anxiety due to the increased sensory stimulation experienced during social interaction. Social interactions involve a variety of auditory, visual, and olfactory sensations that individuals with sensory sensitivities may wish to avoid. Indeed, previous research has revealed a relationship between sensory sensitivities and social interaction anxiety in typical samples (Hofmann & Bitran, 2007), supporting this notion. Therefore an indirect pathway of sensory sensitivities to anxiety symptoms through social interaction anxiety was tested in the model.

Social interaction anxiety was also predicted to be a mediator between alexithymia and anxiety. Social interactions involve emotional provocation and engagement. It is possible that individuals with alexithymia may develop social interaction anxiety as they desire to avoid situations that provoke emotional reactions and require emotional responses and this relationship has been revealed in non-ASD samples (Dalbudak et al., 2013). Therefore an indirect pathway of alexithymia to symptoms of anxiety was also tested in the model. The last mediation effect that was hypothesised was the path between the use of suppression and symptoms of anxiety through SIAS scores. English, John, Srivastava, and Gross (2012) revealed that the use of suppression was predictive of reduced social functioning in a non-ASD sample. This reduction in social functioning could lead to perceptions of social difficulties and trigger social interaction anxiety. Farmer and Kashdan (2012) also revealed that those with high social anxiety tended to use suppression significantly more in non-ASD samples, and argued that the use of suppression increases self-monitoring (Richards, Butler, & Gross, 2003), which provokes hyper-vigilant attention to social evaluative threats (Bögels & Mansell, 2004). Therefore an indirect relationship between suppression and anxiety symptoms through SIAS scores was hypothesised. Lastly, positive bidirectional relationships were hypothesised between depression and anxiety symptoms, as depression and anxiety may exacerbate each other, and this relationship has been found in adolescents with ASD (Quek, Sofronoff, Sheffield, White, & Kelly,

2012).

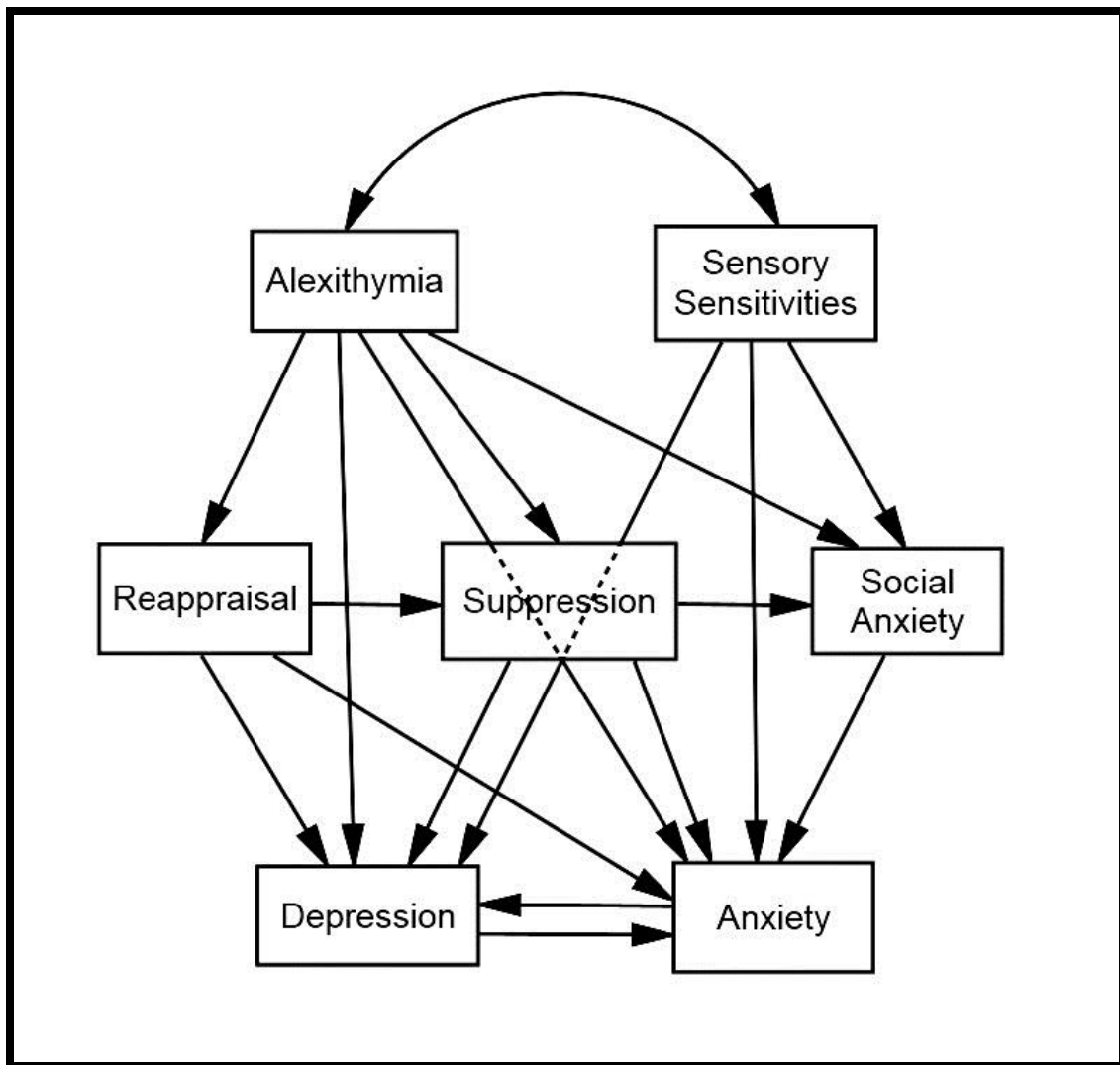


Figure 1. Hypothesised path model for depression and anxiety symptoms.

The current study aims to investigate the prevalence of symptoms of depression and anxiety specifically in a sample of adolescents and young adults with ASD, and to test a model of emotion regulation in this sample. An online survey was developed to examine this issue and adolescents and young adults aged between 16 and 30 years with ASD were invited to participate. Although the definition of the age range for adolescence may differ across studies, the current study selected 16 years as the lowest age for participation to allow participants to provide independent informed consent for online participation. Also, while young adulthood may typically finish

earlier than 30 years, this age was chosen to accommodate for any developmental delay in this population.

4.2. Method

4.2.1. Participants

In total, 284 participants completed the online survey. Of this sample, 74 participants reported they did not have a formal diagnosis of ASD and were therefore excluded from the analysis. A further 22 participants scored less than 26 on the Autism-Spectrum Quotient (AQ; Baron-Cohen, Wheelwright, Skinner, Martin, & Clubley, 2001), which has been suggested as being the optimal threshold to correctly classify individuals as either having ASD or not (Woodbury-Smith, Robinson, Wheelwright, & Baron-Cohen; 2005), and were therefore also excluded from the analysis. This left a sample of 188 participants with ASD, of which 9 participants were not within the age range and were also excluded. This left 179 participants (88 males) with a mean age of 22.89 years ($SD = 4.41$). Of those reporting a diagnosis of ASD, 83% nominated a diagnosis of AS, 11% HFA, 2% AD, and 4% PDD-NOS.

Participants were mainly Caucasian (92%) with 49% of all participants reported to be living in Australia, 23% in Europe, 21% in North America, 4% in New Zealand, and 3% in other countries/continents. Other ethnicities included Hispanic (4%), Asian (2%), and other/mixed race (2%). Of the sample, 43% were attending high school or tertiary education (either full time or part time) and 50% of the sample had studied at a tertiary institute after high school. Only 16% held full time employment, 11% held part time employment, 8% were self-employed, and 8% were casually employed. A significant proportion of the sample (25%) was neither studying nor employed (full time or otherwise). Participants were recruited via online autism

spectrum Facebook groups, forums, and online advertisements posted on autism spectrum association websites.

4.2.2. Measures

4.2.2.1. Demographic Information. Participants completed a series of questions asking about their age, gender, ethnicity, location of residence, employment and education status, and medication use. There were also questions regarding their ASD diagnosis, how they received the diagnosis, and if they had any other diagnoses.

4.2.2.2. Autism-Spectrum Quotient. The AQ (Baron-Cohen et al., 2001) is a 50-item screening questionnaire designed to measure autism-related traits. Items on this scale are scored dichotomously, where 0 = not characteristic of ASD and 1 = characteristic of ASD. However, participants respond to items on a 4-point likert scale, where 0 = *Definitely Disagree* and *Slightly Disagree*, and 1 = *Definitely Agree* and *Slightly Agree*. The total score is calculated as the sum of the items. The threshold score for determining whether it is likely that the individual has ASD is 32, Woodbury-Smith et al. (2005) revealed the score that best corresponded with the highest correct classification between participants diagnosed with ASD and typical adults was 26, with 83% in their sample being correctly classified based on this threshold score. The average AQ score in this sample was 37.06 ($SD = 5.63$). The internal consistency of the measure for the sample was adequate ($\alpha = .76$).

4.2.2.3. Depression Anxiety Stress Scale. The current study used the 21-item version of the DASS (Lovibond & Lovibond, 1995a). It comprises three subscales: depression, anxiety, and stress. Each subscale has seven items and participants respond on a 5-point scale where 1 = *did not apply to me at all* and 5 = *applied to me very much, or most of the time*. The subscales were calculated as the sum of the items, with higher scores indicating higher depression, anxiety, or stress. There are threshold

scores used to classify individuals as having mild, moderate, severe, or extremely severe levels of depression, anxiety, or stress. The internal consistencies of the depression, anxiety, and stress subscales for the sample were good ($\alpha = .88$, $\alpha = .82$, and $\alpha = .86$ respectively). Internal consistencies were on par with those found in typical samples (.79 to .90; Crawford et al., 2011; Henry & Crawford, 2005; Szabo, 2010). There is also evidence to support the validity of the depression and anxiety subscales in adolescent populations (Szabo, 2010).

4.2.2.4. Emotion Regulation Questionnaire. The Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) is a 10-item measure assessing two prominent emotion regulation strategies: cognitive reappraisal and suppression. Six items assess the participant's use of reappraisal and four items assess the participant's use of suppression. Participants respond to each item on a 7-point Likert scale where 1 = *strongly disagree* and 7 = *strongly agree*. The subscales were calculated as the sum of the individual items, with higher scores indicating greater use of that emotion regulation strategy. The internal consistency for the cognitive reappraisal and suppression subscales for the sample were adequate ($\alpha = .81$ and $\alpha = .78$ respectively), and on par with typical samples ($\alpha = .75-.80$. and $\alpha = .68-.76$ respectively; Gross & John, 2003; Melka, Lancaster, Bryant, & Rodriguez, 2011). The ERQ has also been used previously in adolescents and young adults (Xia, Gao, Wang, & Hollon, 2014) and ASD samples (Samson et al., 2012). Additionally there is evidence to support the validity of the ERQ with young adult populations (Melka et al., 2011).

4.2.2.5. Sensory Sensitivities Questionnaire. The Sensory Sensitivities Questionnaire (SSQ; Minshew & Hobson, 2008) is a self-report measure of sensory sensitivities that has been previously used in ASD samples. Participants respond either *yes* or *no* to 13 statements assessing temperature and pain tolerance, tactile, auditory,

visual, and smell sensitivities, with no reversed questions. The total score was calculated as the sum of the items, with higher scores indicating greater sensory sensitivity. In the current study, the internal reliability of this scale was poor ($\alpha = .54$). To improve the internal reliability, four items were removed based on their negative impact on the Cronbach's alpha of the scale and their low item-to-total-score correlations. These four items were assessing hyposensitivity in certain contexts and enjoyment of certain types of sensory sensations. Removal of these items improved the internal reliability considerably and this 9-item scale was used in the final analysis ($\alpha = .72$).

4.2.2.6. Social Interaction Anxiety Scale. The Social Interaction Anxiety Scale (SIAS; Brown et al., 1997) is a 20-item measure assessing anxiety in social interactions. It has been shown to differentiate between individuals with general anxiety disorder and social anxiety (Brown et al., 1997). Participants respond whether characteristics of social anxiety are true for them on a 5-point scale where 1 = *not at all* and 5 = *extremely*, with higher scores indicating greater social interaction anxiety. One item on this measure was reworded because it was specifically addressing heterosexual participants ("I have difficulty talking to attractive persons of the opposite sex"). This item was reworded to "I have difficulty talking to persons I find sexually attractive". The total score for this scale was calculated as the sum of the individual items. The internal reliability for the sample was strong ($\alpha = .90$).

4.2.2.7. Toronto Alexithymia Scale. The 20-item Toronto Alexithymia Scale (TAS; Bagby, Parker, & Taylor, 1994) was used to assess participants' difficulty identifying and describing their emotions. The scale has three factors: difficulty identifying feelings, difficulty describing feelings, and externally-orientated thinking, which is a preference for the external details of everyday life rather than the evaluation

of internal experiences and feelings (Taylor, Bagby, & Parker, 2003). Participants respond to each item on a 5-point Likert scale where 1 = *strongly disagree* and 5 = *strongly agree*, with higher scores indicating greater alexithymia. The total score was calculated as the sum of the individual items. The internal reliability for the sample was acceptable ($\alpha = .81$). There is some evidence against the use of the TAS in younger age groups, however the psychometric properties improve in samples of older adolescents and young adults (Parker, Eastabrook, Keefer, Wood, 2010). There is also evidence to support the validity of the TAS in ASD samples (Berthoz & Hill, 2005).

4.2.3. Procedure

Advertisements were posted on a variety of online sources as discussed previously, and participants were given a website link to the survey which provided information about the survey. Participants completed the survey, which took between 30 to 40 minutes, in their own time and were able to withdraw from the survey at any point without penalty. Ethical approval was obtained from the School of Psychology ethics committee at the University of Queensland, Australia.

4.3. Results

4.3.1. Data Preparation

The survey was administered through (Qualtrics, 2013), an online survey hosting system, and the data were exported into SPSS (IBM Corp., 2011) for analysis. Missing data analysis revealed there was less than 1% of missing data and Little's missing completely at random test was not significant ($\chi^2(5429) = 4048.27, p > .999$). Following the recommendations of Tabachnick and Fidell (2007), because the proportion of missing data was very low and it was missing completely at random, mean scores for participants missing one item on a measure were calculated based on the items they answered. This was deemed appropriate for the DASS, TAS, and SIAS

measures, and was used for 8 participants who missed a single item on each measure. Three participants were missing more than one item per measure and were not included in the analyses.

4.3.2. Rates of Depression, Anxiety, Alexithymia, and Medication Use

The DASS has threshold scores (*Normal, Mild, Moderate, Severe, and Extremely Severe*) to indicate the severity of depression and anxiety symptoms. In total, 29% of the sample was classed as having no depressive symptoms. However, 5% were rated as having mild symptoms, 28% as moderate symptoms, 14% as severe symptoms, and 24% as extremely severe depressive symptoms. To investigate whether DASS depression and anxiety scores in this sample were significantly different from normative data, two single-sample t-tests were conducted against norms reported by Lovibond and Lovibond (1995a). Lovibond and Lovibond (1995a) recruited 1,044 males and 1870 females to take the survey. Participants were from various backgrounds including university students, nurses, and various blue and white collar workplaces. The sample was aged between 17 and 69 years, however Lovibond and Lovibond (1995a) also reported norms for specific age brackets. For the following t-tests, the mean and standard deviation for Lovibond and Lovibond's (1995a) subgroup aged 20-29 years ($N = 729$) was used as this was the available age bracket that was closest to the age range of the ASD sample. A single sample t-test revealed adolescents and young adults in this sample had a significantly greater mean depression score ($M = 18.33, SD = 11.64$) compared to a large normative sample of Australian adults aged between 20 to 29 ($M = 6.35, SD = 6.85$; Lovibond & Lovibond, 1995a), $t(175) = 13.66, p < .001$.

Similarly, high rates of anxiety symptoms were also revealed in this sample. In total, 21% were classified as having no anxiety symptoms. Meanwhile, 6% were

classed as having mild, 27% with moderate, 15% with severe, and 31% with extremely severe anxiety symptoms. A single sample t-test revealed adolescents and young adults in this sample had a significantly greater anxiety score ($M = 15.91$, $SD = 10.43$) compared to a large normative sample of Australian adults aged between 20 to 29 ($M = 4.77$, $SD = 4.79$; Lovibond & Lovibond, 1995a), $t(175) = 14.17$, $p < .001$.

Data gathered from the alexithymia scale in this sample showed that 71% scored 61 or greater on the TAS ($M = 66.28$, $SD = 10.50$), which is suggestive of having alexithymia. In relation to medication use, antidepressant medications were commonly prescribed amongst this sample, with 29% reporting taking antidepressants, 8% reported taking stimulants, 6% anti-psychotics, 3% benzodiazepines, 2% anticonvulsants, and 2% taking sedatives.

4.3.3. Use of Emotion Regulation Strategies

To investigate whether the use of emotion regulation strategies for adolescents and young adults was significantly different from normative data, two single-sample t-tests were conducted against norms reported by Melka et al. (2011). Melka et al. (2011) recruited 1,118 undergraduate students with a mean age of 19.2 ($SD = 2.7$) years. Students were offered course credit for their participation. This sample was considered the most representative to the current age bracket with the largest sample size compared to alternative study samples (e.g., Gross & John, 2003; Balzarotti, John, & Gross, 2010; Wiltink et al., 2011). The normative mean was adjusted for gender differences between the samples. A single sample t-test revealed that adolescents and young adults with ASD in this sample used cognitive reappraisal as measured by the ERQ ($M = 22.39$, $SD = 7.50$) significantly less than the normative sample ($M = 28.69$), $t(175) = -11.15$, $p < .001$. Secondly, a single sample t-test revealed that this sample of adolescents and young adults with ASD used suppression as an emotion regulation

strategy ($M = 17.39$, $SD = 5.81$) significantly more than the normative sample ($M = 13.99$), $t(175) = 7.77$, $p < .001$. It should be noted however that current normative samples for this measure are predominantly American undergraduate students and there are currently no studies of the English version of the ERQ to the author's knowledge that investigates a more diverse demographic.

4.3.4. Predictors of Depression and Anxiety

4.3.4.1. Preliminary Checks. To explore predictors of depression and social anxiety in this sample, a path analysis was performed using AMOS 20 (IBM Corp., 2011) to test simultaneous relationships amongst the variables. To account for the negatively skewed scores on the SSQ, bootstrapping was performed with 5,000 bootstrap resamples for the direct and indirect paths of the model.

Preliminary correlations (see Table 5) revealed all predictors were correlated with depression scores. Similarly, all predictors were correlated with anxiety scores except for cognitive reappraisal. Variance inflation factors for all predictors did not raise any concerns over multicollinearity.

Table 5

Correlations and descriptive statistics of predictors and criterions included in the proposed model

	DASS Anxiety	TAS	SSQ	SIAS	ERQ Suppression	ERQ Cognitive Reappraisal	<i>M (SD)</i>
DASS Depression	.53***	.21**	.20**	.43***	.29***	-.25**	18.33 (11.64)
DASS Anxiety	-	.29***	.26**	.51***	.22**	-.04	15.91 (10.43)
TAS		-	.16*	.40***	.22**	-.21**	66.14 (10.80)
SSQ			-	.27***	.02	-.07	15.52 (2.07)
SIAS				-	.30***	-.15	52.33 (14.77)
ERQ Suppression					-	.25**	17.39 (5.81)
ERQ Cognitive Reappraisal						-	22.39 (7.50)

* $p < .05$, ** $p < .01$, *** $p < .001$

4.3.4.2. Testing the Model. In order to account for measurement error, a pseudo-latent-variables model was used. The total score for each questionnaire was used as the sole indicator of the latent construct that the questionnaire intended to measure. The error term for each questionnaire was then set as the product of its variance and one minus the internal reliability of the questionnaire (Bollen, 1989). To test model fit, several common indices were used, including chi-square test, chi-square / df ratio, comparative fit index (CFI), goodness-of-fit index (GFI), the root mean square error of approximation (RMSEA), and the standardised root mean square residual (SRMR). For a model to be indicative of excellent fit, the chi-square test should not be significant, the chi-square / df ratio should be less than 2, the CFI and GFI should be greater than .95, the RMSEA should be less than .06, and the SRMR should be less than .08 (Tabachnick & Fidell, 2007).

The hypothesised model was first tested with fit indices indicating excellent fit ($\chi^2(3, N = 176) = 4.42, p = .220, \chi^2/df = 1.47, GFI = .99, CFI = .99, RMEA = .05, SRMR = .03$). However there were several non-significant paths in this model. Given model fit was already excellent, non-significant paths were removed one at a time in an iterative process to improve parsimony (Hox & Benchger, 1998; McCoach, 2003), resulting in the final model (see Figure 2). Fit indices still indicated excellent fit ($\chi^2(10, N = 176) = 12.73, p = .239, \chi^2/df = 1.27, GFI = .98, CFI = .99, RMEA = .04, SRMR = .04$). Furthermore, model fit for the parsimonious model did not differ significantly from the hypothesised model ($\chi^2(7, N = 176) = 8.31, p = .306$). This model explained 52% of variance in depression symptoms and 37% of variance in anxiety symptoms. The model illustrated significant direct positive paths between alexithymia and social interaction anxiety ($\beta = .36, p < .001$), and the use of expressive suppression ($\beta = .36, p < .001$). This indicates the higher the levels of alexithymia

participants reported, the more socially anxious symptoms they reported and the more they reported using suppression to regulate their emotions. A significant direct negative path between alexithymia and the use of cognitive reappraisal was also revealed ($\beta = -.26, p = .011$), indicating the higher the levels of alexithymia participants reported, the less they reported using cognitive reappraisal to regulate their emotions.

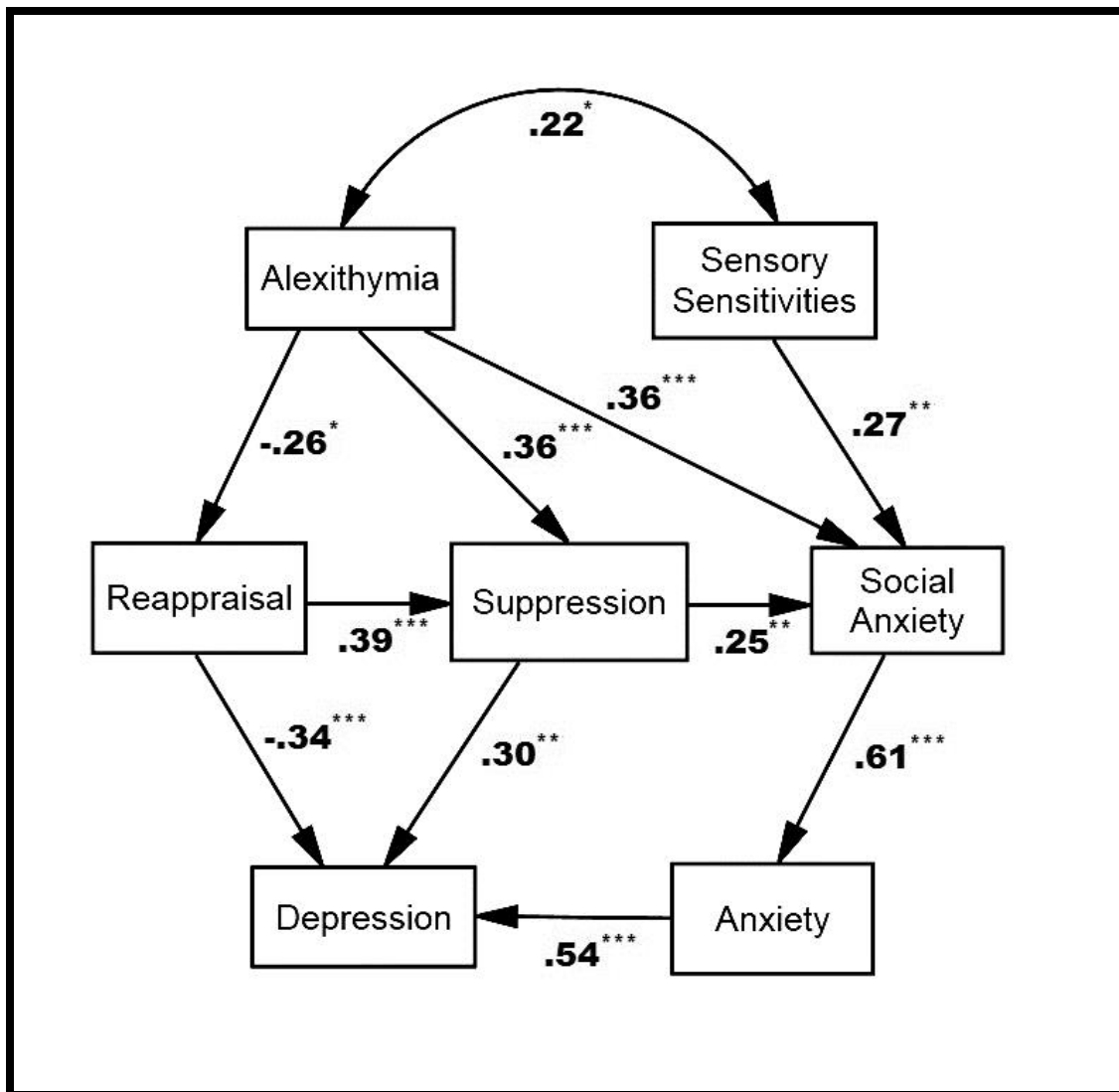


Figure 2. Final path model for depression and anxiety symptoms.

Note numbers associated with unidirectional arrows represent standardised path coefficients and the numbers associated with bidirectional arrows are correlation coefficients. $*** p < .001$, $** p < .01$, $* p < .05$.

Table 6

Standardised coefficients of the direct and indirect paths in the final model

	Direct Paths					Indirect paths			
	Depression	Anxiety	SIAS	Suppression	Reappraisal	Depression	Anxiety	SIAS	Suppression
TAS			.36***	.36***	-.26*	.31***	.26***	.07*	-.10*
Reappraisal	-.34***			.39***		.15**	.06**	.10**	
Suppression	.30**		.25**			.08**	.15**		
SSQ			.27**			.09**	.16**		
Anxiety	.54***								
SIAS		.61***							

* $p < .05$, ** $p < .01$, *** $p < .001$

Additionally, there was a significant direct positive path between the use of reappraisal and the use of suppression ($\beta = .39, p < .001$). The more participants reported using reappraisal to help cope with their emotions, the more they also reported using expressive suppression. The use of cognitive reappraisal also had a significant direct negative path to depression ($\beta = -.34, p < .001$), where the more participants used reappraisal the fewer depressive symptoms they reported. Meanwhile, the use of expressive suppression had a significant direct positive path to depression ($\beta = .30, p = .002$). General anxiety also had a significant direct positive path to depression ($\beta = .54, p < .001$).

There was also a significant direct positive path between sensory sensitivities and social anxiety ($\beta = .27, p = .006$), where the more sensory sensitivities participants experienced, the more socially anxious symptoms they reported. Furthermore, there was a significant direct positive path between social anxiety and symptoms of general anxiety ($\beta = .61, p < .001$), indicating the more socially anxious participants were, the more symptoms of anxiety they reported.

Although the sensory sensitivities variable did not have direct significant positive paths to either depression or anxiety, it did have significant indirect positive paths to both ($\beta = .16, p = .006$, & $\beta = .09, p = .006$, respectively). The indirect path to general anxiety was through social anxiety, and the indirect path to depression was through social anxiety and then through general anxiety. Alexithymia also demonstrated indirect paths to anxiety and depression. There was a significant indirect path between alexithymia and anxiety through suppression and social anxiety ($\beta = .26, p < .001$). There was also a significant indirect path between alexithymia and depression through the use of reappraisal, suppression, social anxiety, and general anxiety ($\beta = .31, p < .001$). Social anxiety also had a significant positive indirect path

to symptoms of depression via symptoms of anxiety ($\beta = .33, p < .001$). The use of suppression had a significant positive indirect path to both depression and anxiety via social anxiety ($\beta = .08, p = .009$, & $\beta = .15, p = .009$, respectively). Interestingly, the use of reappraisal had a significant negative direct path to depression, and also had a significant positive indirect path to depression via the use of suppression ($\beta = .15, p = .001$). The more reappraisal participants used, the more suppression they used, and the more suppression they used, the more symptoms of depression they experienced. Similarly, the use of reappraisal had a significant positive indirect path to anxiety via suppression and then social anxiety ($\beta = .06, p = .009$). See Table 6 for a summary of the direct and indirect paths.

4.4. Discussion

4.4.1. How Prevalent are Symptoms of Depression and Anxiety?

The first aim of this study was to report the prevalence of mood disorder symptoms in a large sample of adolescents and young adults with ASD and to evaluate a model of emotion regulation within this population. Firstly, there was a moderately high prevalence of mood disorder symptoms in this sample with 38% reporting severe or extremely severe symptoms of depression and 45% reporting severe or extremely severe symptoms of anxiety. These rates are consistent with previous findings from research with children or adolescents with ASD with small sample numbers, which have ranged between 17% and 44% for depression and 14% and 56% for anxiety (Green et al., 2000; Kim et al., 2000; Strang et al., 2012). Previous studies have either used diagnostic interviews (e.g., Green et al., 2000), or used alternative measures that have their own threshold scores for categorising individuals as having either depression or anxiety, typically corresponding to scores greater than two *SD* above the mean (Kim et al., 2000; Strang et al., 2012). As shown in Table 7, a score

corresponding to two *SD* above the Australian norm mean (Lovibond & Lovibond, 1995a) corresponds perfectly with severe symptoms or greater in this sample. It is important to note that the majority of participants reported moderate or greater symptoms of depression (66%) and anxiety (73%). Given that dysfunctional emotion regulation strategies are associated with mood disorders (Bellini, 2004), the results of this study support the proposition that there are emotion regulation difficulties in this current ASD population.

Table 7

Rates of levels of severity of depression and anxiety symptoms in the current sample

	DASS Depression	DASS Anxiety
Moderate Severity or Worse	65%	73%
Severe Severity or Worse	38%	45%
Extremely Severe Severity or Worse	23%	31%
+2 <i>SD</i> Above Norm <i>M</i>	38%	45%

4.4.2. Evaluation of the Model

A model of emotion regulation for adolescents and young adults with ASD was tested and had good fit with the data. Both cognitive reappraisal and suppression had significant direct paths to depression. Participants using cognitive reappraisal reported fewer symptoms of depression, whereas participants reporting expressive suppression reported more symptoms of depression. These findings are consistent with previous research using non-ASD populations (Campbell-Sills et al., 2006; Ehring et al., 2011), however this is the first study to report this relationship in a sample of individuals with ASD. Interestingly, participants who reported using cognitive reappraisal also tended to use expressive suppression to regulate their emotions. Previous reports of the

relationship between reappraisal and suppression have been mixed, and this phenomenon seems to vary between populations (Hsieh & Stright; 2012; Lougheed & Hollenstein, 2012; Moore et al., 2008). This relationship may be the product of an overall endeavour by some of the adolescents and young adults with ASD to reduce the impact of troublesome emotions, coupled with difficulties separating the use of functional and dysfunctional emotion regulation strategies. In other words, when faced with an emotionally troublesome scenario, the participants who choose to modify their emotions may resort to using both strategies. Additionally, the use of reappraisal and suppression was not directly related to anxiety symptoms. However, both had indirect associations with anxiety symptoms through social anxiety. The more participants reappraised triggers of their emotions, the more likely they suppressed their behavioural expression of those emotions. The more they suppressed their emotions, the more social anxiety they reported. The more social anxiety they reported, the more symptoms of general anxiety they reported.

Interestingly when controlling for social anxiety no other predictors yielded direct relationships to symptoms of general anxiety. While this was an unexpected finding, it is consistent with Mazefsky et al. (2011) who suggested that anxiety symptoms in ASD might be predominantly driven by social worries. Consistent with suggestions by Barrett et al. (2001), alexithymia was an important variable in the emotion regulation process for this sample. The relationship between alexithymia and both depression and anxiety was mediated by reappraisal and suppression. This suggests that adolescents and young adults with ASD require the skills to identify and label their emotions in order to be able to reappraise those emotions, which would then be associated with fewer symptoms of depression. Furthermore, this also suggests that participants in this sample who had difficulty labelling their emotions would try to

suppress those emotions, as suppressing unidentified emotions may be the most conservative strategy with the least social consequences. The findings suggest that higher levels of alexithymia have an important influence over whether participants use functional or dysfunctional emotion regulation strategies. Alexithymia also had a direct association with on social anxiety. It is plausible that those participants with difficulties labelling their emotions might become socially anxious because they wish to avoid social situations, as these difficulties with their own emotions might exacerbate the impact of interpersonal interactions that may involve emotional provocation and engagement.

An unexpected finding was that the relationship between sensory sensitivities and symptoms of general anxiety was fully mediated by social interaction anxiety. This was not expected as anxiety over sensory sensitivities other than social interaction anxiety was expected in addition to anxiety over sensory issues caused by social interaction. Perhaps during adolescence and young adulthood, social situations are an increased source of sensory stimulation for individuals with ASD. Again, social interaction may consist of several relatively amplified auditory, visual, and olfactory sensations that individuals with sensory sensitivities may find difficult to manage. Participants in the current sample with sensory sensitivities might have anxiety over these sensations and employ avoidance behaviours as a means of regulating these situations. Lastly, the predicted feedback relationship between depression and anxiety was not revealed. Instead, only the path from anxiety to depression was significant. For the data obtained from this sample, even when controlling for all other paths in the analysis, individuals who had higher levels of anxiety symptoms tended to have higher symptoms of depression. However, individuals who had higher symptoms of depression did not necessarily exhibit higher symptoms of anxiety.

4.4.3. Limitations

A limitation of the current study is that although the final model has good explanatory value, we cannot infer causation as the survey data is purely observational and cross-sectional. A second limitation stems from the online nature of the survey itself. The diagnoses of the sample of adolescents and young adults with ASD were not able to be confirmed by a qualified practitioner. However, extensive questions were asked about the diagnosis, including from whom and when they received the diagnosis. Additionally, the AQ was used to exclude participants with a low number of characteristics of ASD. The author acknowledges that not every individual who reports having a diagnosis of ASD will in fact have ASD, which is typically why face-to-face evaluations with a diagnostic interview is the optimal method for research in ASD. However, given the use of additional questions to determine the method of diagnosis, the use of the AQ to exclude participants with few traits of ASD, and the large sample size obtained from using the on-line method, this is a notable but worthwhile compromise. Additionally, there is the possibility that the survey was subject to sampling bias, where individuals who are more likely to have emotion regulation issues were more likely to participate than others. While this is a possibility, self-selection can occur in all types of research and in an effort to minimise this, the current study was advertised to a diverse population of individuals with ASD in non-clinical settings (e.g., generic ASD Facebook groups, online ASD communities) and the findings are relatively consistent with previous research using smaller samples.

A third limitation is the use of self-report measures on-line. Typical concerns for the validity of self-report measures of emotions and emotion regulation in ASD come from a fear that the participants cannot identify that they are depressed or anxious (Mazefsky et al., 2011). The concern therefore comes from a risk of under-

estimation. The issue of validity of self-report measures in this sample may have been a greater concern if a large proportion of the sample reported few symptoms. However, the majority of the sample reported having depressive or anxious symptoms. Furthermore, previous concerns over self-report validity in ASD have been raised from data with children (White et al., 2009; Shallom et al., 2006). It is likely that with age comes a greater ability to identify self-presenting symptoms of depression and anxiety. The author acknowledges however that the DASS is not a diagnostic measure of mood disorders. Nonetheless the rates revealed in this large sample give a preliminary indication of the prevalence of these issues in this population. Lastly, several of the measures used in the on-line survey were not originally designed for on-line use. However, there are typically limited differences in the psychometric properties of measures between their use as paper-and-pencil scales and their use on-line (Hedman et al., 2010; Holländare, Andersson, & Engström, 2010; Ramo, Hall, & Prochaska, 2011).

4.4.4. Conclusions

The current study is the first to investigate the relationship between emotion regulation skills and symptoms of mood disorders in a sample of adolescents and young adults with ASD, and has implications for clinical practice. Firstly, based on the high rates of depression and anxiety symptoms in this sample, this study suggests that emotion regulation is indeed an issue in this population, and future interventions should aim to address emotion regulation skills as an important element of different approaches. Secondly, future interventions targeting emotion regulation in adolescents and young adults with ASD should aim to improve the proficiency and frequency of using cognitive reappraisal to regulate emotions, and aim to decrease the use of expressive suppression. For this population, that would also need to include assistance

in the selection of relevant cognitive reappraisal strategies that did not encourage suppression. Thirdly, interventions should aim to improve effective identification of emotions, as this seems to be an essential early step in the emotion regulation process.

In future research, programmes that teach the use of emotion regulation strategies for adolescents and young adults should be investigated. Ehring et al., (2011) showed recovered-depressed and never-depressed university students an emotionally provocative stimulus, and instructed them to either reappraise or suppress their emotions and assessed their consequent mood. They revealed that while recovered-depressed individuals spontaneously used reappraisal less than controls, the effectiveness of instructed reappraisal for reducing their negative mood was equivalent to that of controls. This suggests that if participants actively use reappraisal, it is effective at modifying the mood of the participants. No studies to date have observed the direct effects of reappraisal and suppression on mood post-stimulus with samples of adolescents and young adults with ASD. If future research can show that the instructed use of emotion regulation techniques can improve mood in adolescents and young adults with ASD, this would lend further support for the training of cognitive reappraisal for intervention. In fact, there are several studies evaluating interventions that involve cognitive restructuring (e.g., cognitive behavioural therapy; CBT) in children and adolescents that show promise for the effectiveness of this technique at reducing symptoms of anxiety (Reaven, Blakeley-Smith, Culhane-Shelburne, & Hepburn, 2012; Sofronoff, Attwood, & Hinton, 2005). However, to the author's knowledge, there are currently no randomised controlled trials evaluating an intervention for reducing symptoms of depression that involves cognitive reappraisal. Future research should explore the development and evaluation of an intervention that

involves increasing cognitive reappraisal and decreasing expressive suppression (such as CBT) specifically targeting symptoms of depression.

CHAPTER FIVE

CBT for Individuals with Autism Spectrum Disorders

Chapter Four discussed the evidence to assess issues of depression in adolescents and young adults with ASD, and highlighted the need for an intervention targeting depression symptoms. It was evident in Chapter Four that the use of cognitive reappraisal (or cognitive restructuring) was associated with fewer symptoms of depression. Cognitive restructuring is a primary tool of CBT. Therefore, CBT is likely to be effective in reducing symptoms of depression in adolescents with ASD.

5.1. Cognitive Behavioural Therapy for Depression

CBT is one of the most researched interventions targeting depression (Bru, Solholm, & Idsoe, 2014; Poirier, Marcotte, Joly, & Fortin, 2013). CBT has eight central components: psycho-education, self-monitoring, cognitive restructuring, behavioural activation, promoting social relationships / communication skills, training in problem solving, relaxation tools, and homework (Clarke, Rohde, Lewinsohn, Hops, & Seeley, 1999; Bru et al., 2014; McCarty & Weisz, 2007; Weersing, Rozenman, & Gonzalez, 2009). It has consistently been found to reduce symptoms of depression in typical adolescents (Garvik, Idsoe, & Bru, 2014; Poirier et al., 2013; Stallard, Richardson, Velleman, & Attwood, 2011; Stasiak, Hatcher, Frampton, & Merry, 2014). For example, Clarke et al. (1999) conducted a randomised controlled trial of a group CBT programme with a sample of 123 adolescents aged 14 to 18 years. Participants were randomly allocated to a group CBT programme or a wait-list control group. The authors revealed that adolescents receiving CBT experienced a greater drop in symptoms of depression than the control group. In another study, Garvik et al. (2014) trialled an eight session group-based CBT programme covering all eight central components for adolescents and young adults with mild to moderate depression with

107 participants aged 16 to 20 years undertaking the programme. They too found that participants experienced a significant drop in depression symptoms at the end of the programme, and also at a six-month follow-up. Given the evidence that CBT reduces symptoms of depression for typical adolescents, it is plausible that CBT may be helpful for reducing symptoms of depression in adolescents with ASD.

The above papers discuss the effectiveness of group CBT programmes. However individual CBT programmes have also been shown to be effective in reducing symptoms of depression in adolescents (Brent et al., 1997; Lewinsohn & Clarke, 1999; Tucker & Oei, 2007). There are advantages and disadvantages to group CBT over individual CBT. The most obvious advantage is the therapist's ability to treat a greater number of people at once, and reduce patient waiting times (Lewinsohn & Clarke, 1999; Morrison, 2001; Tucker & Oei, 2007). Participants of group therapy also benefit from group cohesion, interpersonal learning, and mutual support (Lewinsohn & Clarke, 1999; Morrison, 2001; Tucker & Oei, 2007). However group therapy is not without disadvantages, which include the following: the risk of confrontation between group members, discouragement of slow improvers, the discussion to turn to small talk, participants feeling like they cannot share in a group setting (Morrison, 2001; Tucker & Oei, 2007).

A randomised controlled trial comparing group and individual CBT specifically for adolescents with depression could not be sourced. However Wergeland et al. (2014) compared individual and group CBT for adolescents with anxiety. While both methods of CBT showed significantly greater recovery rates compared to a wait-list control group, there was no significant difference in recovery rates between adolescents receiving group CBT and adolescents receiving individual CBT. Additionally a meta-analysis by Lockwood, Page, and Conroy-Hiller (2004) revealed

no significant difference between individual and group treatment for depression in adults, but found group CBT to be superior to individual CBT at 6 months follow-up. A systematic review by Tucker and Oei (2007) also concluded that group and individual CBT for depression were comparable in effectiveness, and that group CBT was a more cost-effective treatment for depression. Based on the evidence above, a group CBT programme will be prioritised given it has been shown to be as effective as individual CBT, and more cost-effective.

5.2. Cognitive Behavioural Therapy for Autism Spectrum Disorders

To the author's knowledge, there have been no randomised controlled trials of CBT targeting depression for adolescents with ASD. However, there have been multiple studies investigating the effectiveness of CBT for anxiety for children with ASD (Chalfant, Rapee, & Carroll, 2007; Lang, Regeister, Lauderdale, Ashbaugh, & Haring, 2010; Moree & Davis, 2010; Sofronoff et al., 2005; White et al., 2010). For example, Chalfant et al. (2007) conducted a randomised controlled trial of a group-based CBT programme designed to help with anxiety. Forty-seven children aged 8 to 13 years were either randomly assigned to receive the intervention or join a wait-list group and be offered the intervention after the intervention group had finished. Following the intervention, 71% of the children in the CBT group no longer met diagnostic criteria for an anxiety disorder, whereas all children in the wait-list control group still met the criteria. Sofronoff et al. (2005) found similar results when conducting a randomised controlled trial of a CBT programme targeting anxiety in children with ASD. Seventy-one children aged 10 to 12 years were randomly assigned to one of three conditions: children receive the CBT programme, children and their parents receive the CBT programme, or a wait-list control group. Sofronoff et al. (2005) found a significant decrease in parent reports of anxiety in the two intervention

groups, but not in the control group. These studies illustrate that CBT is effective for reducing symptoms of anxiety in children with ASD, and suggest that CBT may also be effective in reducing symptoms of depression in adolescents with ASD. However, CBT programmes need to be adapted to best suit the profile of adolescents with ASD.

5.3. Adaptations Required for Adolescents with Autism Spectrum Disorders

Moree and Davis (2010) highlight four consistent adaptations to CBT that increase viability of the programme for children with ASD and anxiety. The first adaptation consists of considering the negative impacts of ASD as a whole rather than just targeting anxiety. As discussed in Chapter Two (see 2.2.2), individuals with ASD typically present with significant social skills and communication difficulties. It is therefore important for CBT programmes to take this into consideration in their content. This is exactly what Sofronoff et al. (2005) considered in their CBT programme, and included social skills training within their programme. The second adaptation that Moree and Davis (2010) highlight is the use of concrete, visual tactics throughout the programme (e.g., the use of pictures, visual worksheets, social stories). Again, Sofronoff et al. (2005) included more visual tasks within their programme, incorporating the concept of a *tool box* which included different sorts of tools to help *fix* the children's anxiety. The third adaptation is considering the child's special interests and incorporating them into the programme. As discussed in Chapter Two (see 2.2.3), as many as 82% of individuals with ASD hold a special interest (Hippler & Klicpera, 2003). Moree and Davis (2010) suggest that including the special interest in the programme can increase motivation and willingness to participate. The last adaptation is parental involvement in the programme. For example Sofronoff et al. (2005), in their three-condition randomised controlled trial of children with ASD aged between 10 to 12 years, included parents in one of the active intervention conditions.

In this condition, the children participated in group CBT, and the parents also participated in their own separate groups, whereas in the second intervention condition, only the children participated in the group CBT and the final condition was a wait-list control group. They found a significant decrease in parent reports of anxiety in the two intervention groups, but not in the control group. Sofronoff et al. (2005) compared the two intervention groups in their programme (no parent involvement vs parents also receiving intervention) and determined that the parents who participated in their own groups reported their children to have significantly lower anxiety levels than parents who did not participate in groups of their own. Furthermore, Reaven et al. (2012) also conducted a randomised controlled trial of a group CBT intervention for children with ASD aged between 7 and 14 years, where the parents participated in their own groups. They found a significant reduction in clinician severity ratings of anxiety and number of principal anxiety disorders in their intervention condition compared to their control group. It is believed that including a parent group fosters reinforcement of the strategies that their children with ASD learn.

5.4. Exploring Depression: Group Cognitive Behavioural Therapy Appropriate for Adolescents with Autism Spectrum Disorders.

As was discussed in Chapter Four (see 4.4.4), there is evidence to suggest the need for an intervention targeting depression in adolescents with ASD. This intervention should aim to increase the use of cognitive reappraisal, decrease the use of suppression, and be adapted to individuals with ASD, taking advantage of the successful emotion regulation strategies that were discussed in the focus groups and interviews in Chapter Three (see 3.3.3), and the four necessary adaptations highlighted by Moree and Davis (2010). Attwood and Garnett (2013) recently developed a group cognitive behavioural intervention titled *Exploring Depression: Cognitive Behaviour*

Therapy to Understand and Cope with Depression. This programme is designed to run for 1 hour each week for 10 weeks, followed by a booster session 4 weeks later. Across the 10 sessions, the adolescents are taught different tools to cope with symptoms of depression. These consist of self-awareness tools, physical tools, pleasure tools, thinking tools, social tools, and relaxation tools. These tools are consistent with the tools that participants in Study One found to be successful in improving mood (see 3.3.3). Each emotion regulation tool is visually represented by a hardware tool and referred to as tools in a *tool box* so that the participants can pretend they have a tool box full of emotion regulation tools they can draw from (e.g., physical tools are represented by a hammer). The sessions are typically run by one facilitator per three or four adolescents. However, a second facilitator is strongly advised to act as an aide, as a scribe for some of the students with writing issues, and to help ensure all participants are on task. All participants also receive a booklet that contains most of the content of the sessions and written tasks (see Appendix C). Following is a summary of each of the sessions contained in this programme.

5.4.1. Self-Awareness and Psycho-Education

5.4.1.1. Session 1. The aims of the first session are to introduce the participants to each other, create some ground rules, identify strengths, qualities, and abilities of each participant, and to learn a core self-awareness activity. The self-awareness activity is a three minute mindfulness activity. The facilitator reads a script that brings the participants' attention to different parts of their body (e.g., feet, arms), and different senses (e.g., taste, smell; see Appendix C, page 214). As highlighted in Chapter Three (see 3.3.2), it was often reported that adolescents with ASD have an emotional awareness threshold, below which they do not notice their emotions, or the physiological markers of those emotions, until they becomes extreme. Mindfulness,

the mental state of focusing on one's thoughts, feelings, and sensations at the present moment, has been associated with significantly lower levels of alexithymia in typical samples (Lyvers, Makin, Toms, Thorberg, & Samios, 2014), which suggests that the inclusion of a mindfulness task in the programme could help address issues of alexithymia, which Barrett et al. (2001) suggested is essential for functional emotion regulation. Furthermore, the path model of emotion regulation in Chapter Four (see 4.3.4.2 & 4.4.2) illustrated how low awareness of emotions can lead to the use of dysfunctional emotion regulation, and in turn, greater symptoms of depression.

Following the self-awareness activity, the participants are instructed to write down and share their career aspirations. They are then instructed to write and discuss positive qualities in their abilities and personality, and how those qualities will be advantageous for making friends and relationships, their self-esteem and self-identity, enjoyment of life, and employment. Participants then take part in a compliments activity, where they each give each other a compliment, and write down how they felt when they were complimented. This aims to help increase self-esteem and self-awareness of positive emotions. Lastly, participants are given several projects to do in their own time before session two. These include discussing additional qualities in abilities and personality with family and friends, writing down the qualities in abilities and personality in a family member they admire that they would like to see in themselves, and writing down the qualities in abilities and personality in a character in a film, television series, or book, that they would like to see in themselves. Lastly, participants are introduced to what depression is, and given a list of reasons that someone with ASD might feel depressed (see Appendix C, page 221). Participants are told to tick the reasons on the list that apply to them, and to write down any other reasons that they might feel depressed that are not listed.

5.4.1.2. Session 2. At the beginning of each subsequent session, participants recap on what they learned in the previous session, review the projects that they were to complete between the sessions, and then complete the self-awareness activity. In session two, participants pick the five most important reasons for feeling depressed on the list they were given as a project in session one. They then assign a percentage weight to each reason, ensuring that the percentage weight assigned to each reason adds to 100%. The facilitators then prompt each participant to share their top five important reasons, and the percentage weight assigned to each reason, and highlights similarities between the group members.

The next task involves psycho-education, where participants read some information about what depression is, how it presents in people, and how common it is. Participants are given a list of common characteristics associated with depression (e.g., feeling of guilt, poor concentration) and are asked to tick which characteristics they identify in themselves. This is aimed at improving self-awareness and understanding of depression. The facilitator then discusses with the participants the different ways of treating depression, including medication and psycho-therapy, and how the current programme is based on CBT. The participants are shown a thermometer with the bottom of the thermometer labelled as 1 and the top labelled as 100. To the left of the thermometer from top to bottom are seven emotional labels associated with depression (e.g., from suicidal to gloomy; see Appendix C, page 229). To the right of the thermometer, participants are asked to write reasons that they might feel for each emotional label (e.g., the death of a family member). The facilitators provide further psycho-education, discussing with the participants the main reasons that people get depressed. The facilitators explain that our genes are the biggest contributor to depression (50%), followed by our thoughts and actions (40%),

followed by our life circumstances (10%). The facilitators emphasise that life circumstances actually contribute very little to feelings of depression, and that given we cannot change our genes, what we can most effectively target is our thoughts and actions. The facilitators present the theoretical basis of CBT, and the cycle of depression. They discuss how our thoughts influence our behaviours, which have real world consequences, and in turn reinforce our thoughts. The participants are then asked to write down what thoughts, feelings, and behaviours they have when they are feeling depressed.

The facilitators discuss with the participants whether the participants think that their ASD contributes to their sadness or depression, and whether the participants feel that there are any positive qualities and experiences associated with having ASD. Lastly, participants are given several projects to do in their own time before session 3. Firstly, they are asked to read the article “The Discovery of Aspie” that discusses the positive qualities of AS (see Appendix C, page 235), and to discuss the article with their parents. They are asked to think of a time during the previous week that they felt happy, write down those related thoughts, and rate their happiness on a scale of 0 to 100. They are also asked to do the same for a time they felt sad during the previous week.

5.4.2. Physical Activity: Session 3

In the third session of the programme, the facilitators discuss how CBT aims to beat the cycle of depression by targeting thoughts and actions. This leads into discussion of the emotion repair tool box, a metaphor used throughout the rest of the programme as a mental box full of emotion regulation tools that the adolescents can use to help them manage their emotions (see Table 8). Participants will have already learned the self-awareness activity, which is the first tool in the tool box, represented

by a compass, as it is designed to help with the participants' direction of travel in their journey into the future.

Table 8

Tools and their representations in the emotion repair tool box

Tools	Representation	Example of How to Apply
Self-awareness Tools	Compass	Self-awareness activity
Physical Tools	Hammer	Running
Art and Pleasure Tools	Torch	Exploring special interest
Thinking Tools	Tape Measure	Cognitive Reappraisal
Social Tools	Sponge	Online Communities
Relaxation Tools	Paint Brush	Listening to Music

The second tool in the emotion repair tool box is introduced. This is a range of physical tools, and is represented by a hammer. In Chapter Three (see 3.3.3), participants of the focus groups and interviews discussed how physical activity was very helpful for regulating the emotions of adolescents with ASD. Conversely, physical inactivity has been shown to be associated with depression in typical samples (Hassmén, Koivula, Uutela, 2000; Stephens, 1988). Furthermore, interventions aimed at increasing physical activity have been shown to reduce depression in typical samples (Brosse, Sheets, Lett, & Blumenthal, 2002). The facilitators emphasise that physical tools do not have to be team sports or ball games, which adolescents with ASD can find quite daunting given the social interaction and motor coordination typically required from these activities. Participants are then asked to write down a list of potential physical activities that they could engage in at home and at school.

Lastly, as a project, participants are introduced to the weekly planner. They are provided with a timetable to schedule at least 2 x 30 minute sessions of physical activity in the coming week, and the self-awareness activity daily. Participants are also provided with a self-monitoring sheet to record how long they exercised for and when they did the self-awareness activity (see Appendix C, pages 238 and 240 for timetable and self-monitoring sheet).

5.4.3. Art and Pleasure Tools: Session 4

As with previous sessions, the fourth session starts with the participants recapping on what they learned in the previous session, activities they were asked to complete, and completing the self-awareness activity. When going over the projects in this session, the participants are asked what helped them to remember to use the tools they learned in the previous session, and what inhibited them from using the tools. They are also asked how the tools affected their mood and abilities. This is repeated in all subsequent sessions. Following this recap, the participants are asked to discuss with the group how art (e.g., painting, photography, music), can help them communicate and alleviate their feelings of sadness. The participants are asked to write down what activities, experiences, thoughts, memories, people and animals, and dreams of the future give them feelings of well-being and optimism. The facilitator goes on to discuss with the participants how special interests can be used as a coping mechanism against depression. As discussed in Chapter Two (see 2.2.3), as many as 82% of individuals with ASD hold a special interest (Hippler & Klicpera, 2003). Participants are asked to write down what their special interest is (if they have one) and to write down how much enjoyment they experience when they are absorbed in their special interest on a scale of 1 to 100.

Participants are given the project of scheduling pleasurable activities, at least 2 x 30 minute sessions of physical activity, and the self-awareness activity daily, on a new timetable sheet. Participants are again provided with a self-monitoring sheet to record how long they exercised for, when they did the self-awareness activity, and when they engaged in a pleasurable activity. They are also asked to report how happy they felt before and after each activity on a scale of 1 to 100. Participants are also asked to find a form of art that they feel expresses their feelings of sadness (e.g., song, poem, photograph) and to bring that artwork along for session five.

5.4.4. Thinking, Social, and Relaxation Tools

5.4.4.1. Session 5. The fifth session of the programme introduces thinking tools, which is represented in the emotion repair tool box as a tape measure, as thinking tools help measure the reality of the situation, and help participants measure up their qualities and abilities. Participants are first given five example thinking tools. The first tool is a reality check, where an individual feeling troubled from an event or comment thinks about whether it is actually as serious as they believe. The second tool is giving oneself a compliment, in order to help promote feelings of optimism and self-worth. The third tool is appreciating something in the environment. The fourth is creating a pleasures book. The pleasures book is used like a diary, where participants fill the book with the pleasures they have experienced (either in words or pictures) that reflect their qualities and achievements. The last example tool is reading the pleasures book to remind the participants of their positive qualities and achievements. Participants are then asked to practice some of the thinking tools, by writing down a compliment they would give themselves, finding something in the room that would make them happy if they focused on it, what qualities in themselves they admire, what achievements they are proud of, and something in their life that gives them pleasure.

Facilitators discuss a sixth thinking tool with the participants. This thinking tool involves thinking of a hero from a film, book, or even real life, and imagining what that hero would do in their situation. Participants are asked to write down who their hero is and what qualities that hero possesses that the participants admire. They are asked to imagine a situation that makes them feel sad and what their hero would do in that situation. Participants then write down how they could adopt the qualities and abilities of their hero to not feel sad in that situation.

The next part of the session is to teach the participants about cognitive reappraisal. The facilitators discuss with the participants a scenario about a person who is waiting for their friend at the movie theatre, but after 25 minutes their friend is not there, and the movie starts in 5 minutes. In this scenario, the person is thinking that their friend does not like them, and that this always happens, that they'll never make a friend, that they are hopeless and unlikeable and that there is something terribly wrong with them. The participants are asked to write down what they think this person is feeling, why they feel that way, and what evidence they actually have for their thoughts about being hopeless and unlikeable. The facilitators work through the scenario again, but restructure the person's thoughts to revolve around their friend's wellbeing (e.g., "I do hope that something bad hasn't happened to my friend"), and external causes for their delay (e.g., traffic). Again participants are asked how they think the person is feeling, why they think that way, and to write down the difference in thinking style between the first person and the second person. The facilitators discuss with the participants how our thoughts and beliefs about the situation influence our emotional responses.

Lastly as a project during the week, participants are asked to write down a time where they felt happy or had a happy thought, and to rate that happiness on a scale

from 1 “Neutral” to 100 “Ecstatic”. Participants are asked to do the same for a time they felt sad or have a sad thought, rating it on a scale from 1 “Neutral” to 100 “Suicidal”. Participants are asked to complete the weekly planner timetable and schedule the self-awareness activity daily, schedule two physical activities, and two pleasurable activities. They are again provided with a self-monitoring sheet to complete during the week.

5.4.4.2. Session 6. In addition to recapping the content of session five, the projects, and the self-awareness activity, participants are asked to discuss with the group their sad thoughts during the week. They are then asked to write down what evidence there was to confirm those thoughts, and to think of alternative objective or helpful thoughts that they could have had during that situation. The facilitators discuss 11 different cognitive distortions that people with depression experience. These are: black and white thinking, overgeneralising, magical thinking (e.g., thinking something bad will happen based on something completely unrelated), mental filter (e.g., screening out positive events), disqualifying the positive, jumping to conclusions, magnifying the negative and minimising the positive, emotional reasoning, “should” statements, labelling and mislabelling, and personalisation (internal attribution of negative events). The participants are given a list of these cognitive distortions, and are asked to tick which of them they recognise using. They are asked to write down how they could think differently to change each cognitive distortion.

The facilitators go on to introduce social tools, and how sharing their problems with others can help with their emotions. Social tools are represented as a sponge in the emotion repair tool box, which soaks up despair and *cleans* the feeling. In Chapter Three (see 3.3.3) it was discussed how adolescents and young adults with ASD often interact with online communities or pets and animals for social support, and the

facilitators emphasise that these are viable options for the participants to choose. Participants are asked to list down whom or what they could seek out for social support at home and at school. Given the programme is run as a group, there is the potential for friendships to form within the group. At this stage, facilitators pass around a piece of paper and invite participants to write down their contact details if they wish to be contacted by other participants. This is completely voluntary.

Finally the session concludes with the projects for the coming week.

Participants are given a weekly planner and a self-monitoring sheet, but now also are asked to schedule a social activity and rate how they felt before and after that activity. Participants are asked to read an imaginary event about a boy at school in which peers are saying they do not want to hang around him anymore because he is boring (see Appendix C, page 292). Participants are asked to write down what emotions they felt after they read the statement, and rate on a scale of 1 to 10 how much they felt that emotion. They are given a list of example thoughts that they might be thinking (e.g., “I must be boring”) and are asked to circle the thoughts they experienced and add any that are not listed. A list of example distortions are provided and participants are asked to identify and circle the cognitive distortion that they are experiencing. Participants are then given a list of rational responses to the cognitive distortion, and are asked to write down any more they can think of. Lastly, they are asked to think about the event again while also thinking about the rational responses to the cognitive distortions, to list the emotions they are now feeling, and to rate those emotions on a scale of 1 to 10.

5.4.4.3. Session 7. The seventh session continues the topic of thinking tools. Firstly, participants are asked to describe a situation that led to them feeling sad or angry. They are asked to list and rate on a scale of 1 to 10 what emotions they felt, what thoughts accompanied those emotions, and what cognitive distortions they can

identify within these thoughts. Participants are asked to write down rationale responses to those distorted thoughts, and then to think about the event again while reading their rational responses. They are asked to write down what emotions they feel and how much they feel them on a scale of 1 to 10 after reflecting on their rational responses.

After finishing up on thinking tools, the facilitators introduce relaxation tools aimed at helping participants feeling calmer and better able to use their thinking tools. Relaxation tools are represented by a paint brush as the activities can include artistic endeavours such as painting or drawing, in addition to listening to music and meditation. Participants are asked to list relaxation tools that they can use at home and at school. As a project, participants complete the weekly planner and self-monitoring sheet, however this time they schedule a relaxation activity, and a third physical exercise activity. Participants are asked to repeat the same thinking tools exercise they completed at the beginning of session seven, but on an event that happens during the coming week.

5.4.4.4. Session 8. At the eighth session after the recap, projects, and self-awareness activity have finished, the facilitator reads through a meditation script that the participants can experience. This instructs the participants through some mindfulness exercises, and asks them to imagine that they are travelling back in time to when they felt happy and successful (see Appendix C, page 314). This gives participants another strategy they can use to feel relaxed. Participants go on to discuss in the group what achievement they imagined during the task, and how their strengths helped them reach that achievement.

5.4.5. Medication and Unhelpful Tools: Session 8 Continued

Following the conclusion of the relaxation task, the facilitators discuss medication and the usefulness of medication with the group. Participants are asked

whether they have had success with medication for their depression, what the good aspects of taking medication were, and what their concerns were over taking medication. Participants are not advised on whether they should take medication and the aim of the discussion is to promote awareness of options. Participants are then asked whether there are any other helpful tools that they feel help them with their depression that have not been covered by the programme. The facilitators discuss with the participants how suitable these tools are, and if appropriate, may encourage other participants to take note of these tools.

The facilitators go on to discuss unhelpful tools with the participants, including taking illicit substances, self-harm, and abusing others. In Chapter Three (see 3.3.3), three participants of Study One claimed to have used marijuana to help them with their emotions. Although, Janusis and Weyandt (2010), and Murphy (2003) both suggested adults with ASD are actually less likely to use illicit substances compared to non-ASD samples, it is still the case that some participants will take illicit substances to help cope with their emotions, and given this is the ninth session of the programme, the group may feel comfortable enough to discuss this in a safe environment. Furthermore, self-harm and abuse of others were both strong themes revealed in the thematic analysis of focus groups and interviews in Chapter Three (see 3.3.3 & 3.3.4). Participants are asked about tools that they have tried that have not been helpful, or have or been perceived to have made the situation worse. Participants are given the weekly planner and self-monitoring sheet and are asked to complete them as for the previous sessions. As a project, participants are asked to write down areas in their life in which they would like to gain more success, what their key strengths are, how they can apply these strengths in their chosen area, and to imagine a positive and successful future using the listed strengths. Lastly, they are given a list of negative thoughts

associated with sadness (e.g., “Nobody likes me”) and are asked to tick which of those thoughts they experience during the week.

5.4.6. Safety Plan: Session 9

The ninth session of the programme covers the topic of suicide and the development of a safety plan. This is very important given it is estimated that 7% to 42% of adolescents and young adults with ASD present with suicidal behaviour (Hannon & Taylor, 2013). Participants first disclose whether they have considered ending their life over the past year. They are then asked to write down why they felt that death was the solution to their feelings, and what made them decide to not end their life. The facilitators discuss with the participants what strategies they could use to prevent them from pursuing their thoughts of suicide, and participants are encouraged to write these strategies down. Participants are asked to write down who they could disclose their feelings and experiences to, and what they would want those people to do to help them. Participants are then asked to write down what strategies they have used in the past to help them recover from feeling suicidal, and what new strategies the group sessions have taught them. Participants are given the same thermometer they were given in session two to complete (see Appendix C, page 331).

The facilitators go on to discuss the development of a safety plan for each of the participants. Participants are given suggestions to help them cope with a strong depressive episode, including seeking external help, taking a break to calm down, avoiding self-harm, and using their special interest to alleviate feelings of intense sadness. Participants are provided with a list of strategies that their external support could use to help them when they are experiencing a major depressive episode. These include but are not limited to staying calm and reassuring, not asking what is causing the distress or trying to fix the problem, and staying with them while giving them

space (see Appendix C, page 332). Out of the list of suggested strategies, participants decide for themselves which strategies would help them when they are having a major depressive episode, and then create a plan with the group to help them manage any future depressive episodes. Participants are encouraged to write this plan down and share the plan with their family or friends.

The last task of the session is acknowledging each group member's strengths. Each participant writes down a compliment for every other group member, and participants share their compliments with each other. Participants are given the weekly planner and self-monitoring sheet to complete before the 10th session. As a project, participants are asked to share their safety plan with their parents and friends. Participants are also asked to choose an area in their life where they would like to be more successful (e.g., relationships, academic achievement), and to write down how they can apply their key strengths to be more successful in that area of life.

5.4.7. Planning for the Future: Session 10

In the 10th session, participants are asked to imagine themselves in a celebration of an achievement of theirs in about 10 years time. Participants are asked to write down where they think they will be living, what work or study they will be doing, and who will be important in their life. Participants are encouraged to share this imagined celebration with the group. Participants further discuss and write down what abilities and personal qualities they have that will help them get to where they want to be.

The last task of the session is a review of the programme. Participants are given a list of the tools they have been taught in the programme (e.g., self-awareness tools, physical tools), and are asked to rate each tool on a scale of 1 (least helpful) to 10 (most helpful). They are then asked to write down which tools they thought may

have worked but that they did not get to try or practice often, and also what their barriers were to trying those tools. A group discussion takes place where participants discuss what they found most helpful and least helpful from the programme overall, and how the programme could be improved. Participants are given four weeks worth of weekly planners and self-monitoring sheets, and are encouraged to keep completing them and re-reading the content of the programme until the final session in four weeks time.

5.4.8. Booster Session

After four weeks, participants are invited back for a booster session. Participants are asked how they have been over the four weeks, and whether or not they have been using the strategies they learned in the programme. Participants are again asked what they thought about the programme now that the last session was four weeks prior; what they found most helpful, and what they found least helpful. Participants are asked if they would recommend any changes to the programme, and whether they would recommend the programme to other depressed adolescents with ASD. Lastly, the facilitators ask whether there are any elements to the programme that the participants found unclear or would like a refresher on. The remainder of this session is treated as a social event. Participants by this stage may have developed friendships within the group, and so this gives the participants an opportunity to catch up after potentially not seeing each other for four weeks.

5.4.9. Suitability of the Programme

Attwood and Garnett's (2013) *Exploring Depression* programme seems to be an effective intervention for alleviating symptoms of depression for adolescents with ASD. The programme starts with tools to help label emotions, which have been discussed in Chapters Three and Four as vital for the success of emotion regulation.

Secondly, the tools/strategies the programme covers are tools and strategies that were discussed in Study One as functional and successful tools to help regulate emotions (see 3.3.3). Furthermore, the programme has a strong focus on increasing the use of cognitive reappraisal, which was illustrated as a strong predictor of reduced symptoms of depression in Chapter Four (see 4.4.2). While the programme has good face validity and seems as though it would be highly successful in alleviating symptoms of depression, the next step is to evaluate the efficacy of this programme by conducting a randomised controlled trial.

CHAPTER SIX

A Randomised Controlled Trial of a Group Cognitive Behavioural Depression Intervention for Adolescents with Autism Spectrum Disorders

6.1. Introduction

Depression is a serious mental disorder, which affects a significant number of individuals with ASD (Green et al., 2000; Kim et al., 2000; Strang et al., 2012).

However to the author's knowledge, a randomised controlled trial of an intervention targeting depression in adolescents with ASD is yet to be conducted. This chapter aims to fill this gap. First, the prevalence of depression in ASD and the impact of emotion regulation on depression will be discussed. Then the theoretical underpinnings of emotion regulation difficulties will be explored, followed by a discussion of the use of CBT interventions in ASD.

6.1.1. Emotion Regulation and Depression in Autism Spectrum Disorders

As discussed previously, research investigating depression in ASD has revealed high rates of depression in this population, with estimated rates of depression in this population ranging between 17% to 44%, and varying depending on the age of the sample and measures used (e.g., Green et al., 2000; Kim et al., 2000; Strang et al., 2012). Additionally, Study Two in Chapter Four reported 38% of the sample of 179 participants with ASD (aged 16 to 30) to have clinically significant levels of self-reported depression symptoms, and 65% reported moderate levels of depression (see 4.4.1). In a recent study, Lugnegård, Hallerbäck, and Gillberg (2011) conducted structured clinical interviews with 54 adults with ASD, and reported 70% to have had at least one major depressive episode in their lifetime, and 50% to have had recurring depressive episodes in their lifetime.

Throughout the studies within this dissertation, it has been posited that elevated rates of depression in ASD may be the result of poor emotion regulation skills. Ehring et al. (2011) compared typical participants who had never been depressed to participants who had previously been depressed on their use of emotion regulation strategies. They presented both groups of participants with two films that were intended to induce a sad mood, and then recorded their use of two emotion regulation strategies; cognitive reappraisal and expressive suppression. To re-cap, cognitive reappraisal involves re-evaluating the cause of a troublesome emotion and is considered a functional emotion regulation strategy as it typically results in reduced experience of the emotion (Goldin et al., 2008). Expressive suppression however involves inhibiting the behavioural expression of the emotion (e.g., masking) and is considered a dysfunctional strategy as it typically results in an unchanged experience of the emotion, or worse, an increased experience of the emotion (Roberts et al., 2008). As discussed in Chapter Two (see 2.3.), Ehring et al. (2011) revealed that the participants who had previously been depressed reported using expressive suppression significantly more than participants who had never been depressed while watching the first film. During the second film, both groups were explicitly instructed to either use cognitive reappraisal, or use expressive suppression. After controlling for baseline depression scores, participants randomly assigned to use cognitive reappraisal reported significantly higher mood than participants randomly assigned to use expressive suppression, regardless of whether or not they had a history of depression. Not only do these results suggest that emotion regulation strategies can impact mood, but they also suggest that functional emotion regulation strategies can be successful when instructed.

To investigate emotion regulation in ASD, Samson et al. (2012) gave 27 adults with ASD and 27 typical adults the ERQ (Gross & John, 2003), which measures the participants' use of cognitive reappraisal and expressive suppression. They found that their sample of adults with ASD used cognitive reappraisal significantly less, and expressive suppression significantly more, than their sample of typical adults. In Chapter Four (large scale survey of adolescents with ASD), it was revealed that the more participants with ASD used expressive suppression, the higher the level of symptoms of depression they reported, and the more participants used cognitive reappraisal, the lower the level of symptoms of depression they reported (see 4.4.2). This suggests that symptoms of depression in this population may be the result of excessive use of dysfunctional emotion regulation strategies, and limited use of functional emotion regulation strategies.

6.1.2. Theoretical Underpinnings of Emotion Regulation Difficulties

Mazefsky and White (2014) discuss the characteristics of ASD that may hinder the emotion regulation process, including poor inhibition and problem solving, change inhibition, sensory sensitivities, and poor cognitive flexibility. Indeed cognitive flexibility has been linked with the ability to down-regulate emotions (Gyurak et al., 2009). However Mazefsky and White (2014) emphasise the role of ToM difficulties and alexithymia. Similarly, Samson et al. (2012) suggested that the use of dysfunctional emotion regulation strategies may be the result of ToM difficulties. ToM is the ability to attribute the mental states of others. There is strong evidence that individuals with ASD typically present with ToM difficulties (e.g., Beaumont & Sofronoff, 2008; Kimhi, Shoam-Kugelmas, Ben-Artzi, Ben-Moshe, & Bauminger-Zviely, 2014). Mazefsky et al. (2013) suggested that ToM difficulties may hinder one's ability to accurately evaluate the responses of others in an emotionally

provocative situation. This may then hinder attempts to reappraise the situation. Additionally, previous research has suggested a link between the process of assessing the mental states of others and the emotional state of oneself (Frith & Frith, 2003; Moriguchi et al., 2006). Therefore ToM difficulties may lead to a difficulty identifying and labelling one's emotions (alexithymia). Berthoz, Lalanne, Crane, and Hill (2013) revealed 55% of their sample of 38 adults with ASD endorsed symptoms consistent with alexithymia on the Toronto Alexithymia Scale (TAS; Bagby et al., 1994). Additionally study 2 discussed in Chapter 4 indicated 71% of a sample of 179 adolescents and young adults with ASD also endorsed symptoms consistent with alexithymia. Furthermore, it was revealed that participants reporting difficulties with identifying and labelling their emotions were also likely to report using less cognitive reappraisal, and more expressive suppression.

To test this theory, the current study included a ToM measure: the Reading the Mind in the Eyes Task (RMET; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001). The RMET requires participants to attribute the mental state of a person after being presented with a photo of the person's eyes only. This test was designed to detect subtle ToM difficulties in those populations with ASD that, with age, may have developed other compensatory strategies to pass standard ToM tests, yet still struggle to understand the thoughts and feelings of others in everyday life. For example, Scheeren, de Rosnay, Koot, and Begeer (2013) did not reveal any differences between young participants (aged 6 to 20 years) with ASD and typically developing participants on 5 ToM tasks but did find that participants significantly improved on ToM tasks with age. While it involves facial recognition, the RMET was able to reveal significant differences between ASD and non-ASD samples where a basic emotion recognition task could not (Baron-Cohen, Joliffe, Mortimore, & Robertson, 1997). If

the RMET is significantly associated with measures of emotion regulation, or depression post-intervention, then it would suggest that emotion regulation difficulties may stem from ToM difficulties.

6.1.3. Cognitive Behaviour Therapy for Autism Spectrum Disorders

The evidence linking emotion regulation skills to depression (Campbell-Sills et al., 2006; Ehring et al., 2011) suggests that interventions focusing on increasing the use of cognitive reappraisal may benefit depressed adolescents with ASD. Cognitive behaviour therapy (CBT) typically involves cognitive-restructuring, which is comparable to cognitive reappraisal as it focuses on changing one's thoughts about the cause of an emotion. CBT has been effective in reducing symptoms of anxiety in children with ASD (e.g., Chalfant et al., 2007; Sofronoff et al., 2005). Ung, Selles, Small, and Storch (2015) conducted a meta-analysis investigating the effect of CBT on anxiety in young people with ASD aged 18 years or younger. They included 14 studies with a pooled sample of 511 participants. The authors revealed a significant treatment effect for participants who had participated in CBT over controls, suggesting that CBT can work for young ASD populations.

However, the only study that appears to target adolescents who have an ASD and depression is a study by McGillivray and Evert (2014), which evaluated a CBT programme targeting depression, anxiety, and stress, in adolescents and young adults with ASD. McGillivray and Evert (2014) assigned 26 adolescents with ASD aged between 15 and 25 to participate in 9 week CBT programme, and 16 adolescents to a wait-list control group. The authors initially did not reveal significant improvement in the treatment group compared to the control group. However they revealed significant improvement in the treatment group over the control group when they only analysed participants who had scored above the normal range on the Depression Anxiety Stress

Scale subscales (DASS; Lovibond & Lovibond, 1995a) and the Automatic Thoughts Questionnaire (Hollon & Kendall, 1980). The treatment group reported a significant drop in the DASS Depression scores relative to the wait-list control group ($\eta^2 = .15$). However, the intervention group and wait-list control group reported a similar reduction in automatic thoughts associated with depression ($\eta^2 < .01$). It should be noted however that assignment to the intervention group and wait-list control group was not random and so the outcomes should be treated with caution. The current study aimed to evaluate the feasibility, acceptability and preliminary efficacy of a CBT intervention for depression in adolescents with ASD in a randomised controlled trial. It is important to emphasise that this is a pilot trial, which aims to establish whether a fully powered randomised controlled trial would be feasible to conduct in the future. Feasibility and acceptability of the programme were assessed via participant recruitment, attendance, and satisfaction. Preliminary efficacy was assessed by observing any change in self-reported symptoms of depression and use of emotion regulation strategies. It is important to note that the current study was underpowered to detect an intervention effect. However, if the following research questions are satisfied, it would provide some basis for a larger randomised controlled trial:

1. Is it feasible to recruit and engage adolescents with ASD and depression through a CBT programme that aims to address depressive symptomatology?
2. Do the adolescents with ASD find the programme acceptable and useful?
3. Does the CBT programme reduce self-reported symptoms of depression, the use of expressive suppression, and increase the use of cognitive reappraisal?

4. Do the effects of the programme remain stable three months post-intervention?
5. Are ToM difficulties associated with self-reported emotion regulation skills and symptoms of depression?

6.2. Method

6.2.1. Participants

6.2.1.1. Recruitment. Recruitment for the trial ran between July 2013 and June 2014. Methods used to recruit participants included the distribution of flyers to schools and clinics around south east Queensland, Facebook groups, and autism associations (e.g., Asperger's Services Australia, and Autism Queensland). Although the study was very well advertised, response rates were much lower than expected.

6.2.1.2. Eligibility. Ninety three enquiries were received about the programme, of which only 42 agreed to be assessed for eligibility (see Figure 3 for CONSORT diagram). To be considered eligible, participants had to satisfy four conditions. First, participants needed to have scored 14 or higher on the Beck Depression Inventory (BDI; Beck, Steer, & Brown, 1996). Seven adolescents scored below 14 on the BDI, indicating that they had minimal or no depressive symptoms, and so no change in depressive symptoms would be expected. Third, if participants answered "I would like to kill myself" or "I would kill myself if I had the chance" on question nine of the BDI, they underwent a suicide risk assessment. If the participant was considered at high risk of suicide, they were excluded from the programme and referred to more appropriate services that could provide immediate support. Six adolescents were deemed to be high risk and were referred. Participants were also assessed using the Wechsler Abbreviated Scale of Intelligence (WASI; Psychological Corporation, 1999) and were required to show a verbal intelligence quotient (VIQ) of at least 85. This is

because the programme requires at least an average level of comprehension, especially when cognitive strategies are discussed with the participants. A VIQ of 85 was set as the cut-off as this is 1 standard deviation below the average VIQ, excluding the bottom 16%. Four adolescents were assessed as having a VIQ less than 85 and were excluded from the study. Last, participants required a diagnosis of an ASD from a Medical Practitioner, Paediatrician, Psychiatrist, Psychologist, or multi-disciplinary team. Due to the time requirements of the WASI and baseline questionnaires, conducting a diagnostic test such as the ADOS (Lord et al., 2000) on the same visit was not feasible and would have required a second visit to the clinic to assess eligibility. Because there were already great difficulties getting participants into the clinic for the first visit, requiring participants to come back for a second visit to assess eligibility likely would have substantially reduced the number of participants to be randomised, reducing generalisability of the results. Therefore this study relied on parental reports of previous clinical diagnosis, including who the doctor was and when the diagnosis was received. Furthermore parents were also interviewed with the Asperger Syndrome (and High-Functioning Autism) Diagnostic Interview (ASDI), which is based on Gillberg's criteria for Asperger's syndrome (Ehlers & Gillberg, 1993; Gillberg & Gillberg, 1989; see below). Two adolescents did not have a diagnosis and were excluded from the study. To reduce bias in parental reports, ineligible participants (except adolescents with a VIQ below 85) were to be placed into their own group and still receive the programme. The remaining 23 adolescents were randomised via a computer-generated random sequence programme into either the intervention group or the wait-list control group. Following randomisation, one adolescent from the intervention group and one from the wait-list control group withdrew from the study. A further participant in the wait-list control group was hospitalised for suicidal

ideation despite not presenting with suicidal ideation on the day of assessment and withdrew from the study. In the end, 20 participants were present at the start of the trial ($M_{\text{age}} = 15.75$, $SD_{\text{age}} = 1.37$, 12 males).

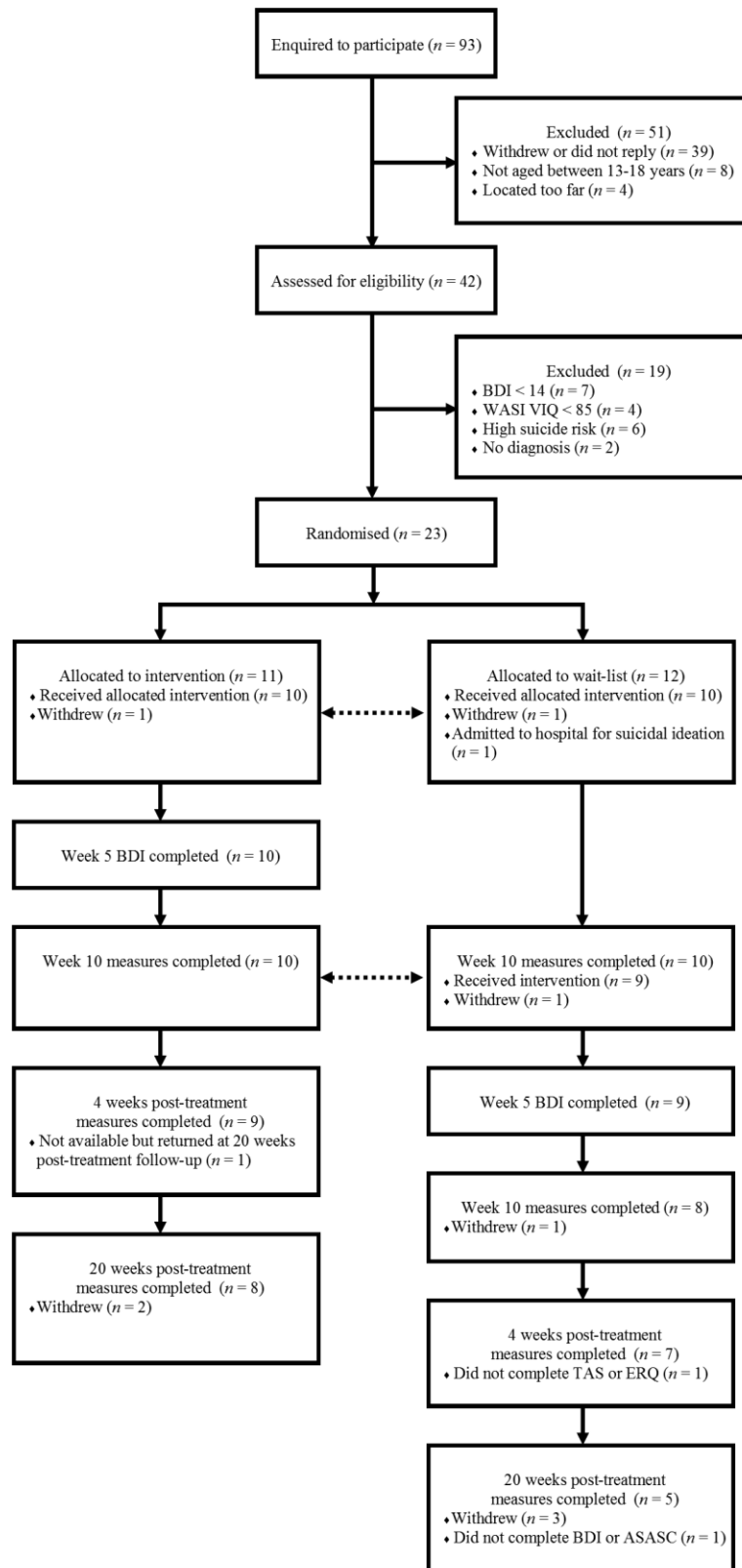


Figure 3. CONSORT Diagram. Dotted lines indicate the time-points for the treatment vs wait-list control group analyses.

6.2.2. Measures

6.2.2.1. Demographics Questionnaire. Participants completed a demographics questionnaire requesting age, gender, ethnicity, birthplace, details of diagnosis, education, and medication use.

6.2.2.2. Australian Scale for Autism Spectrum Conditions (ASASC). The ASASC (Garnett, Attwood, Peterson, & Kelly, 2013) is a 44-item ASD profiling measure for parents of children and adolescents aged between 5 and 19 years with a diagnosis of ASD. It addresses five dimensions of ASD: difficulty understanding emotions, orientation towards facts, sensory sensitivity, difficulty with social communication, and rigid adherence to routines. It is designed to help profile the symptomatology of children and adolescents with ASD. For each item, parents compare their child to a typical child on a particular trait, and respond on a 5-point scale with 1 = “Very much less often than a typical child” and 5 = “Very much more often than a typical child”. The internal reliability of the scale in this sample was good ($\alpha = .87$).

6.2.2.3. Autism-Spectrum Quotient (AQ). Two versions of the AQ (Baron-Cohen et al., 2001; Baron-Cohen, Hoekstra, Knickmeyer, & Wheelright, 2006) were used in this study, one for participants aged 16 years and older ($n = 10$), and one for participants aged 12-15 years ($n = 10$). The questionnaire for participants aged 12-15 years is completed by a parent. Both are 50-item questionnaires designed to measure the number of characteristics of autism an individual displays. Participants respond on a 4-point likert scale with 1 = “strongly disagree” and 4 = “strongly agree”. However, the two disagree statements are coded equally, and the two agree statements are coded equally. The internal reliability of the questionnaire for participants 16 and over was poor ($\alpha = .53$). This was surprisingly low and inconsistent with the sample in Study

Two and previous research (Baron-Cohen, et al., 2001). Upon inspection of the alphas-if-deleted, corrected-item-to-total-correlations, and response distributions of each question item, it was observed that several of the items having a negative impact on the internal reliability were heavily skewed, with up to 9 out of 10 respondents answering in a manner scored as not “characteristic of autism”. Two of these items seemed to relate to imagination. For example, 9 out of 10 participants agreed to the statement “If I try to imagine something, I find it very easy to create a picture in my mind” when it is considered characteristic of ASD to disagree with this statement. Similarly, 9 out of 10 participants were also readers of fiction writing, something that according to the questionnaire is uncharacteristic of ASD, but may explain why they tended to score higher on items regarding imagination. Removal of these items increased the reliability to .60. The internal reliability of the questionnaire for participants aged 12-15 years that was completed by the parents had excellent reliability ($\alpha = .93$). Woodbury-Smith et al. (2005) suggested that the optimal score to correctly discriminate between those with an ASD and those without an ASD was 26. In this sample, the average score for the questionnaire completed by the parents was 36.50 ($SD = 9.45$) and the average score for the questionnaire completed by the adolescents was 28.30 ($SD = 4.57$).

6.2.2.4. Asperger Syndrome (and High-Functioning Autism) Diagnostic Interview (ASDI). The ASDI (Gillberg et al., 2001) is a diagnostic interview conducted by a clinician with a relative of the individual with ASD (typically the parent). The interview focuses on six areas of ASD: social interaction impairments, special interests, routines, speech peculiarities, non-verbal communication problems, and motor clumsiness. According to Gillberg et al. (2001), 100% of his validation sample met at least five out of six criteria. These areas are addressed across 20 closed

questions. If the respondent answers yes to any of the questions, they are followed up by the clinician for further information. Based on that information, the clinician then decides whether the individual meets the criteria. The last question of this interview asks the relative whether the participant with ASD has been noted to perform poorly on neurodevelopmental examinations. This question is aimed at evaluating motor clumsiness, yet many parents who participated in this programme had never taken their children for a neurodevelopmental examination (nor knew what one was). Therefore for this project, if the parent said no to this question, the interviewer was instructed to probe further for evidence of motor clumsiness. According to Gillberg et al. (2001), 100% of his validation sample met at least five out of six criteria. In the current study, 11 met all 6 criteria, 7 met 5 criteria, and 2 only met 4 criteria.

6.2.2.5. Beck Depression Inventory - II (BDI). The BDI-II (Beck et al., 1996) is a 21-item questionnaire measuring symptoms of depression. Each item consists of four statements revolving around a feeling or an issue (e.g., self-dislike). Participants are asked to pick one statement out of the four that best describes the way they had been feeling over the past two weeks. The statements are coded from 0 = e.g., “I feel the same about myself as ever” to 3 = e.g., “I dislike myself”. The internal reliability of the scale in this sample was excellent ($\alpha = .94$). Factor analysis of the BDI-II reveals a two-factor structure, one measuring cognitive-affective symptoms (e.g., agitation, loss of interest), and one measuring somatic symptoms (changes in sleeping patterns; Beck et al., 1996; Whisman, Perez, & Ramel, 2000). Therefore it can be considered a measure of psychobiological symptoms of depression.

6.2.2.6. Depression Anxiety Stress Scale (DASS). The current study used the 21-item version of the DASS (Lovibond & Lovibond, 1995a). It contains seven items for each subscale: depression, anxiety, and stress. Only the depression scale was used

in the current study as an additional measure for symptoms of depression. There is precedent for using both the BDI and the DASS in an evaluation study, with the DASS depression subscale as a secondary outcome measure (e.g., Ree, & Craigie, 2007; Ruwaard et al., 2009). The depression subscale measures the psychological symptoms of depression, focusing on the core construct of depression (i.e. loss of positive affect). Participants respond to a variety of statements and indicate if in the past week that statement applied to them using a 4-point scale ranging from 0 = “did not apply to me at all” to 3 = “applied to me very much”. The internal reliability of the depression subscale in this sample was very good ($\alpha = .85$).

6.2.2.7. Emotion Regulation Questionnaire (ERQ). The ERQ (Gross & John, 2003) is a 10-item measure designed to assess participants’ use of two prominent emotion regulation strategies: cognitive reappraisal and expressive suppression. The cognitive reappraisal subscale contains six items (e.g., “I control my emotions by changing the way I think about the situation I am in”), and the expressive suppression subscale contains four items (e.g., “I control my emotions by not expressing them”). Participants respond to each item on a 7-point likert scale with 1 = “strongly disagree” and 7 = “strongly agree”. The internal reliabilities for the reappraisal and suppression subscales in this sample were very good ($\alpha = .86$) and good ($\alpha = .72$) respectively.

6.2.2.8. Reading the Minds in the Eyes Task (RMET). The RMET (Baron-Cohen et al., 2001) is a 36-item questionnaire designed to assess ToM. Each item contains a cropped photograph of a person’s eyes, and the participant is asked to determine the mental state of that person from a selection of four mental states (e.g., impatient, amused, embarrassed). A lower score indicates difficulties with ToM. The scale had fair internal reliability ($\alpha = .68$).

6.2.2.9. Wechsler Abbreviated Scale of Intelligence (WASI). The WASI (Psychological Corporation, 1999) is an intelligence test designed to be an abbreviated version of the Wechsler Adult Intelligence Test, containing four subtests: vocabulary, similarities, block design, and matrix reasoning. The vocabulary and similarities subtests are used to estimate VIQ, and the block design and matrix reasoning subtests are used to estimate performance IQ. Full scale IQ is estimated from all four subtests.

6.2.3 Cognitive Behavioural Intervention

The cognitive behavioural intervention was designed by Attwood and Garnett (2013) and called *Exploring Depression: Cognitive behaviour therapy to understand and cope with depression*. The programme was conducted in a group setting with 3-4 participants per group. Two provisionally registered clinical psychologists, supervised by two senior clinical psychologists, delivered 11 one-hour sessions to each group. Attwood and Garnett, the creators of the *Exploring Depression* programme, ran workshops to train the probationary clinical psychologists to deliver the material. The first 10 sessions were conducted weekly, and the final session was conducted 4 weeks later as a booster session. The sessions explored different ‘tools’ or strategies the adolescents could use in order to manage symptoms of depression. These consisted of self-awareness tools, physical tools, pleasure tools, thinking tools, social tools, and relaxation tools. Each strategy was represented by a hardware tool and the programme represented as a tool box.

The self-awareness tools involved practising a self-awareness activity, similar to mindfulness, and the programme also goes through activities with the adolescents to help them identify times they felt sad, and to rate their feelings on those occasions. The physical tools involve scheduling physical activities into the week, to improve the adolescent’s physical health and well-being. The pleasure tools involve scheduling

activities that the adolescents enjoy, such as pursuing their special interest, or expressing their emotions through art or music. The thinking tools involve thought-challenging and cognitive restructuring. The social tools involve scheduling social activities to help combat feelings of loneliness. Lastly, examples of relaxation tools involved meditation and listening to relaxing music, to help the adolescents feel calm if they ever felt distressed. Throughout the sessions, these tools were discussed with the adolescents, and they were able to choose which tools worked best for them. Every session assigned home projects for the adolescents to complete before the following session. Home projects involved scheduling the tools they had learned that session into their weekly planner, and completing a self-monitoring sheet to record when they used the tools they had learned, and how they felt before and after they used those tools. The booster session was treated as a re-cap on the tools and an opportunity for feedback on the programme.

6.2.4. Procedure

The study received ethics approval from the Behavioural and Social Sciences Ethics Review Committee at the University of Queensland (UQ), and was registered with the Australian New Zealand Clinical Trials Registry. Parent consent was obtained for all participants. Interested adolescents were invited to complete the demographics questionnaire, the DASS, the ERQ, and the RMET online via Qualtrics (2013) in their own time before their first visit to UQ. They were then invited to the School of Psychology Clinic at UQ with their parents to assess their eligibility for the programme. Parents were interviewed using the ASDI and were asked to complete the ASASC. The adolescents were asked to complete the BDI, and the WASI was administered. Diagnostic history (who made the clinical diagnosis and when) was reported by the parents, and the ASDI and ASASC were used as additional screens.

Adolescents without a diagnosis of ASD, with a BDI below 14, or a VIQ below 85, or who were actively suicidal were ineligible for the study and were referred to further sources of assistance.

Eligible participants were then randomly assigned to either receive the intervention immediately or to a wait-list control group to receive the intervention later. Participants assigned to the intervention condition received the intervention for 10 weeks. At week five, participants in the intervention condition completed the BDI for a second time to gauge their progress at the halfway point of the programme, and screen for any changes in suicidal ideation. In the 10th week, participants in both the intervention and wait-list groups completed the BDI, the DASS, and the ERQ (post measures). Ethical considerations precluded further delaying treatment for depression to a high-risk group, and participants in the wait-list control group started their 10-week schedule of the intervention on the completion of the treatment group's 10th session. In week 14, participants in the intervention condition participated in the booster session of the intervention, and completed post measures. In week 22 (8 weeks post-booster follow-up) parents of participants in the intervention condition were contacted for the adolescents to complete the post measures.

6.3. Results

6.3.1. Intervention vs Wait-list Group

6.3.1.1. Data Preparation. Data completed via online survey was exported into an SPSS (IBM Corp., 2011) data-file, which was then compiled with data completed on paper. For the between-group comparisons, the intervention and wait-list control participants completed all pre-post measures. Therefore there was no missing data. A series of t-tests were conducted to check for baseline differences between the treatment group and the wait-list control group (see Table 9). A t-test revealed that the

treatment group scored significantly higher on the AQ than the wait-list control group. However, AQ scores were not significantly correlated with any outcome measures at baseline or post-intervention, and the *F* test for the AQ when it was included as a covariate for each ANOVA was not significant (see Table 10). Therefore, the AQ was not included as a covariate in the final analyses (Lomax & Hahs-Vaughn, 2012).

Table 9

Baseline comparisons between the treatment group and wait-list control group.

	Treatment <i>M</i> (<i>SD</i>)	Wait-list <i>M</i> (<i>SD</i>)	<i>p</i>
Age	16.00 (1.33)	15.50 (1.43)	.430
BDI	29.25 (15.30)	24.55 (11.83)	.452
DASS Depression	24.20 (8.97)	21.60 (11.03)	.570
ERQ: Reappraisal	20.70 (7.53)	20.00 (8.03)	.843
ERQ: Suppression	18.60 (6.50)	18.90 (3.76)	.901
RMIET	21.78 (5.20)	20.89 (5.67)	.721
ASASC	181.44 (13.76)	173.63 (14.12)	.227
AQ	37.60 (7.01)	27.20 (6.20)	.002

Table 10

Correlations between AQ scores and outcome measures at baseline and post-intervention, and F tests for including the AQ as a covariate.

	AQ		F	<i>p</i>
	Baseline [†]	Post [†]		
BDI	.21	.15	.18	.678
DASS Depression	.16	-.24	.01	.907
ERQ: Reappraisal	-.34	.02	2.25	.152
ERQ: Suppression	.10	.30	1.04	.323

Note ** $p < .01$, * $p < .05$. † Baseline and Change column represents baseline measures of BDI, DASS Depression, ERQ: Reappraisal, and ERQ: Suppression. They are not Baseline and Change of AQ. AQ was taken once only at baseline. All correlations tested for two-tailed significance. F and *p* represent the test of the AQ as a covariate in a 2x2 mixed ANCOVA.

6.3.1.2. Depression. A 2 (Condition; Intervention vs Control) x 2 (Time; Baseline vs Post-Intervention) mixed factorial ANOVA was conducted to investigate the effect of the intervention on BDI scores. As can be seen in Figure 4, the analysis revealed no significant main effect of condition or time ($F(1, 18) = 0.54, p = .474, \eta^2 = .03$ & $F(1, 18) = 0.96, p = .341, \eta^2 = .05$ respectively), and did not reveal a significant interaction between condition and time ($F(1, 18) = 0.02, p = .893, \eta^2 < .01$).

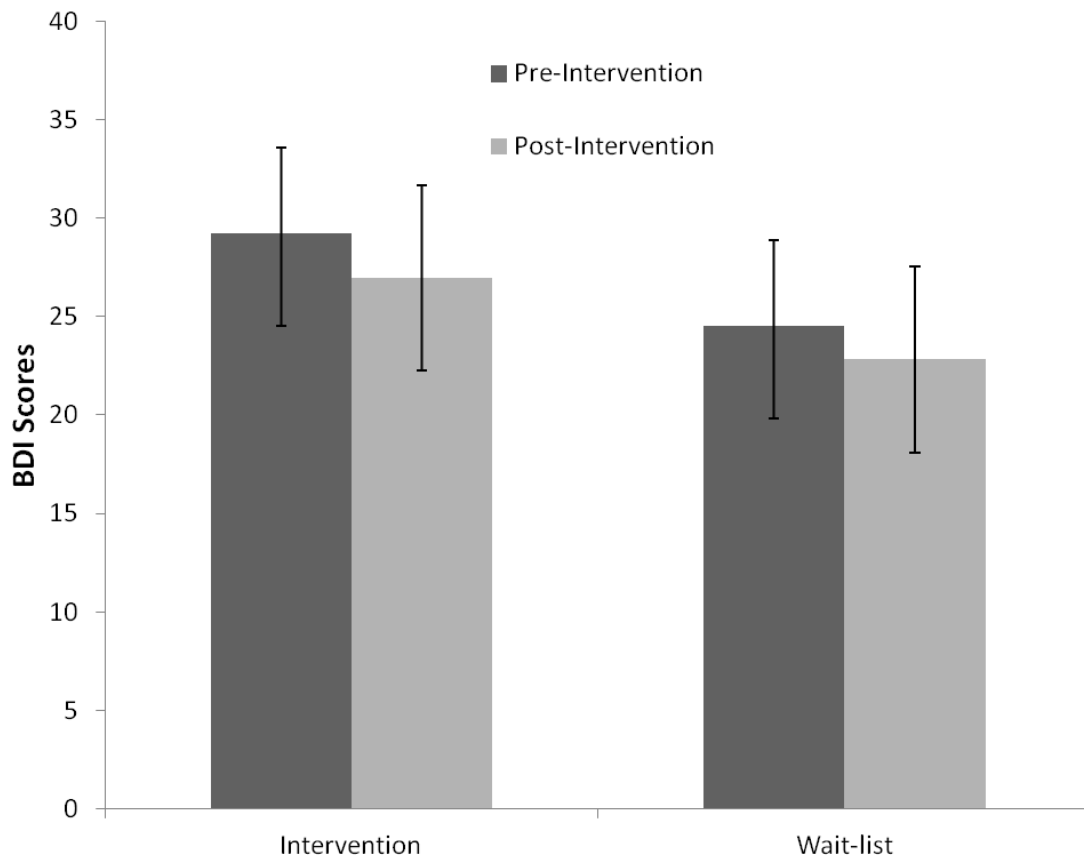


Figure 4. The effect of the intervention on BDI scores vs wait-list group

A second 2 (Condition) x 2 (Time) mixed factorial ANOVA was conducted to investigate the effect the programme had on depression levels, however this time with the DASS depression subscale. Similarly to the BDI, there was no significant main effect of condition or time ($F(1, 18) = 0.28, p = .602, \eta^2 = .02$, & $F(1, 18) = .96, p = .339, \eta^2 = .04$ respectively). However unlike the BDI, the interaction between condition and time showed a trend towards significance ($F(1, 18) = 3.86, p = .065, \eta^2 = .17$; see Figure 5).

Given the small sample size and pilot nature of the study, this trending interaction was explored. The simple effect of time for the wait-list control group was not significant ($F(1, 9) = .37, p = .556, \eta^2 = .04$), representing no change between pre-intervention ($M = 21.60, SD = 11.03$) and post-intervention ($M = 23.93, SD = 11.58$). However, the simple effect of time for the intervention group was significant ($F(1, 9)$

= 6.11, $p = .035$, $\eta^2 = .40$). This revealed that participants in the intervention group experienced a significant drop in DASS depression scores from pre-intervention ($M = 24.20$, $SD = 8.97$) to post-intervention ($M = 17.20$, $SD = 8.95$).

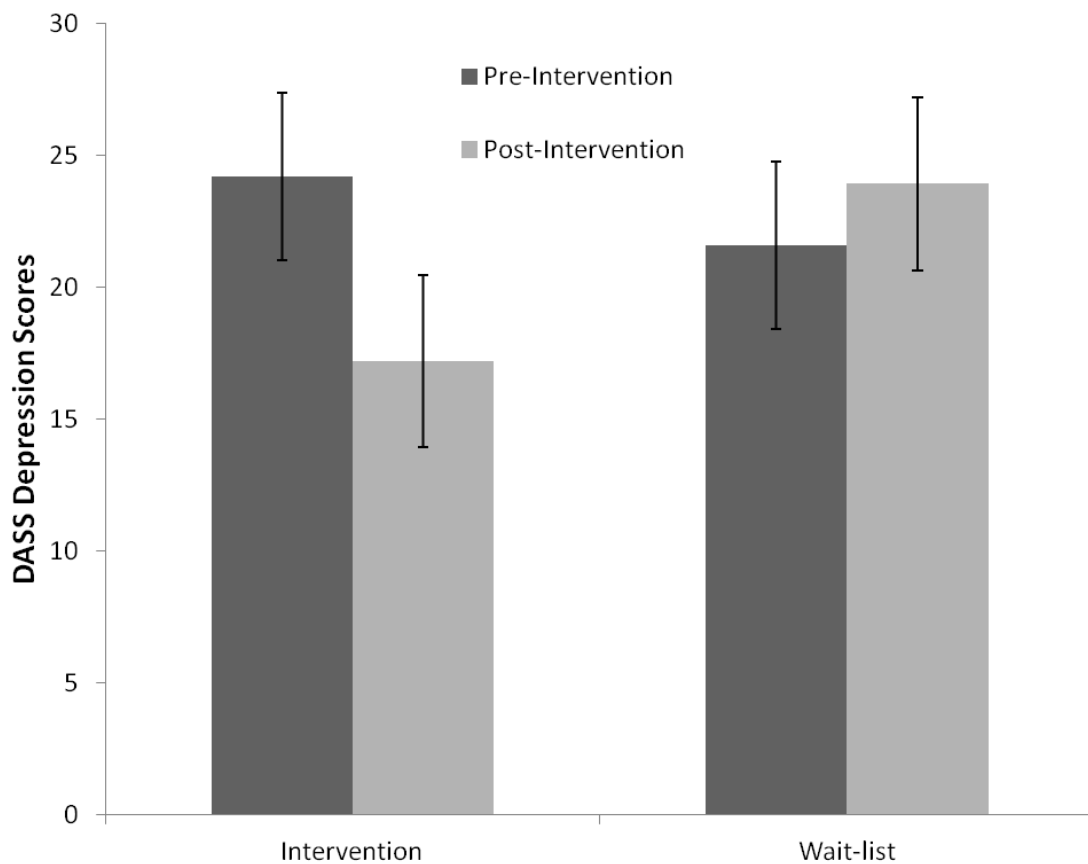


Figure 5. The effect of the intervention on DASS Depression scores vs wait-list group

6.3.1.3. Emotion Regulation Skills. Two additional 2 (Condition) x 2 (Time) mixed factorial ANOVAs were conducted to investigate the impact that the intervention had on the use of two important emotion regulation strategies: cognitive reappraisal and suppression. Again, the analysis did not reveal a significant main effect of group on the use of cognitive reappraisal ($F(1, 18) = .24$, $p = .630$, $\eta^2 = .01$). However, a significant main effect of time was revealed ($F(1, 18) = 4.93$, $p = .039$, $\eta^2 = .21$; see Figure 6), showing a significant increase in the use of cognitive reappraisal across both groups from pre-intervention ($M = 20.35$, $SD = 7.58$) to post-intervention

($M = 24.80$, $SD = 8.06$). There was no significant interaction between group and time ($F(1, 18) = .14$, $p = .713$, $\eta^2 = .01$).

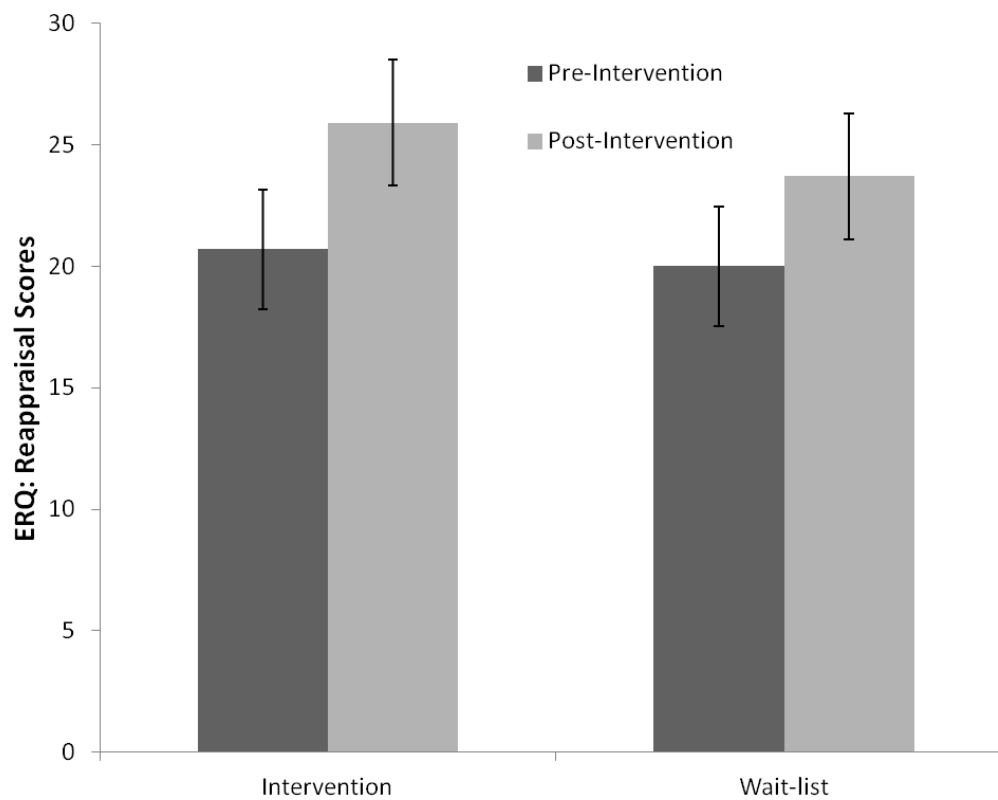


Figure 6. The effect of the intervention on ERQ: Reappraisal scores vs wait-list group

Similarly to cognitive reappraisal, there was no main effect of condition on the use of expressive suppression ($F(1, 18) = .22$, $p = .646$, $\eta^2 = .01$). However unlike the use of cognitive reappraisal, there was also no main effect of time on the use of suppression ($F(1, 18) = 1.90$, $p = .185$, $\eta^2 = .09$). There was also no significant interaction between condition and time ($F(1, 18) = .82$, $p = .376$, $\eta^2 = .04$).

6.3.2. Secondary Analyses: Aggregated Effect of the Programme

6.3.2.1. Data Preparation. Given the small sample size for the primary analyses, a series of supplementary analyses were conducted, in which the data from intervention group and the wait-list control group were combined to determine the effectiveness of the programme over time. One wait-list control participant provided post-measures for the intervention vs wait-list analyses, but declined to partake in the

treatment programme and was therefore excluded from the supplementary analyses. A second wait-list control participant was unable to be contacted to complete the post-questionnaires. This participant was also excluded from the supplementary analyses. After excluding these two participants, there was still missing data from measures taken at the booster session and the 3-month follow-up (see Figure 1 for details). As the data were missing completely at random (Little's missing completely at random $\chi^2(9085) < .01, p > .999$), no variables or participants were missing more than 50% of data (Hair, Black, Babin, & Anderson, 2009), and only 7.40% of data were missing overall, multiple imputation was employed to handle the missing data. Multiple imputation has been shown to be superior to other methods of dealing with missing data (such as list-wise deletion or last-observation-carried-forward) when the data are missing completely at random, even with very small sample sizes (Barnes, Lindborg, & Seaman, 2006).

6.3.2.2. Depression. A one way repeated measures ANOVA was conducted to investigate the change in BDI scores across time. A significant main effect of time was revealed ($F(4, 68) = 4.56, p = .008, \eta^2 = .21$; see Figure 7). A series of t-tests revealed no change between pre-intervention BDI scores ($M = 27.94, SD = 16.11$) and BDI scores after five weeks ($M = 28.38, SD = 16.39, t(68) = .17, p = .868$). However, there was a significant drop in BDI scores between week five and post-intervention ($M = 22.99, SD = 16.76, t(68) = 3.16, p = .006$), which was maintained at the booster session ($M = 19.95, SD = 15.00, t(68) = 3.55, p = .002$). Despite a mean drop of eight points in BDI scores, the average participant still scored in the *moderate depression* range. While BDI scores post-intervention were only trending to be lower than pre-intervention scores ($t(68) = 1.93, p = .071$), BDI scores at the booster session were significantly lower than pre-intervention ($t(68) = 3.59, p = .002$). Again, BDI scores

taken at the booster session showed a trend to be lower than BDI scores taken post-intervention ($t(68) = 1.97, p = .066$). However at three months post-intervention, BDI scores increased ($M = 28.27, SD = 15.50$) such that the levels of depression the adolescents experienced were significantly greater than at the booster session ($t(68) = 3.48, p = .003$). In fact, at three months post-intervention, BDI scores were no longer significantly different from pre-intervention, week five, or post-intervention BDI scores ($t(68) = .11, p = .893, t(68) = .03, p = .934, \text{ and } t(68) = 1.65, p = .118$ respectively). It is important to remember that there were no wait-list control comparisons for measures taken at the booster session or three months post-intervention.

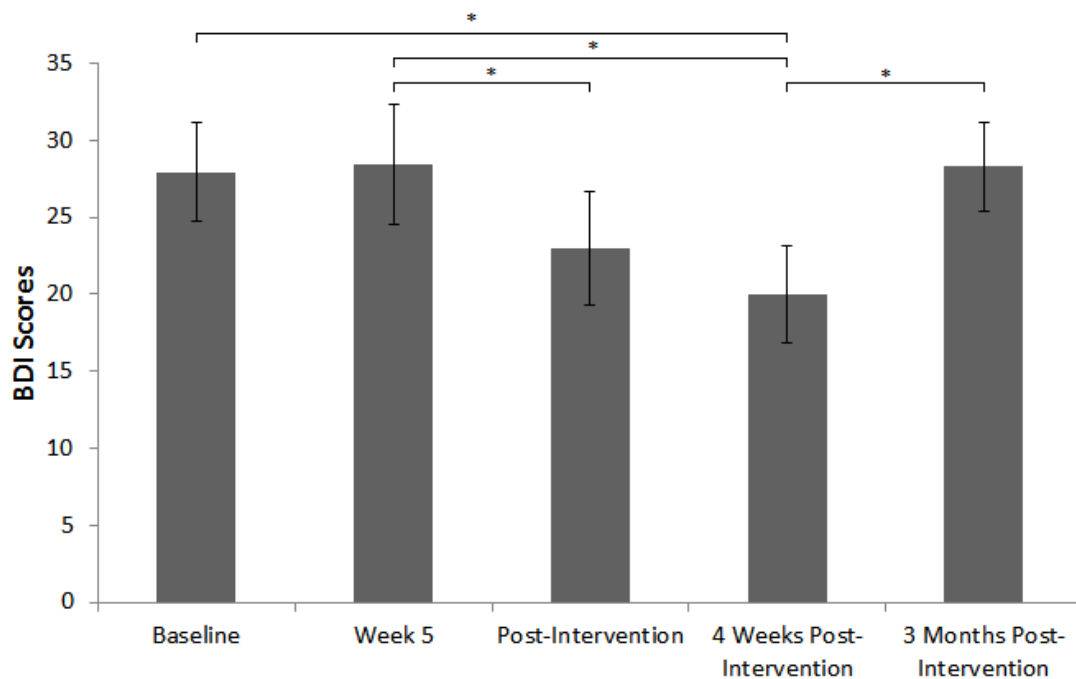


Figure 7. Follow-up trajectory of BDI scores using the combined data for intervention and control groups after the control groups completed the intervention. * indicates significant differences.

A second one-way ANOVA exploring depression levels was conducted, this time using DASS Depression scores. Again, a significant main effect of time was

revealed ($F(3, 51) = 5.15, p = .007, \eta^2 = .23$; see Figure 8). This was followed up with a series of pair-wise t-tests. There was a significant decrease in DASS depression scores post-intervention ($M = 16.33, SD = 12.02$) compared to pre-intervention ($M = 23.33, SD = 9.87, t(51) = 2.48, p = .024$). Depression scores then remained constant between post-intervention and the booster session ($M = 15.05, SD = 7.69, t(51) = .66, p = .518$), with booster session depression scores also being significantly lower than pre-intervention scores ($t(51) = 3.51, p = .003$). However as illustrated by the BDI scores, DASS depression scores increased significantly at 3 months post-intervention ($M = 21.23, SD = 9.50$) compared to the booster session ($t(51) = 3.07, p = .008$). This rise in depression scores at 3 months meant that participants were no longer significantly less depressed compared to when they started the programme ($t(51) = 0.83, p = .422$), and were not significantly different from post-intervention scores ($t(51) = 1.70, p = .111$).

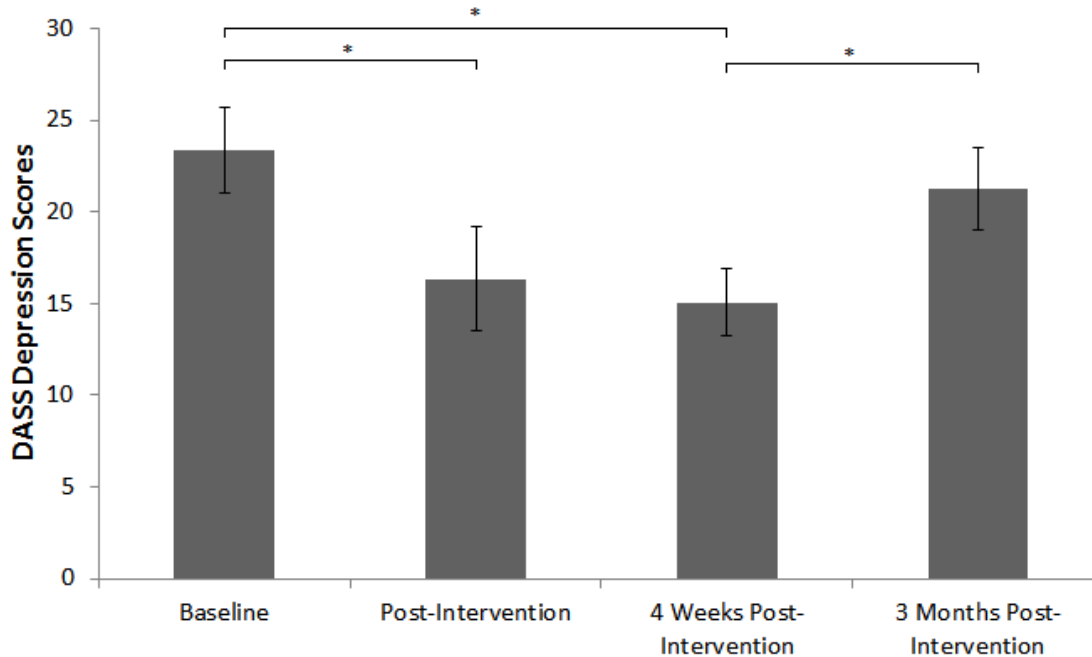


Figure 8. Follow-up trajectory of DASS Depression scores using the combined data for intervention and control groups after the control groups completed the intervention. * indicates significant differences.

6.3.2.3. Emotion Regulation Skills. Two one-way ANOVAs were conducted to investigate how the use of reappraisal and suppression changed during and after the programme. A significant main effect of time on the use of cognitive reappraisal was revealed ($F(3, 51) = 4.18, p = .010, \eta^2 = .20$; see Figure 9). A series of t-tests were conducted to investigate this effect. T-tests revealed a significant increase in the use of cognitive reappraisal to manage emotions post-intervention ($M = 26.28, SD = 6.98$) compared to pre-intervention ($M = 19.72, SD = 7.72, t(51) = 2.96, p = .009$). Then, the use of cognitive reappraisal did not change significantly at the booster session four weeks post-intervention ($M = 24.81, SD = 6.84, t(51) = .840, p = .412$). However, the reported use of cognitive reappraisal by the adolescents at the booster session was no

longer significantly more than pre-intervention, but was now a trend ($t(51) = 2.02, p = .060$). At the three month follow-up, the use of cognitive reappraisal decreased significantly compared to post-intervention use ($M = 22.44, SD = 5.88, t(51) = 2.47, p = .032$). However there was no significant difference between the use of cognitive reappraisal at the three month follow-up and at the booster session ($t(51) = 1.81, p = .103$), and was not significantly different from pre-intervention use of reappraisal to manage emotions ($t(51) = 1.18, p = .259$).

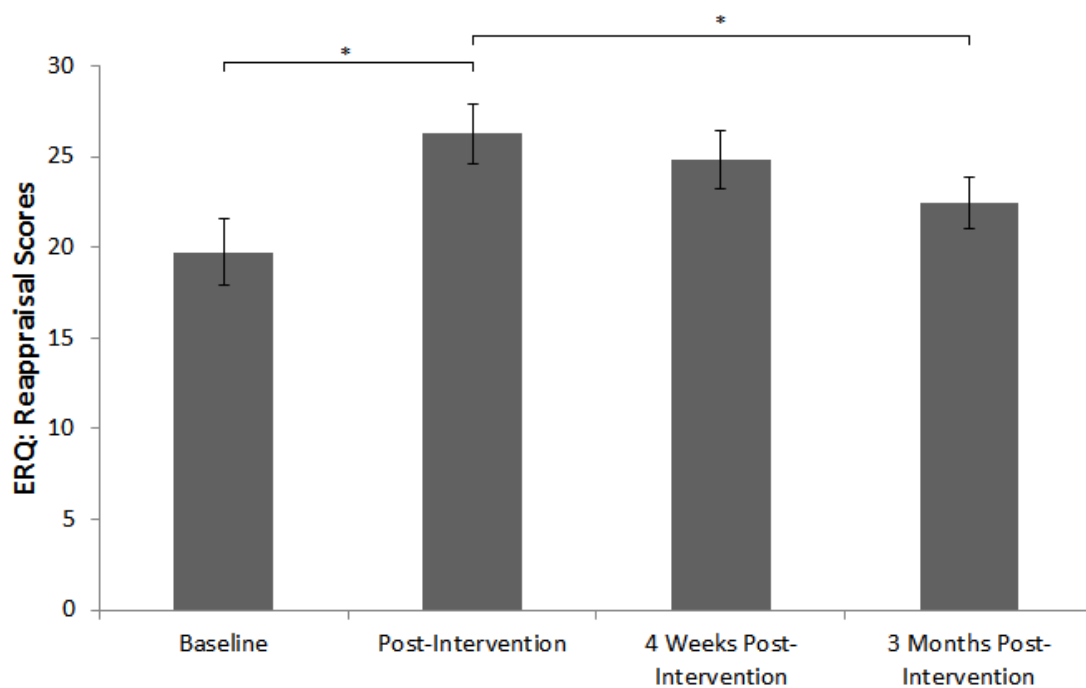


Figure 9. Follow-up trajectory of ERQ: Cognitive Reappraisal scores using the combined data for intervention and control groups after the control groups completed the intervention. * indicates significant differences.

The main effect of time on the use of expressive suppression was not significant ($F(3, 51) = 2.25, p = .108, \eta^2 = .12$). This meant there was no change in suppression scores across the timeline of the programme.

6.3.3. Correlates of Programme Outcomes

To investigate the effect of ToM difficulties on emotion regulation difficulties and programme outcomes, a series of semi-partial correlations were conducted. Semi-partial correlations provide the unique correlation between variables while controlling for other overlapping measures. First, semi-partial correlations between RMET scores and baseline BDI, DASS Depression, ERQ Reappraisal, and ERQ Suppression scores were conducted to establish whether baseline ToM difficulties impacted baseline emotion regulation ability. Second, semi-partial correlations between RMET and participants' change between baseline and post-intervention were conducted to investigate whether ToM difficulties impacted upon programme outcomes. It should be noted that because the BDI and the DASS Depression subscale measure the same construct, the BDI was not controlled for when calculating the semi-partial correlation between RMET and DASS Depression scores and vice versa. Both sets of semi-partial correlations are shown in Table 11. When controlling for DASS Depression, BDI, and Suppression scores, RMET scores were significantly positively associated with reappraisal scores, meaning the higher participants scored on the RMET the more they reported to use cognitive reappraisal to regulate their emotions. Interestingly when controlling for ERQ: Suppression and ERQ: Reappraisal change scores, RMET scores were positively associated with BDI change scores. This meant the higher participants scored on the RMET, the higher their depression symptoms were according to the BDI. Despite this, RMET scores were also negatively associated with ERQ: Suppression change scores, meaning participants who scored higher on the RMET tended to mask their emotions less towards the end of the intervention compared to baseline.

Table 11

Semi-partial correlations between RMET scores, and baseline measures of emotion regulation and change post-intervention.

	RMET	
	Baseline [†]	Change [†]
BDI	.08	.24*
DASS Depression	.10	.04
ERQ: Reappraisal	.48*	-.09
ERQ: Suppression	.05	-.51*

Note ** $p < .01$, * $p < .05$. † Baseline and Change column represents baseline measures of BDI, DASS Depression, ERQ: Reappraisal, and ERQ: Suppression. They are not Baseline and Change of RMET. RMET was taken once only at baseline. All correlations tested for two-tailed significance.

6.3.4. Post-hoc Power Analyses

After the publication of the randomised controlled trial, a series of post-hoc power analyses were conducted. All power analyses were conducted in G*Power 3.1.9.2 (Faul, Erdfelder, Lang, & Buchner, 2007). Effect size for the analysis of each measure was calculated within G*Power by inputting the variance explained by the interaction, and within group variance. Sample size needed represents the number of participants required for an 80% chance of obtaining a significant test (assuming the effect is true). Results of the power analyses can be observed in Table 12.

Table 12

Power analyses for treatment vs waitlist control interactions

Measure	Effect Size	Observed Power	Sample Size Needed*
BDI	.03	.05	5,674
DASS Depression	.46	.62	30
ERQ: Cognitive Reappraisal	.09	.07	760
Suppression	.21	.18	132

* Sample size needed for an 80% chance of finding a significant result with the observed effect size.

6.3.5. Feasibility and Acceptability Measures

6.3.5.1. Participant Recruitment. Recruitment of this population was extremely difficult. It was evident from the slow uptake and feedback that parents were experiencing difficulty convincing their adolescent children to participate in the programme. Many parents called asking about the programme, while expressing concern that their child would not agree to it. Several adolescents withdrew after being assessed for eligibility because they did not wish to participate in the programme. It seemed that by the time the participants had reached adolescence, many of the parents had already taken their children to other programmes or participated in other research projects that did not meet their needs, and a common reason given for withdrawal or loss of interest in the programme was the adolescent was “sick of being studied like a guinea pig”. Other parents reported their children were too nervous about the programme running in a group setting, and some adolescents denied having depression or resisted because they felt they did not need help.

Willingness to participate was not the only issue impacting participant numbers. Almost half of the participants assessed for eligibility were not eligible for the programme. The biggest barrier for eligibility was the depression level of the participants. Six participants were excluded for presenting with a moderate or high suicide risk and needed referral to more appropriate and immediate sources of support. Suicidal ideation was a prominent feature in this population. In addition to the six participants excluded for suicidal ideation, one eligible participant was hospitalised for suicidal ideation post-screening. Additionally, several months after the programme started one participant deemed ineligible for presenting with minimal depression symptoms was hospitalised for intentionally drinking bleach to self-harm. This meant that of the 42 participants assessed for eligibility, 19% were either excluded due to

high suicidal ideation, or were hospitalised for suicidal ideation or self-harming behaviour.

6.3.5.2. Programme Attendance. In total, 19 adolescents started the intervention. Of those 19 adolescents, only 1 withdrew from the 10th session for personal reasons and never returned. There was nothing to indicate that the adolescent withdrew because of dissatisfaction with the programme itself. For the 18 adolescents who finished the intervention, if an adolescent missed a session, then they had the opportunity to attend a one-on-one catch-up session with the psychologists along with their parent before the start of the next session. This opportunity was accepted on every occasion. A total of 23 one-on-one catch-up sessions were arranged, and the maximum number of catch-up sessions a single participant received was 4. Overall, once an adolescent started the programme they stayed with it and ensured that they covered the material despite many crisis situations occurring in their lives.

6.3.5.3. Participant Satisfaction. For 15 adolescents and 7 parents, the booster sessions were audio-recorded so that their feedback on the programme could be taken into consideration. Of the 15 adolescents, 14 reported they enjoyed the programme. The adolescent who reported not enjoying the programme herself stated she would recommend it to others, because she acknowledged the usefulness of the tools. The group setting was considered by most of the adolescents to be the most helpful element of the programme and helped to combat loneliness. Adolescents generally found the tools helpful, but there were individual differences in which strategies were endorsed.

6.4. Discussion

The current study aimed to evaluate the feasibility of conducting a larger randomised controlled trial of a new group cognitive behavioural intervention

targeting depression in adolescents with ASD. The first research question asked whether it was feasible to recruit and engage adolescents with ASD and depression for a CBT programme targeting depression. The primary evidence against feasibility was the difficulty recruiting eligible participants. This was initially surprising given the evidence of need for an intervention targeting depression in adolescents with ASD (Green et al., 2000; Kim et al., 2000, Lugnegård et al., 2011; Strang et al., 2012).

However one explanation for this is that depression does lead to a lack of motivation and engagement, and so difficulty in recruitment may not reflect a lack of need but one of the complications of depression. Furthermore 19% of adolescents assessed for eligibility were either excluded due to high suicidal ideation, or were hospitalised for suicidal ideation or self-harming behaviour. This reflects previous research illustrating that suicidal ideation is a major concern for this population, with the prevalence of suicidal behaviour amongst adolescents and young adults with ASD ranging from 7% to 42% (Hannon & Taylor, 2013), as opposed to 4% to 8% in typical adolescents and young adults (Cash & Bridge, 2009; Gmitrowicz et al., 2003; Resch et al., 2008). This poses the question of whether a randomised controlled trial is an appropriate means to determine the efficacy of a programme for depression in this population.

Despite these difficulties, there was preliminary evidence for acceptability of the programme once participants started the intervention. This was demonstrated with a 100% attendance rate (including catch-up sessions) and high retention rate with only one family leaving the programme prematurely. Additionally the programme had a high proportion of adolescents reporting to enjoy the programme, with only one adolescent stating she did not find the programme helpful. Again this adolescent stated that she would still recommend the programme to others.

The second research question asked whether the programme was effective at reducing symptoms of depression, use of expressive suppression, and increasing the use of cognitive reappraisal. The BDI showed no significant change between post-intervention and pre-intervention or across the two groups. However, the DASS Depression subscale did show preliminary evidence to suggest that the programme may be effective in reducing symptoms of depression. Analysing the DASS Depression scores revealed an interaction trending towards significance. While there was no change observed in DASS Depression scores for adolescents in the wait-list control group, adolescents in the intervention group experienced a significant drop in DASS Depression scores. This mirrors the effect of McGillivray and Evert's (2014) CBT programme, which showed a significant drop in DASS Depression scores for participants with ASD who reported baseline DASS Depression scores in the above normal range. McGillivray and Evert's (2014) did not use the BDI as an outcome measure.

This difference in findings between the DASS Depression scale and the BDI is puzzling as both are widely used measures of depression with acceptable psychometric properties (Crawford & Henry, 2003; Ronk, Korman, Hooke, & Page, 2013; Richter, Werner, Heerlein, Kraus, & Sauer; 1998). They are also typically correlated with each other (Lovibond & Lovibond, 1995b), which was replicated in the current study ($r = .84, p < .001$ at baseline, $r = .71, p < .001$ post-intervention). It is possible that the different results are due to factor differences between the scales. The BDI tends to measure both the cognitive-affective and somatic symptoms of depression (Beck et al., 1996; Whisman et al., 2000), while the DASS Depression subscale tends to focus on the cognitive-affective symptoms (Lovibond & Lovibond, 1995a). A CBT programme

focusing on cognitive restructuring may be more likely to influence cognitive-affective symptoms of depression as opposed to somatic symptoms.

When the intervention group and wait-list control group were combined, a significant drop in depression scores was observed for the DASS depression scale after both groups had received the intervention. A similar pattern was observed for the BDI. However it was at the booster session, four weeks post-intervention, when BDI scores were significantly lower than pre-intervention scores (also observed with DASS depression scores). This allows us to be cautiously optimistic that the *Exploring Depression* programme can help in reducing symptoms of depression in adolescents with ASD. However, due to the lack of control group for the booster session, these findings should be interpreted with caution. Furthermore scores across both measures increased after three months suggesting that there needs to be a greater emphasis during and after the programme on maintaining the strategies when therapy has been completed.

It was also hypothesised that over the 10 weeks there would be a significant increase in the use of cognitive reappraisal for the intervention group but not for the wait-list control group. Contrary to this hypothesis, both groups significantly increased their use of cognitive reappraisal from baseline. This result was surprising as there was nothing to indicate the wait-list control group should increase in the use of cognitive reappraisal. While the use of cognitive reappraisal has been shown to increase with age (McRae et al., 2012), an increase of this magnitude is still unexpected. However, the follow-up analyses did again reveal a significant decrease at three months post-intervention, suggesting a decrease in the use of cognitive reappraisal in the absence of the intervention. Again it is important to remember that there was no control group three months post-intervention, and the wait-list control group at 10 weeks showed an

equivalent increase in cognitive reappraisal use from baseline compared to the intervention group. Therefore this finding should be interpreted with caution.

Despite predictions, the *Exploring Depression* programme seemed to have no impact on participants' use of expressive suppression. While the programme does not target the use of expressive suppression specifically, it was expected that once the participants were taught a variety of functional emotion regulation strategies, they would decrease their use of dysfunctional strategies (i.e., suppression).

The final analyses attempted to investigate the influence of ToM on emotion regulation difficulties and programme outcomes, through a series of correlations. A significant positive semi-partial correlation was revealed between RMET scores and baseline reappraisal scores, suggesting that ToM difficulties may be associated with a decreased use of baseline reappraisal scores. Furthermore, a significant negative semi-partial correlation was revealed between RMET scores and participants' change in their use of suppression, suggesting that minimal ToM difficulties may be related to a decrease in the use of dysfunctional emotion regulation strategies. It had been theorised that poor ToM ability would have a negative impact on one's ability to identify and label emotions (alexithymia; Frith & Frith, 2003; Moriguchi et al., 2006) and our preliminary research suggests that this may in turn influence what emotion regulation strategies are used. These findings provide preliminary support for this theory, and to the authors' knowledge, is the first to measure the direct relationship between ToM ability and emotion regulation in adolescents with ASD. However the preliminary aspect should be emphasised as these are associations without evidence for causal relationship. To our surprise, a significant positive semi-partial correlation was revealed between RMET scores and BDI change scores. This meant that participants performing well on a ToM task actually tended to develop worse

symptoms of depression as measured by the BDI. No such relationship was revealed between RMET scores and DASS Depression scores.

6.4.1. Limitations and Challenges of this Research

One of the primary limitations of this study was the use of self-report measures to assess eligibility and outcome. Seven of the adolescents assessed for eligibility scored very low on the BDI and therefore were not eligible. As depression was assessed through self-report, it is unknown whether these adolescents were indeed not depressed, or had difficulty labelling their emotions. This was one of the drawbacks of using self-report measures in this project. Mazefsky et al. (2011) illustrated how adolescents with ASD tend to under-report symptoms of depression on self-report measures when compared to a structured diagnostic interview. The decision to use self-reported BDI as a screen for eligibility was based on the results of study 2 in Chapter 4. Despite the sample in Chapter 4 showing high endorsement for alexithymia, we also observed a high rate (38%) of self-reported severe depression according to the DASS. This was on par with depression rates revealed through clinical interviews (30%; Green et al., 2000) and parental reports (44%; Strang et al., 2012). A strong association between alexithymia and self-reported depression scores was also revealed in Chapter 4, indicating those who reported to have great difficulty labelling their emotions were still able to report high levels of depression. It was for this reason that parental reports or structured interview for depression were not considered at the start of the trial. However given the relative ease of introducing a parental measure of depression, future trials should employ such measures.

The second challenge faced when running the programme was participant motivation, especially with respect to the homework projects. The homework projects in intervention involved scheduling the tools into their weekly planner, and then recording how they felt before and after using those tools. Homework is an essential part of CBT, as it encourages participants to practice and generalise the tools they have learned in session into their everyday lives, and helps prevent relapse (Kazantzis & Lampropoulos, 2002). In fact, homework compliance has been shown to predict improved intervention outcomes (Mausbach, Moore, Roesch, Cardenas, & Patterson, 2010). However, homework compliance has been shown to be poor even in typically developing depressed adolescents (Gaynor, Lawrence, & Nelson-Gray, 2006), likely due to a lack of motivation and engagement associated with depression. Poor homework compliance in the current sample may have had a negative impact on the effectiveness of the programme. Many participants stated that because the scheduling of the tools into their weekly planner was part of the project, it was rarely completed. Several parents suggested that the scheduling of the activities into the weekly planner should be completed during the group session rather than being part of the homework. This would provide a clear plan for the adolescents rather than leaving the adolescents to create their own plans in their own free time. Additionally, as participants were either in the intervention group or a wait-list control group, participants were not blind to the condition they were in and so the results may have been influenced by participant bias. Lastly, fidelity checks were not carried out. However, this was a manualised programme, whereby the psychologists went through each section of the programme step-by-step. In essence this operated similarly to a fidelity checklist. The psychologists delivering the programme also attended weekly supervision sessions

where they reported on all elements of the program they delivered and any issues with the materials.

6.4.2. Future Directions and Conclusion

To the authors' knowledge, the current study was the first pilot of a randomised controlled trial of a CBT programme for depression in adolescents with ASD. There was mixed preliminary evidence for feasibility, given the low recruitment rate and high suicidality of this population. However both attendance and satisfaction from participants were high, supporting acceptability of such programmes.

Furthermore there was cautionary evidence that the programme may be effective in reducing symptoms of depression. However, given the use of self-report measures, small sample size, and lack of control group at follow-up, the results should be interpreted with caution. This study highlights the difficulties and challenges of working with a depressed population with ASD, especially with recruitment, compliance, and suicidal ideation. While it would be beneficial to replicate this study with a bigger sample size, future research needs to investigate possible motivators for adolescents with depression to participate in a depression intervention.

CHAPTER SEVEN

Qualitative Feedback and Delivery Issues

In addition to the quantitative data discussed in Chapter Six, qualitative data were obtained throughout the programme. Qualitative data was obtained from two sources. First, post-intervention, the booster session, and at the three month follow-up, parents were asked to write down any qualitative changes they had observed in their child since they had started the programme. Second, at the booster session 15 adolescents and 7 parents participated in a focus group where the psychologist running the session asked a series of questions (see Appendix E). This chapter reports on the qualitative feedback from the participants, provides an in-depth account on the experience of three adolescents, and discusses delivery issues encountered when conducting the trial.

7.1. Qualitative Feedback on the Exploring Depression Programme

7.1.1. Written Feedback from Parents

Written feedback from the parents was imported into NVivo 9 (QSR International Pty Ltd, 2010) for thematic analysis. Semantic content perceived as relevant to the programme's effectiveness or the status of the adolescent was initially coded. Once the feedback had been coded, the content was categorised into meaningful groups. These groups were then reviewed from a broader perspective to form overarching themes. As expected, almost all the feedback was in relation to improvement after finishing the *Exploring Depression* programme. The most commonly discussed improvement was an increase in overall resilience. Parents discussed how their children were now coping a lot better with stressors, were calmer in general, and displayed less frequent outbursts with shorter duration. One parent even mentioned how her daughter was able to self-regulate successfully on an

independent trip to Japan after the intervention had finished. Note all names in the subsequent quotations have been modified to protect the identity of the participants.

“Claire was able to self-regulate in her two weeks in Japan and after removing herself for a short while when becoming overloaded or stressed, she would be able to come back to the group of her own doing.” Margaret, mother of a 15 year old female with ASD.

The second most reported improvement by parents was social skills. Parents discussed how their children were now much more motivated to form and keep social relationships and were much easier to converse with. Several parents also stated how their children were now thinking a lot more about what they were going to say, and were more self-aware of their social errors (e.g., noticing when they aren't listening to someone).

“I have noticed an improvement with Rachel generally. She is less reactive and seems to think before she speaks. She appears more thoughtful to other's feelings and opinions. I find it is easier to have a conversation with her. She is more open about her thoughts and feelings.” Tonia, mother of a 16 year old female with ASD.

Some parents also reported greater self-awareness in general in their children, reduced depression, and an increase in the diversity of activities that the children participate in. However, not all parents reported positive outcomes. Four parents reported an increase in anxiety following the programme. Of these four parents, one parent also reported increased aggression, and one parent reported that insomnia was now an issue.

“Along with adjusting to university life and the technical age of maturity, the additional social stresses have been challenging to cope with, as evidenced by insomnia. Therefore, medication for anxiety has been started... There has been ‘copy

cat' risk taking behaviour and possible self-harming...” Anne, mother of a 17 year old male with ASD.

7.1.2. Booster Session Focus Groups

The focus groups conducted at the booster sessions were either audio-recorded and later transcribed, or when an audio-recorder was unavailable, the interviewers took notes based on participant responses. The transcriptions and notes were then imported into NVivo 9 (QSR International Pty Ltd, 2010) for thematic analysis. Again, semantic content perceived as relevant to the programme’s effectiveness or the status of the adolescent were initially coded. The coded content was then categorised into meaningful groups. These groups were then reviewed from a broader perspective to form overarching themes.

7.1.2.1. Benefits from the Programme. A common theme discussed within the groups was the benefits the adolescents and parents observed from participating in the *Exploring Depression* programme. Several adolescents reported being happier after finishing the programme, and even reported feeling sad that the programme had finished.

“Well I noticed that I have no life now (that the programme has finished), that my Saturdays are a bit boring. I quite liked it, the people were awesome and it was really nice... I’ve been a lot happier since.” Claire, 14 year old female with ASD.

Parents reported improved self-awareness in the adolescents after the programme. They discussed how their children seem to be more aware of their thoughts and how they impact their mood and behaviour, and are more observant of their own behaviour.

“He’ll still talk over me and lectures me and those other things but he’ll say things when he lectures me he’ll say ‘oh maybe I should stop lecturing you, give you a

chance to talk'. You know he'll make fun of himself... he has awareness of his own thoughts, which he does employ, and demonstrates, and says that that's been quite helpful" Lauren, mother of a 17 year old male with ASD.

Several other improvements were discussed such as increases in physical energy (likely a result of the physical tools), greater ability to calm down, reduced frequency of outbursts, improved organisational skills, and increased variety in daily activities. However, the last major improvement discussed by the adolescents and parents was improved social skills.

"She's actually been quite good, even though when I'm talking to her about it she says 'nope I learned nothing', I noticed a change in her, in, just the way she speaks to people now and she thinks more before she speaks, and just generally she seems a whole lot better." Tonia, mother of a 16 year old female with ASD.

"Well, I noticed once I was gone how useful some of the information was. But in particular, I noticed it was really helpful to deal with people that are kind of going through the same thing. I thought like the social aspect really helped." Jason, 17 year old male with ASD.

7.1.2.2. Usefulness of the Tools. As mentioned above by Jason, the benefit in social skills was strongly attributed to the group dynamics and social interaction during the programme. The group setting was considered by most as the most helpful element of the programme, rather than the programme content itself. Adolescents reported that seeing how they were not alone in battling depression helped tremendously. The group setting also helped foster friendships between participants, which helped against feelings of loneliness and became useful for engaging in social tools.

“I’m happy about this because I actually made some new friends, which I’ve been having really hard trouble making friends that actually accept me for who I am, and actually have the same problems I have, so I don’t feel alone, like, they understand what I’ve been going through” Daniel, 13 year old male with ASD.

Parents also discussed how the social aspect of the parent group helped them. Again, seeing other parents going through what they went through was reported to be quite helpful.

“The people around me aren’t challenged very often, they’re all very successful currently in life, and I find it quite hard sometimes just to... share kind of the struggles with, and I really like that about this group you know like...you can voice it.” Lauren, mother of a 17 year old male with ASD.

Participants also found the physical and relaxation tools quite helpful. Physical tools used by participants varied considerably. One adolescent was a cage fighter who took this activity very seriously. Despite perceptions that cage fighting may be an unhelpful activity that promotes aggression, this adolescent was extremely disciplined, actively participated in the programme, and successfully used his physical activity to help regulate his emotions. Another male in the same group would spin around on the spot for a period of time as his physical activity. However, sometimes there were barriers to using physical tools, in particular, health issues. These will be discussed in greater detail further on.

Pleasure tools were also endorsed as helpful by many participants. This was unsurprising given this tool consisted of the adolescents participating in an activity they enjoyed. Some of the activities the adolescents used as pleasure tools were activities the adolescents used to enjoy but had stopped engaging in.

“I do notice that she’s drawing a lot more now. She always has been very creative and artistic, but she lost it for a while. She’s got it back now...” Tonia, mother of a 16 year old female with ASD.

Opinions on the effectiveness of the thinking tools were mixed. Parents tended to feel that they were very helpful, but did suggest that the adolescents may not consciously agree with the parents, despite using them to cope with challenging emotions. Like the parents predicted, several adolescents reported to find the thinking tools unhelpful. However, this view was not unanimous as there were also several adolescents who found them to be extremely helpful.

“I think even though it’s not spoken about, the thinking tools. Because I do see evidence of it in Rachel stopping to think about things in her conversations with others.” Tonia, mother of a 16 year old female with ASD.

“I know Jason said what he found most helpful was the social group, not being alone, the meditation, he really really liked mindfulness, and the thinking tools, but I would agree from the outside the thinking tools were kind of the most... I witnessed that change kind of the most, it was the most marked difference.” Lauren, mother of a 17 year old male with ASD.

“The thinking tools hasn’t really worked for me too well but I haven’t really tried too much.” Adam, 15 year old male with ASD.

Another tool that received mixed opinions was the self-awareness tool. Based on the transcripts it is clear that at least four of the adolescents explicitly disliked doing the activity. This activity involves increasing one’s awareness of their bodily senses, which can be uncomfortable for some adolescents. One adolescent stated that the rationale behind the self-awareness activity needed better explaining. However, at least four adolescents explicitly liked the activity, so it seems endorsement of this tool

may be roughly 50% in this sample. However, even the adolescents that endorsed the usefulness of this tool mentioned that they had difficulty incorporating it into their daily schedules.

“Actually, whenever we have done the self-awareness here I’ve actually found it very relaxing, and pretty good, so it would be a tool that would help me a lot if I actually remembered to do it.” Adam, 15 year old male with ASD.

7.1.2.3. Suggested Changes. Participants were more than happy to suggest ways of improving the programme. The first common suggested change discussed was to have more adolescents per group. Due to the difficulty in recruitment, most of the groups were comprised of three or four adolescents. While not regular, it was not uncommon for one or two participants to be absent for a session (which was followed up with a catch-up session before the next session). This meant that on a few occasions, the group had only two or even one adolescent. Participants felt that a group of six would be the best balance between keeping the group socially bearable, and allowing for absenteeism.

“...maybe slightly larger groups, maybe 1 or 2 more people. 6 tops, because after that it starts getting too many... You want enough that if a couple of them are not here there’s actually still a group.” Paul, 18 year old male with ASD.

Adolescents that were in a session comprised only of males also requested a better mix of the genders. Additionally, despite participants claiming that the social aspect of the programme was the most beneficial aspect, they did suggest the facilitators have better control over the groups. Some adolescents felt that their conversations sometimes got carried away, or might have veered off topic. Both parents and adolescents suggested that the timesheet, where participants are asked to schedule when they will use various tools, should be completed in session rather than

as a project. Many participants stated that because it was set as a project for them to do in their own time, it was rarely completed.

“I really like the idea of that scheduling activity because executive functioning is a huge issue for Jason and impacts his life probably more than anything else does. And I think that that activity, the usefulness would be greatly improved if they did that in group when they had the group leader to help direct them and show them how to do that and give them feedback.” Lauren, mother of a 17 year old male with ASD.

Another topic of discussion was the length of the programme. The programme is originally designed to go for an hour a session. However when the programme started it was soon clear that an hour was not nearly enough time to get through all the content. This time was extended to 1.5 hours, but often still went over time. Both adolescents and parents felt that it would have been better to keep the sessions shorter and less dense, but have a few more sessions so that all the content of the programme is covered.

“I think what was said before, making the sessions less dense, so that the kids actually had a chance to practice, and use the skills that they were being taught.”

Tonia, mother of a 16 year old female with ASD.

In regards to content, some of the adolescents felt that more practical examples on when to use certain tools should be included. Some adolescents also felt that some of the tools and activities needed better explanation. These included the self-awareness tool, more detail on how to label emotions on the thermometer task, and being more specific with questions. For example in one group when they were learning about cognitive distortions and were asked to think of examples of when they were depressed, several participants of the group generated examples of being depressed that were not the result of a cognitive distortion, which in turn hindered the activity.

The final topic covered by both parents and adolescents was the start time of the programme. It was initially thought that a start time of 10:00am or 11:00am would provide sufficient lead time for adolescents to attend the sessions. However, families often arrived late, and often complained about how it was a struggle to wake their children up and get them ready.

“That would be my only thing is the time which is really really difficult in teenagers. We wouldn’t have had any problem at all getting here if it was in the afternoon. Mornings were like... we missed like 4 of them just because it was so hard.” Lauren, mother of a 17 year old male with ASD.

7.2. Participant Stories

To illustrate the different experience of the participants in the programme, three participants were selected to be presented as case studies; Elizabeth, Jason, and Sandra. Elizabeth was chosen as someone who explicitly did not enjoy the programme. Jason was chosen as someone who did enjoy the programme qualitatively, but did not improve based on quantitative measures. Sandra was chosen as someone who showed quantitative improvement during the programme.

7.2.1. Elizabeth

Elizabeth was 17 years old when she was assessed for eligibility for the programme. She lived with her mother and younger sister. She had a diagnosis of AS obtained from a multidisciplinary team when she was 15 years old. Elizabeth was taking Sertraline (a selective serotonin reuptake inhibitor anti-depressant) at the start of the programme. Her estimated verbal IQ was 97 according to the WASI, however she performed the highest out of all adolescents on the verbal fluency test and tied highest on the digit span test. Elizabeth also met all six criteria on the ASDI.

At the beginning of the programme both Elizabeth and her mother (Jessica) were very pessimistic about the programme. Elizabeth had participated in CBT programmes before and had found them unhelpful. Jessica was so openly pessimistic about the programme that the father of another adolescent stopped attending the parent group because he could no longer tolerate her negativity. At this stage the therapists working with the parents spoke with Jessica to try to help her to decrease her tendency to speak negatively within the group. She was able to do this to some extent following this discussion.

Elizabeth experienced severe sensory sensitivities and reported that many of her emotional triggers were sensory related. Because Elizabeth's triggers were primarily sensory related, she reported that she found many of the tools in the programme unhelpful. She very much disliked the self-awareness activity, stating that it exacerbated her sensory sensitivities. Several alternatives to the self-awareness activity were trialled, such as the "Leaves on a Stream" exercise where one imagines placing thoughts on the leaves of a stream and watching them float away. However, Elizabeth reported that these exercises were not helpful. Towards the end of the programme it was evident that mindfulness exercises were causing her more distress than good, and she was told she could sit out of the self-awareness exercise. Elizabeth also reported that the thinking tools were unhelpful. While she participated in the activities, and knew the appropriate thought to target each cognitive distortion, she frequently said it would not help her to alleviate distress triggered by her sensory sensitivities. Even with the help of a facilitator, it was quite difficult to find an example of a situation where she could use the thinking tools that she could relate to. However, her pessimism towards the programme and the belief that "nothing will work" was an identifiable cognitive distortion that the facilitators targeted with little

success. Elizabeth also reported to very much dislike people, and had no interest in using social tools. In fact, she said people were a cause of distress, and she would find no alleviation in socialisation. She refused to give her contact details to the other adolescents in her group. Eventually she revealed that she missed socialising with her mother. The facilitators encouraged her to spend more time talking with her mother, which she did and reported that she enjoyed. Elizabeth was also overweight, and as a result found the physical tools quite difficult to use. Again, she would report that physical activity exacerbated her sensory sensitivities. Mid-way through the programme, Elizabeth revealed she had a vibration platform machine that she did not mind using, and so she started to use that machine as her physical activity. By the end of the programme she also reported finding additional ways of engaging in physical activity like helping her mother unpack the car after a grocery run.

Despite Elizabeth and her mother’s negativity towards the programme, they came early and consistently every week. In the final session, Elizabeth stated that the programme did not help her. However, scores on the measures of depression indicated a different picture (see Table 13).

Table 13

Elizabeth’s BDI and DASS Depression scores across the duration of the programme

Measure	Pre-Intervention	Post-Intervention	Booster Session	Three Month Follow-Up
BDI	32 (severe)	24 (moderate)	28 (moderate)	24 (moderate)
DASS Depression	26 (severe)	14 (moderate)	14 (moderate)	12 (mild)

In addition to this Elizabeth and her mother reported that she had also started engaging in old hobbies. Elizabeth had a very strong interest in music, but had stopped playing her instruments prior to the programme. At the start of the programme her

mother believed that she would never play again. Towards the end of the programme she had started playing her instruments again regularly. Elizabeth also said that she would recommend the programme to others despite not finding it helpful herself, and that she could see the value in the tools taught. In the final parent session Jessica was able to report that Elizabeth had applied to undertake a university program in Music and that she had been accepted.

7.2.2. Jason

Jason was 17 years old at the start of the programme and lived with his mother and mother's partner. Jason's mother, Lauren, had left Jason's father overseas due to domestic violence. They had lived in Australia for several years but were still awaiting their citizenship, which caused some distress for the family as this narrowed Jason's study prospects in Australia. Jason received his diagnosis of AS from a psychologist just prior to starting the programme. He was taking Dexotroamphetamine (a central nervous system stimulant), and Olanzapine (an atypical antipsychotic). Jason met all 6 criteria on the ASDI and had an estimated verbal IQ of 122.

Lauren was one of the first parents to inquire about the programme. However on the day that Jason was scheduled to be assessed for eligibility, he refused to attend. Lauren attributed this to social anxiety and his belief that "nothing was wrong with him". However with her prior permission, she was contacted again sometime later to see if Jason's position on participating in the programme had changed. Jason agreed to be assessed for eligibility.

Prior to the programme, Jason had not been studying or working, and his mother said that seeing his friends go on and study had triggered feelings of depression. Jason had reportedly not left the house in some time, only left the house on rare occasions, and spent most of his time at home on the computer. Jason was able to

mask his depression and social anxiety very well during social interactions, and he came across as having good social skills and caring about his appearance. He experienced great difficulty attending sessions on time, and Lauren said this was due to his anxiety and needing to spend a great deal of time on his appearance. However he very much enjoyed the sessions when he arrived. Jason was an active contributor in the groups. He participated in all the activities and was very helpful when there were other disruptive adolescents in the group, bringing the group back on task by actively providing examples for the cognitive distortions. In fact Jason was one of the few adolescents who consciously endorsed the thinking tools. Jason also developed several friendships within the group.

Towards the end of the programme, Jason had begun looking for study options independently, successfully tackling college interviews. He had also formed new friendships and again reported to have very much enjoyed the programme and would recommend it to others. Despite this, scores did not reflect an improvement until follow-up three months post-intervention (see Table 14).

Table 14

Jason’s BDI and DASS Depression scores across the duration of the programme

Measure	Pre-Intervention	Post-Intervention	Booster Session	Three Month Follow-Up
BDI	26 (moderate)	32 (severe)	<i>Missing</i> *	19 (mild)
DASS Depression	24 (severe)	26(severe)	<i>Missing</i> *	14 (moderate)

* Jason was not available to complete the booster session measures but still completed the Three Month Follow-up measures (see Figure 3).

The majority of the qualitative feedback from Jason and Lauren was very positive, and there was no available qualitative information to explain the increase in depression scores post-intervention.

7.2.3. Sandra

Sandra was 18 years old when she first undertook assessment for the programme. Sandra's parents were divorced and she was living independently with a housemate. She had a good relationship with her mother at the start of the programme, but not with her father. Sandra's diagnosis was also AS, which she received from a psychologist when she was 16. She was taking Melatonin (sleep medication) at the start of the programme. Later in the programme it was also revealed that she smoked marijuana regularly. Sandra's verbal IQ was 111 and she met all six criteria on the ASDI.

Sandra presented with extremely severe depression, scoring 62 on the BDI out of a maximum possible score of 63. Because Sandra endorsed "I would kill myself if I had the chance" on question nine of the BDI, she underwent a thorough suicide risk assessment. Sandra reported that she experienced thoughts of suicide every day for the last two years, which would persist for a minimum of two hours, up to an entire day. Sandra did say she experienced fewer thoughts of suicide this year than the previous year. When asked if she had a plan to take her life, she indicated she had no plan or serious thoughts of suicide, and that her thoughts and feelings were more of an impulse. She said she had never attempted suicide before, and said the chance that her situation would get worse over the next few days to the point where she would develop a plan was "extremely improbable". Sandra's social support network consisted of her mother, psychologist, housemate, and several close online friends, all who knew about her suicidal ideation and were very supportive. She presented as very sensible, logical, and aware of her triggers, and said she would seek help from her support network before developing a suicide plan. Sandra's risk of suicide was

considered manageable and therefore she was deemed eligible to participate in the programme.

Sandra was very quiet at the start of the programme and did not initiate conversation. She also displayed a very flat affect. She did however have a keen interest in neurology and aspired to become a scientist. Sandra had difficulty attending sessions and actually missed three sessions across the duration of the programme. One-on-one catch-up sessions between herself, her mother, and a facilitator were arranged on these occasions before the start of the next group session. Therefore Sandra and her mother did not miss any content from the programme. She seemed to enjoy the groups and formed a tight friendship with the other adolescents in her group. Once she had developed these friendships, she felt comfortable actively participating in the session activities.

Sandra's journey during the programme was not without its hiccups. Midway through the programme she reported to begin experiencing psychotic episodes in her home. She said during these episodes she would get very paranoid and lock all the doors and hide. One of the facilitators did discuss with Sandra the potential link between her cannabis use and psychotic episodes, but Sandra did not believe it was a major issue. Every week following the disclosure of these psychotic episodes, a facilitator would talk to Sandra one-on-one about her psychotic episodes to check on Sandra's safety. A second setback was a falling out between Sandra and her mother around the eighth session of the programme. As a result, Sandra's mother stopped bringing her to the programme and stopped attending the parent group. Sandra then started having her father bring her to the sessions, but she did not allow him to participate in the parent group.

Despite these issues, Sandra reported significant quantitative improvement during the programme (see Table 15). However even at follow-up three months later where she had the fewest symptoms of depression according to the BDI, she still scored within the severe range of depression.

Table 15

Sandra's BDI and DASS Depression scores across the duration of the programme

Measure	Pre-Intervention	Post-Intervention	Booster Session	Three Month Follow-Up
BDI	62 (severe)	51 (severe)	50 (severe)	46 (severe)
DASS Depression	42 (extremely severe)	30 (extremely severe)	24 (extremely severe)	30 (extremely severe)

7.3. Delivery Issues

Encouragingly, of all the participants interviewed, all but one adolescent (Elizabeth) indicated that they enjoyed the programme. Additionally, all participants, including Elizabeth who did not enjoy the programme, said they would recommend it to other adolescents with ASD and depression. There were however several barriers to the delivery of the programme.

7.3.1. Recruitment difficulties

As discussed in Chapter Six (see 6.2.1.1 & 6.4.1), recruitment for the programme was extremely difficult, despite evidence for the need for such a programme. During the planning phase of the project, it was anticipated that 60 eligible participants would be enrolled across a period of 3 months. Again, every public school in the greater Brisbane area and several psychology clinics were contacted to help advertise the programme. Autism Queensland and Asperger's Services Australia distributed flyers to their mailing lists. The University of Queensland even organised a media release. Despite these efforts, enquiries were

lower than anticipated. Of the enquiries, many parents did not commit to being assessed for eligibility. As discussed previously, many parents had difficulty motivating their adolescents to participate in the programme, which was expected given depression is frequently associated with poor motivation and engagement.

7.3.2. Disruptive behaviour

Once the programme was running, new difficulties emerged amongst the adolescents. Disruptive behaviour was quite common. For example, one adolescent would refuse to participate in activities and just sit during the session, occasionally interrupting in an unconstructive manner. There were also several occasions where he suddenly left the room, which meant one of the facilitators had to follow him. His participation highlighted the importance of having a second facilitator to help manage the adolescents and provide individual support when necessary.

Another example that highlighted the importance of having a second facilitator was another male participant who reported an extreme dislike for his fellow group members. Despite a pleasant first session, this adolescent refused to join the second session and proceeded to have an emotional outburst in the clinic reception area. After several failed attempts to encourage him to participate in the group, it was decided that one of the facilitators would deliver the content to this participant one-on-one. While the adolescent would not receive the social interaction component of the group CBT programme, he would still receive the same content as if he had participated in the groups. The second facilitator and the author delivered the programme content to the remainder of the group. There were several further attempts in future sessions to get him to participate in the group. However these attempts were unsuccessful, and so this participant received the programme content one-on-one for the majority of the sessions rather than in the group setting.

7.3.3. Outside Stressors

Both adolescents and parents experienced external stressors outside of the programme that had a negative impact on their ability to take on the programme content. Bullying at school was common amongst the younger adolescents, and was an often cause of distress during the week between sessions. One adolescent also had a physical altercation with his grandfather, which resulted in his grandfather being admitted to hospital. This had a severe negative impact on the adolescent's and parent's mood for quite some time. For another family, a mother's diagnosis of cancer midway during the programme was the outside cause of distress. However, the adolescent in this family was still very compliant with the activities in the programme.

Financial difficulties were also evident for some parents, and for one parent it nearly resulted in the family's withdrawal from the programme. The mother of this family was a single parent, who was also looking after a friend of her daughter. The mother and daughter missed two sessions in a row, and attempts to contact the mother failed as their telephone number had been disconnected. She was also not replying to emails. When contact was finally made via email, she reported that her internet had been disconnected, and that she was in such financial trouble that she could not afford the fuel to drive to herself and her daughter to the clinic for the programme. Fortunately she shortly reported to have enough money to make the following sessions and a catch-up session for the two sessions she and her daughter missed was arranged. They were both able to complete the programme.

7.3.4. Termination and Data Collection

Towards the end of the programme, several parents indicated severe distress over the impending completion of the programme. In the second final session of one of the parent groups, several parents reported feeling they were being used for research

purposes only and then abandoned at the completion of the programme, stating the programme and sessions should continue or that they should be receiving ongoing support. The facilitators raised this issue in their supervision meeting with supervisors Kate Sofronoff and Jeanie Sheffield, who then attended the final parent group to discuss these issues with the parents. This reaction does reflect how parents still have to live with their adolescent children long after the completion of the programme, and perhaps steps should be taken regularly during the programme to emphasise the time-bound nature of the programme and refer parents on for ongoing support.

Once the programme had concluded, data collection became an issue, especially at the three month follow-up. At three-months post-intervention, the parents were contacted via email or phone (or both) every two to three days. While a small number of families were very proactive in completing the measures, most were not. Some families took more than five contacts before they completed the measures. Several parents reported great difficulty getting the adolescents to complete the questionnaires, indicating their child's depression had become worse. This highlights the benefit of multiple imputation over list-wise deletion or last-observation-carried-forward for dealing with missing data. If list-wise deletion was employed, adolescents who did not do well in the programme may have been excluded from the analysis. If last-observation-carried-forward was employed, it may have underestimated the rate of relapse.

Despite these barriers to the effectiveness of the programme, there was still evidence that this programme was successful as discussed above and in Chapter Six. The programme was still received favourably by almost all adolescents, and there is evidence to suggest the programme helps alleviate symptoms of depression as measured by the DASS.

CHAPTER EIGHT

Summary and Conclusion

The studies conducted as part of this thesis have important implications for the mental health and well-being of adolescents and young adults with ASD. At the beginning of this project, to the author's knowledge there were no studies investigating emotion regulation in adolescents or young adults with ASD. All investigations were conducted with and about children. Both studies 1 and 2 commenced before Samson et al. (2012) published their paper showing that adults with ASD tend to use atypical emotion regulation strategies. However even after this paper, the current research project is the first to conduct qualitative investigations into emotion regulation in this population, establish the predictive nature of cognitive reappraisal on depression and anxiety symptoms in ASD, and is also the first to conduct a pilot randomised controlled trial of a CBT depression intervention for adolescents with ASD. However given the difficulty with recruitment, and the challenges that were faced during the programme, it was unsurprising that a project such as this had not been achieved before.

The first step in investigating emotion regulation in this population was to conduct a qualitative study interviewing adolescents and young adults with ASD, parents, teachers, and psychologists on the topic. This gave insightful information as to the triggers of troublesome emotions, self-awareness difficulties, how adolescents and young adults successfully coped with troublesome emotions, and the impact that emotion regulation difficulties have on those with ASD, and the people around them. This insight was helpful with making an informed decision on the type of intervention that may be helpful for this population. However, before an intervention could be chosen and evaluated, the prevalence of emotion regulation difficulties had to be

investigated, and the predictive nature of emotion regulation skills for depression and anxiety had to be explored.

To follow up the qualitative study, an online survey was conducted. This survey was completed by a large number of participants. This was important to ensure the findings of the survey would be strongly representative of adolescents and young adults with ASD. Analysing the responses to this survey revealed that alexithymia (i.e. the ability to identify and label one's emotions) was a strong determinant of whether a participant used functional or dysfunctional emotion regulation strategies. Seventy-one percent of the sample reported significant difficulty identifying and labelling their emotions. The greater the difficulty that participants had labelling their emotions, the less likely they to use cognitive reappraisal, and the more likely they were to use expressive suppression to regulate their emotions. In turn, the use of cognitive reappraisal was associated with fewer symptoms of depression, and expressive suppression was associated with greater levels of depression. Neither strategy was directly linked with anxiety.

The survey also revealed significantly large rates of depression and anxiety symptoms, with 65% and 73% of the sample reporting moderate symptoms of depression and anxiety respectively. Furthermore, 38% and 45% of the sample reported clinically significant levels of depression and anxiety. This was a novel finding, as the few studies that have reported prevalence rates have only touched upon the adolescent population but also recruited children and analysed their results together, or have limited sample numbers (e.g., Green et al., 2000; Kim et al., 2000; Strang et al., 2012). While the rates of reported anxiety were higher than the rates of reported depression in adolescents and young adults with ASD, there are already a number of interventions that are known to be successful in reducing symptoms of

anxiety in ASD (e.g., Reaven et al., 2012; Sofronoff et al., 2005). Again to the author's knowledge, a randomised controlled trial of an intervention targeting depression in adolescents with ASD has not been conducted. Therefore to fill this gap, a suitable programme was needed.

Given the evidence that cognitive reappraisal is associated with fewer symptoms of depression, a programme that incorporates cognitive reappraisal (or cognitive re-structuring) seemed most appropriate. Cognitive Behaviour Therapy is one such orientation. Additionally, given the research showing success from CBT programmes in reducing symptoms of depression in typical adolescents (Garvik, et al., 2014; Poirier et al., 2013; Stallard et al., 2011; Stasiak et al., 2014), and in reducing symptoms of anxiety in children with ASD (Chalfant et al., 2007; Lang et al., 2010; Moree & Davis, 2010; Sofronoff et al., 2005; White et al., 2010), the next step was to find a CBT programme that targeted depression in adolescents with ASD. An appropriate CBT programme was the *Exploring Depression* programme, which not only teaches cognitive reappraisal, but several other strategies endorsed by participants in the initial qualitative investigations. Furthermore, it is specifically adapted for adolescents with ASD as it also targets issues surrounding ASD generally rather than just depression, uses concrete, visual strategies, incorporates the participants' special interests into the programme, and involves a parent group. Lastly, this programme targets issues regarding emotion identification and labelling. This is important given the prevalence of identification and labelling difficulties revealed from the survey, and given these difficulties seemed to inhibit the use of functional emotion regulation strategies, and in turn, increase symptoms of depression.

The *Exploring Depression* programme was evaluated through a randomised controlled trial. Despite evidence illustrating the need for such a programme,

recruitment was extremely difficult. Even with the limited sample size, there was preliminary evidence to suggest that the programme could help to reduce symptoms of depression. Although it is important to remind the reader that this was only evident in one of the two measures of depression. Furthermore, qualitative feedback suggested the programme also may have increased feelings of happiness, improved self-awareness, and social skills. Despite this evidence, caution is warranted in generalising these findings. In addition to the interpretation of trending effects, the three-month follow-up analyses suggest that while *Exploring Depression* may be an effective programme for reducing symptoms of depression, participants tended to relapse three months after the conclusion of the programme. To decrease relapse rates, the programme may benefit from several adaptations, including spreading the content over more sessions, and greater emphasis on homework scheduling and completion. Furthermore, given the qualitative feedback about the programme emphasised the benefit of the social aspect of the group, part of the programme should encourage and facilitate the adolescents to meet regularly after the completion of the programme.

With refinement, it is expected that the *Exploring Depression* programme has the potential to be a successful manualised intervention that could be circulated for clinical use. By helping to alleviate symptoms of depression in these adolescents and improving their support networks, this programme has the potential to alleviate pressure on adult mental health services, and reduce the incidence of suicide in this population. In a population with extremely low employment rates (Barnard et al., 2001; Bellstedt et al., 2005; Benz et al., 2000; Engstrom et al., 2003), reduced depression can increase motivation and employability, and by fostering their special interests, this programme has the potential to facilitate adolescents with ASD to become independent, professionally successful, and most importantly, happy adults.

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APPENDICES

CONTENTS

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- Appendix E: Interview Guide for Study Three
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Appendix A

Consent Forms, Information Sheets, and Interview Guide for Study One

Investigations into Emotion Regulation in
Adolescents and Young Adults with ASD

Consent form

Investigators: Mr Damian Santomauro, Assoc. Prof. Kate Sofronoff and Dr. Jeanie Sheffield

I hereby consent to take part in the research project to explore emotion regulation in ASD and allow the University of Queensland to use the data collected for research purposes.

I have read the information sheet about the research and consent to participate in the study on the understanding that:

1. I am aware of the general purpose, methods and demands of the study, and understand that my participation in this study is voluntary and I am free to withdraw from the study or refuse to take part at any time, without any negative consequences,
2. Taking part in this study does not involve any risks or discomfort,
3. I am aware that information I provide will be used for data in a research study only,
4. All information I provide will be stored confidentially,
5. I am able to request information regarding the final results of this study,
6. The session and my responses will be audio-taped, and once transcribed the audio-tape will be destroyed.

NAME

SIGNATURE

DATE

If you have any questions or concerns, you can contact Damian by email on
d.santomauro@uq.edu.au

Investigations into Emotion Regulation in Adolescents and
Young Adults with ASD

Parental Consent Form

Investigators: Mr Damian Santomauro, Assoc. Prof. Kate Sofronoff, and Dr. Jeanie Sheffield

I hereby consent for my child to take part in the research project to explore the emotion regulation in ASD and allow the University of Queensland to use the data collected for research purposes.

I have read the information sheet about the research and consent to participate in the study on the understanding that:

1. I am aware of the general purpose, methods and demands of the study, and understand that my child's participation in this study is voluntary and I am free to withdraw my child from the study or refuse to take part at any time, and my child is free to choose to withdraw or refuse take part at any time, without any negative consequences,
2. Taking part in this study does not involve any risks or discomfort,
3. I am aware that information I or my child provides will be used for data in a research study only,
4. All information I or my child provides will be stored confidentially,
5. I am able to request information regarding the final results of this study,
6. The session and my child's responses will be audio-taped, and once transcribed the audio-tape will be destroyed.

PARENT'S NAME.....

CHILD'S NAME.....

PARENT'S SIGNATURE.....

DATE

If you have any questions or concerns, you can contact Damian by email on

d.santomauro@uq.edu.au

Investigations into Emotion Regulation Difficulties in Samples of Adolescents and Young Adults with ASD

The purpose of the study

The purpose of this study is to investigate the nature of emotion regulation difficulties in adolescents and young adults with ASD. This study is being conducted by Damian Santomauro as part of the requirements for the Doctor of Philosophy degree at the University of Queensland under the supervision of Associate Professor Kate Sofronoff and Doctor Jeanie Sheffield.

Participation and withdrawal

Participation in this study is completely voluntary and you are free to withdraw from this study at any time without prejudice or penalty. If you wish to withdraw, simply stop completing the exercises. If you do withdraw from the study, the materials that you have completed to that point will be deleted and will not be included in the study.

What is involved

Participants will be asked to participate in focus groups of around 6-8 people where they will be asked open-ended questions regarding their use of, or difficulties with, emotion regulation. Participants will be asked basic information about their age, living situation and occupational status. The focus groups will be audio-taped and the information transcribed. We will run separate focus groups with adolescents and young adults; parents of young people with ASD; teachers; and professionals working with ASD.

Risks

Participation in this study should involve no physical or mental discomfort, and no risks beyond those of everyday living. If, however, you should find any question or procedure to be invasive or offensive, you are free to omit answering or participating in that aspect of the study.

Confidentiality and security of data

All data collected in this study will be stored confidentially. Only members of the research team will have access to identified data. Data transcribed from audiotapes will not include any identifying information and audiotapes will be destroyed after transcription. All data will be coded in a de-identified manner and subsequently analysed and reported in such a way that responses will not be able to be linked to any individual. The data you provide will only be used for the specific research purposes of this study.

Ethics Clearance and Contacts

This study has been cleared in accordance with the ethical review processes of the University of Queensland and within the guidelines of the National Statement on Ethical Conduct in Human Research. You are, of course, free to discuss your participation with project staff (Damian Santomauro on 0422282169 or Associate Professor Kate Sofronoff on 33654466). If you would like to speak to an officer of the University not involved in the study, you may contact one of the School of Psychology Ethics Review Officers: Jolanda Jetten (j.jetten@psy.uq.edu.au, tel 3365 4909), Melissa Johnstone (melissaj@psy.uq.edu.au, tel 3365 4496) or Jeanie Sheffield (jeanie@psy.uq.edu.au, tel 3365 6690). Alternatively, you may leave a message with Ann Lee (3365 6448, ann@psy.uq.edu.au), (or, from Feb - June 2011, Rachel Croton r.croton@uq.edu.au) for an ethics officer to contact you, or contact the University of Queensland Ethics Officer, Michael Tse, on 3365 3924, e-mail: humanethics@research.uq.edu.au

If you would like to learn the outcome of the study in which you are participating, you can contact me at the email above after 1st September, and I will send you an Abstract of the study and findings.

Thank you for your participation in this study.

Damian Santomauro

Table 16.

Interview guide for Study One

-
1. Do you believe that you have difficulties managing your emotions?
 2. How do you know or recognise what you are feeling? Do you ever have trouble with this?
 3. What kinds of emotions do you not like feeling or find unpleasant?
 4. How do you know when you are feeling these?
 5. When you are experiencing a negative emotion and are having trouble or can't change it, how long does this experience typically last?
 6. How bad does it feel? On a scale of one to ten (with one not bad and ten it feels unbearable)?
 7. How do you behave when you are feeling upset, angry, or anxious? What sorts of things do you do?
 8. What typically happens after you behave that way?
 9. How does this behaviour affect your relationships with others?
 10. What do other people say about your trouble with your emotions? Has anyone ever suggested you have problems with your emotions?
 11. Does it affect your study or employment? If so, how?
 12. When do you think these problems with your emotions tend to occur? Are there any specific events or cues that can trigger a negative emotion?
 13. When did you first become aware of your problems with emotions?
 14. How long has it been a problem? Has it affected you your whole life or did it start more recently? Was there anything that started it?
 15. Do your emotions stop you from doing the things you want to do?
 16. Are you aware of any long term effects of your difficulties with emotions?
 17. What do you do on a day to day basis to try to feel better?
 18. What do you do to try to change what you are feeling?
 19. Have you participated in any interventions before to deal with this problem?
 20. Do you take any medications to help you with this problem?
 21. Do you use any substances such as drugs, tobacco, or alcohol, to help you with this problem?
 22. What do you think could help you try to manage your feelings?
-

Appendix B

Information Page and Measures for Study Two

A Survey of Emotion Regulation Difficulties in Samples of Adolescents and Young Adults with ASD

The purpose of the study

The purpose of this study is to investigate the nature of emotion regulation difficulties in adolescents and young adults with ASD. This study is being conducted by Damian Santomauro as part of the requirements for the Doctor of Philosophy degree at the University of Queensland under the supervision of Assoc. Prof. Kate Sofronoff and Dr. Jeanie Sheffield.

Participation and withdrawal

Participation in this study is completely voluntary and you are free to withdraw from this study at any time without prejudice or penalty. If you wish to withdraw, simply stop completing the exercises. If you do withdraw from the study, the materials that you have completed to that point will be deleted and will not be included in the study.

What is involved

Participants will be asked to complete an online survey that will include measures of their emotion regulation abilities. Participants will also be asked basic information about their age, living situation and occupational status.

Risks

Participation in this study should involve no physical or mental discomfort, and no risks beyond those of everyday living. If, however, you should find any question or procedure to be invasive or offensive, you are free to omit answering or participating in that aspect of the study. To reduce the occurrence of missing data, this survey requires participants to answer every question before continuing. If you reach a question you do not wish to answer please email Damian on d.santomauro@uq.edu.au and he will link you to another version of the survey which allows you to skip questions.

Confidentiality and security of data

All data collected in this study will be stored confidentially. Only members of the research team will have access to identified data. All data will be coded in a de-identified manner and subsequently analysed and reported in such a way that responses will not be able to be linked to any individual. The data you provide will only be used for the specific research purposes of this study.

Ethics Clearance and Contacts

This study has been cleared in accordance with the ethical review processes of the University of Queensland and within the guidelines of the National Statement on Ethical Conduct in Human Research. You are, of course, free to discuss your participation with project staff (Damian Santomauro on 0422282169 or Associate Professor Kate Sofronoff on 33654466). If you would like to speak to an officer of the University not involved in the study, you may contact one of the School of Psychology Ethics Review Officers: Jolanda Jetten (j.jetten@psy.uq.edu.au, tel 3365 4909), Michael Philipp (m.philipp@psy.uq.edu.au, tel 3365 4496) or Jeanie Sheffield (jeanie@psy.uq.edu.au, tel 3365 6690). Alternatively, you may leave a message with Ann Lee (3365 6448, ann@psy.uq.edu.au) , for an ethics officer to contact you, or contact the University of Queensland Ethics Officer, Michael Tse, on 3365 3924, e-mail: humanethics@research.uq.edu.au

If you would like to learn the outcome of the study in which you are participating, you can contact me at the email above after 1st September, and I will send you an Abstract of the study and findings.

Thank you for your participation in this study.

Damian Santomauro

Demographics Questionnaire

1. How old are you in years? {drop down menu: 16 to 35}
2. What is your gender? {Male, Female}
3. What is your ethnicity? {Caucasian, African, Hispanic, Asian, Other (please specify)}
4. Where is your current residence? {Australia, New Zealand, South East Asia, North America, South America, Europe, Asia, Africa, Middle East, Other (please specify)}
If answer to question 4 is Australia:
 - a. Which state or territory do you currently reside in? {Australian Capital Territory, New South Wales, Northern Territory, Queensland, South Australia, Tasmania, Victoria, Western Australia}
5. Do you have a diagnosis of an Autism Spectrum Disorder? {Yes, No}
If answer to question 5 is Yes:
 - a. What is your current diagnosis? {Asperger Syndrome, Classic Autism, High Functioning Autism, Rett's Disorder, Childhood Disintegrative Disorder, Pervasive Developmental Disorder Not Otherwise Specified}
 - b. Who provided you with a diagnosis? {General Practitioner, Psychiatrist, Psychologist, Paediatrician, Neurologist, Other Medical Practitioner (please specify), Multidisciplinary Team, Self-Diagnosed, Parent/Friend}
 - c. How many years old were you when you were first diagnosed with an Autism Spectrum Disorder?
6. Do you have any other diagnoses that you have received from a qualified practitioner? {No, Yes ADD, Yes ADHD, Yes OCD, Yes Major Depressive Disorder, Yes General Anxiety Disorder, Yes Other (please specify)}
7. What is your current employment status? {Full time employed, Part time employed, Self-employed, Casual employment, Volunteer, Full time tertiary student, Part time tertiary student, Full time high school student, Part time high school student, Unemployed}
8. If you are currently studying, what are you currently studying for? {Not currently studying, High school diploma, Traineeship, Apprenticeship, Diploma, Bachelor, Graduate Diploma/Certificate, Masters, Professional Doctorate, PhD}

9. What is the highest level of education you have graduated from? {None, Some High School (or Year 10 certificate or equivalent), High School Certificate (Year 12 or equivalent), Trade Certificate, Other Diploma or Certificate, Some College/University, Undergraduate Degree or Diploma, Graduate Diploma/Certificate, Masters, Professional Doctorate, PhD}

10. Please indicate your current household income in Australian dollars. *Please convert or estimate your income if you are not from Australia.* {Under \$20,000, \$20,000 to \$40,000, \$41,000 to \$60,000, \$61,000 to \$80,000, \$81,000, to \$100,000, \$101,000, to \$150,000, \$151,000, to \$200,000, Over \$200,000}

11. What is your living arrangement? {Living with parents, Living with spouse/partner, Living with friends, Living with roommates who are not my friends, Living by myself, Other (please specify)}

12. What is your relationship status? {Single, In a relationship, Married, De Facto, Separated, Divorced, Other (please specify)}

13. If you are currently taking medication, what medication are you taking? (Please specify what specific medication you are taking in each category) {Not taking medication, Antidepressants (e.g., Aropax, Zoloft, Prozac), Stimulants (e.g., Ritalin, Dexedrine, Focalin), Antipsychotics / tranquilisers (e.g., Risperdal, Zyprexa, Seroquel), Anticonvulsants (e.g., Valproate semisodium, Topamax, Lamotrigine), Hypotensive agents (e.g., Clondine, Tenex, Reserpine), Anxiolytic / sedative / hypnotics (e.g., Buspar, Vistaril, Chloral hydrate), Benzodiazepines (e.g., Lorazepam, Valium, Xanax), Other (please specify)}

The Adult Autism Spectrum Quotient (AQ)

Ages 16+

SPECIMEN, FOR RESEARCH USE ONLY.

For full details, please see:

S. Baron-Cohen, S. Wheelwright, R. Skinner, J. Martin and E. Clubley, (2001)
[The Autism Spectrum Quotient \(AQ\) : Evidence from Asperger Syndrome/High Functioning Autism, Males and Females, Scientists and Mathematicians](#)
Journal of Autism and Developmental Disorders 31:5-17

Name:..... Sex:.....

Date of birth:..... Today's Date:.....

How to fill out the questionnaire

Below are a list of statements. Please read each statement very carefully and rate how strongly you agree or disagree with it by circling your answer.

DO NOT MISS ANY STATEMENT OUT.

Examples

E1. I am willing to take risks.	definitely agree	slightly agree	<u>slightly disagree</u>	definitely disagree
E2. I like playing board games.	definitely agree	<u>slightly agree</u>	slightly disagree	definitely disagree
E3. I find learning to play musical instruments easy.	definitely agree	slightly agree	slightly disagree	<u>definitely disagree</u>
E4. I am fascinated by other cultures.	<u>definitely agree</u>	slightly agree	slightly disagree	definitely disagree

1. I prefer to do things with others rather than on my own.	definitely agree	slightly agree	slightly disagree	definitely disagree
2. I prefer to do things the same way over and over again.	definitely agree	slightly agree	slightly disagree	definitely disagree
3. If I try to imagine something, I find it very easy to create a picture in my mind.	definitely agree	slightly agree	slightly disagree	definitely disagree
4. I frequently get so strongly absorbed in one thing that I lose sight of other things.	definitely agree	slightly agree	slightly disagree	definitely disagree
5. I often notice small sounds when others do not.	definitely agree	slightly agree	slightly disagree	definitely disagree
6. I usually notice car number plates or similar strings of information.	definitely agree	slightly agree	slightly disagree	definitely disagree
7. Other people frequently tell me that what I've said is impolite, even though I think it is polite.	definitely agree	slightly agree	slightly disagree	definitely disagree
8. When I'm reading a story, I can easily imagine what the characters might look like.	definitely agree	slightly agree	slightly disagree	definitely disagree
9. I am fascinated by dates.	definitely agree	slightly agree	slightly disagree	definitely disagree
10. In a social group, I can easily keep track of several different people's conversations.	definitely agree	slightly agree	slightly disagree	definitely disagree
11. I find social situations easy.	definitely agree	slightly agree	slightly disagree	definitely disagree
12. I tend to notice details that others do not.	definitely agree	slightly agree	slightly disagree	definitely disagree
13. I would rather go to a library than a party.	definitely agree	slightly agree	slightly disagree	definitely disagree
14. I find making up stories easy.	definitely agree	slightly agree	slightly disagree	definitely disagree
15. I find myself drawn more strongly to people than to things.	definitely agree	slightly agree	slightly disagree	definitely disagree
16. I tend to have very strong interests which I get upset about if I can't pursue.	definitely agree	slightly agree	slightly disagree	definitely disagree
17. I enjoy social chit-chat.	definitely agree	slightly agree	slightly disagree	definitely disagree
18. When I talk, it isn't always easy for others to get a word in edgeways.	definitely agree	slightly agree	slightly disagree	definitely disagree
19. I am fascinated by numbers.	definitely agree	slightly agree	slightly disagree	definitely disagree

20. When I'm reading a story, I find it difficult to work out the characters' intentions.	definitely agree	slightly agree	slightly disagree	definitely disagree
21. I don't particularly enjoy reading fiction.	definitely agree	slightly agree	slightly disagree	definitely disagree
22. I find it hard to make new friends.	definitely agree	slightly agree	slightly disagree	definitely disagree
23. I notice patterns in things all the time.	definitely agree	slightly agree	slightly disagree	definitely disagree
24. I would rather go to the theatre than a museum.	definitely agree	slightly agree	slightly disagree	definitely disagree
25. It does not upset me if my daily routine is disturbed.	definitely agree	slightly agree	slightly disagree	definitely disagree
26. I frequently find that I don't know how to keep a conversation going.	definitely agree	slightly agree	slightly disagree	definitely disagree
27. I find it easy to "read between the lines" when someone is talking to me.	definitely agree	slightly agree	slightly disagree	definitely disagree
28. I usually concentrate more on the whole picture, rather than the small details.	definitely agree	slightly agree	slightly disagree	definitely disagree
29. I am not very good at remembering phone numbers.	definitely agree	slightly agree	slightly disagree	definitely disagree
30. I don't usually notice small changes in a situation, or a person's appearance.	definitely agree	slightly agree	slightly disagree	definitely disagree
31. I know how to tell if someone listening to me is getting bored.	definitely agree	slightly agree	slightly disagree	definitely disagree
32. I find it easy to do more than one thing at once.	definitely agree	slightly agree	slightly disagree	definitely disagree
33. When I talk on the phone, I'm not sure when it's my turn to speak.	definitely agree	slightly agree	slightly disagree	definitely disagree
34. I enjoy doing things spontaneously.	definitely agree	slightly agree	slightly disagree	definitely disagree
35. I am often the last to understand the point of a joke.	definitely agree	slightly agree	slightly disagree	definitely disagree
36. I find it easy to work out what someone is thinking or feeling just by looking at their face.	definitely agree	slightly agree	slightly disagree	definitely disagree
37. If there is an interruption, I can switch back to what I was doing very quickly.	definitely agree	slightly agree	slightly disagree	definitely disagree
38. I am good at social chit-chat.	definitely agree	slightly agree	slightly disagree	definitely disagree

39. People often tell me that I keep going on and on about the same thing.	definitely agree	slightly agree	slightly disagree	definitely disagree
40. When I was young, I used to enjoy playing games involving pretending with other children.	definitely agree	slightly agree	slightly disagree	definitely disagree
41. I like to collect information about categories of things (e.g. types of car, types of bird, types of train, types of plant, etc.).	definitely agree	slightly agree	slightly disagree	definitely disagree
42. I find it difficult to imagine what it would be like to be someone else.	definitely agree	slightly agree	slightly disagree	definitely disagree
43. I like to plan any activities I participate in carefully.	definitely agree	slightly agree	slightly disagree	definitely disagree
44. I enjoy social occasions.	definitely agree	slightly agree	slightly disagree	definitely disagree
45. I find it difficult to work out people's intentions.	definitely agree	slightly agree	slightly disagree	definitely disagree
46. New situations make me anxious.	definitely agree	slightly agree	slightly disagree	definitely disagree
47. I enjoy meeting new people.	definitely agree	slightly agree	slightly disagree	definitely disagree
48. I am a good diplomat.	definitely agree	slightly agree	slightly disagree	definitely disagree
49. I am not very good at remembering people's date of birth.	definitely agree	slightly agree	slightly disagree	definitely disagree
50. I find it very easy to play games with children that involve pretending.	definitely agree	slightly agree	slightly disagree	definitely disagree

**Developed by:
The Autism Research Centre
University of Cambridge**

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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

Toronto Alexithymia Scale

Please answer the following questions, using the scale provided:

(1) Completely disagree (2) Disagree (3) Neutral (4) Agree (5) Completely agree

1. I am often confused about what emotion I am feeling.
2. It is difficult for me to find the right words for my feelings.
3. I have physical sensations that even doctors don't understand.
4. I am able to describe my feelings easily.
5. I prefer to analyze problems rather than just describe them.
6. When I am upset, I don't know if I am sad, frightened, or angry.
7. I am often puzzled by sensations in my body.
8. I prefer to just let things happen rather than to understand why they turned out that way.
9. I have feelings that I can't quite identify.
10. Being in touch with emotions is essential.
11. I find it hard to describe how I feel about people.
12. People tell me to describe my feelings more.
13. I don't know what's going on inside me.
14. I often don't know why I am angry.
15. I prefer talking to people about their daily activities rather than their feelings.
16. I prefer to watch "light" entertainment shows rather than psychological dramas.
17. It is difficult for me to reveal my innermost feelings, even to close friends.
18. I can feel close to someone, even in moments of silence.
19. I find examination of my feelings useful in solving personal problems.
20. Looking for hidden meanings in movies or plays distracts from their enjoyment.

Emotion Regulation Questionnaire (ERQ)

Gross & John

9/03

The Emotion Regulation Questionnaire is designed to assess individual differences in the habitual use of two emotion regulation strategies: cognitive reappraisal and expressive suppression.

Citation

Gross, J.J., & John, O.P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. Journal of Personality and Social Psychology, 85, 348-362.

Instructions and Items

We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

1-----2-----3-----4-----5-----6-----7
strongly neutral strongly
disagree agree

1. ____ When I want to feel more *positive* emotion (such as joy or amusement), I *change what I'm thinking about*.
2. ____ I keep my emotions to myself.
3. ____ When I want to feel less *negative* emotion (such as sadness or anger), I *change what I'm thinking about*.
4. ____ When I am feeling *positive* emotions, I am careful not to express them.
5. ____ When I'm faced with a stressful situation, I make myself *think about it* in a way that helps me stay calm.
6. ____ I control my emotions by *not expressing them*.
7. ____ When I want to feel more *positive* emotion, I *change the way I'm thinking* about the situation.
8. ____ I control my emotions by *changing the way I think* about the situation I'm in.
9. ____ When I am feeling *negative* emotions, I make sure not to express them.
10. ____ When I want to feel less *negative* emotion, I *change the way I'm thinking* about the situation.

Note

Do not change item order, as items 1 and 3 at the beginning of the questionnaire define the terms "positive emotion" and "negative emotion".

Scoring (no reversals)

Reappraisal Items: 1, 3, 5, 7, 8, 10; Suppression Items: 2, 4, 6, 9.

Social Interaction Anxiety Scale (SIAS)

Patient Name: _____ Date: _____

Instructions: For each item, please circle the number to indicate the degree to which you feel the statement is characteristic or true for you. The rating scale is as follows:

- 0 = **Not at all** characteristic or true of me.
- 1 = **Slightly** characteristic or true of me.
- 2 = **Moderately** characteristic or true of me.
- 3 = **Very** characteristic or true of me.
- 4 = **Extremely** characteristic or true of me.

CHARACTERISTIC	NOT AT ALL	SLIGHTLY	MODERATELY	VERY	EXTREMELY
1. I get nervous if I have to speak with someone in authority (teacher, boss, etc.).	0	1	2	3	4
2. I have difficulty making eye contact with others.	0	1	2	3	4
3. I become tense if I have to talk about myself or my feelings.	0	1	2	3	4
4. I find it difficult to mix comfortably with the people I work with.	0	1	2	3	4
5. I find it easy to make friends my own age.	0	1	2	3	4
6. I tense up if I meet an acquaintance in the street.	0	1	2	3	4
7. When mixing socially, I am uncomfortable.	0	1	2	3	4
8. I feel tense if I am alone with just one other person.	0	1	2	3	4
9. I am at ease meeting people at parties, etc.	0	1	2	3	4
10. I have difficulty talking with other people.	0	1	2	3	4
11. I find it easy to think of things to talk about.	0	1	2	3	4
12. I worry about expressing myself in case I appear awkward.	0	1	2	3	4
13. I find it difficult to disagree with another's point of view.	0	1	2	3	4
14. I have difficulty talking to attractive persons of the opposite sex.	0	1	2	3	4
15. I find myself worrying that I won't know what to say in social situations.	0	1	2	3	4
16. I am nervous mixing with people I don't know well.	0	1	2	3	4
17. I feel I'll say something embarrassing when talking.	0	1	2	3	4
18. When mixing in a group, I find myself worrying I will be ignored.	0	1	2	3	4
19. I am tense mixing in a group.	0	1	2	3	4
20. I am unsure whether to greet someone I know only slightly.	0	1	2	3	4

Sensory Sensitivity Questionnaire

Please respond to the following questions regarding your response to various sensory experiences: light, sound, smell, taste, touch, and pain. Please check the box to indicate yes or no for each question.

Check the Box(es) that apply:	No	Yes
1. Are you bothered by sounds that do not usually bother other people?		
2. Do you cover your ears in response to the sound of sirens, fire trucks, crying babies, or other loud noises?		
3. Do you become easily upset or overwhelmed in loud or crowded places (such as a circus, parade, or mall)?		
4. Are you unusually sensitive to heat or cold?		
5. Are you less bothered than others by heat or cold?		
6. Are you more sensitive to pain than other people?		
7. Do you sometimes get hurt and not realize it?		
8. Does certain clothing or being touched make you feel uncomfortable?		
9. Are you very sensitive to light?		
10. Are you very aware of smell or taste?		
11. Do you enjoy light brushing or touch?		
12. Do you like the feel of deep pressure or squeezing?		
13. Overall, would you rate yourself as being more sensitive than most people to things in the environment such as bright lights, strong smells, coarse fabrics, or sirens close by?		

Appendix C

Exploring Depression Programme Manual

Exploring Depression

Cognitive Behaviour Therapy to
Understand and Cope with Depression



Professor Tony Attwood and Dr Michelle Garnett
Minds and Hearts Clinic: Brisbane, Australia

Exploring Depression

Table of Contents

Page No:

Aims of the programme

Assessment

Activities for each session

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| Session 3 | Tools to Combat Depression |
| Session 4 | Art and Pleasure Tools |
| Session 5 | Thinking Tools (part 1) |
| Session 6 | Thinking Tools (part 2) and Social Tools |
| Session 7 | Thinking Tools (part 3) and Relaxation Tools |
| Session 8 | Relaxation and Helpful and Unhelpful Tools |
| Session 9 | A Safety Plan |
| Session 10 | Your Future |

Assessment

Aims of the Programme

The topic of the group is understanding and coping with depression. Everyone feels sad sometimes, but depression is a deep sadness that can be difficult to break out of. One in six people suffer depression at some point in their lives. In this group, we will be exploring what depression is and how to recover from it. Depression can take away your energy and enjoyment of life. This group is about helping you to overcome depression, rediscover enjoyment of life and appreciate who you are.

Assessment

Before starting the programme we have an imaginary scene where a friend is feeling sad. You have the opportunity to cheer up that person. What could you do or say?



Exploring Depression

Session 1

Qualities and Abilities

Name: _____



Session 1: Qualities and Abilities

Plan for Session 1

- Aims of the programme
- Assessment
- Introduction of participants
- Group rules
- Objectives of Session 1
- Self-awareness activity
- Explore your qualities in abilities and personality
- Explore how those abilities can positively affect your future in terms of friendships and relationships, self-esteem and self-identity, enjoyment in life and career
- Compliments activity
- Project

Objectives of Session 1

- To begin self-awareness.
- To identify your personal strengths, qualities and abilities.

Self-awareness

Who are you? Answering this question accurately can mean the difference between feeling depressed and feeling that life is good. One part of this group will be about increasing your self-awareness, starting today. We are going to complete a self-awareness activity now. Self-awareness starts with an awareness of the mind and body. This self-awareness exercise will take three minutes and then we will briefly discuss it.

Self-awareness activity

Three minute exercise

Take some time to settle yourself into your chair.

Sit with both feet on the floor, eyes gently closed or looking into the middle distance.

Rest your hands on your lap, or your forearms on the arms of the chair, whichever is more comfortable.

Start to become aware of your breath. Notice the *in* breath...and the *out* breath...

Become aware of being in your body.

Notice the feeling of your feet on the floor...the chair under your thighs, supporting you...the clothes on your skin...the light brush of air on your hands and face.

Pause

Next, become aware of your sense of taste. Notice the sensation of taste inside your mouth. It is okay just to notice the sensations, no need to label them.

Pause

Next, become aware of your sense of smell, what you can smell... Open your awareness to the aromas around you...again, not labelling so much as noticing...

Pause

And now become aware of your sense of sight. Whether your eyes are open or closed, take in what you can see...the colour, shapes, light, shade...

Pause

And now begin to become aware of what you can hear. First, notice the sounds closest to you, the sounds in the room. Next, open your awareness to the sounds a little way away, in the middle distance...noticing sounds... Next, begin to be aware of the sounds in the distance...the sounds coming from far away...and then become aware of the silence that exists in between the sounds...

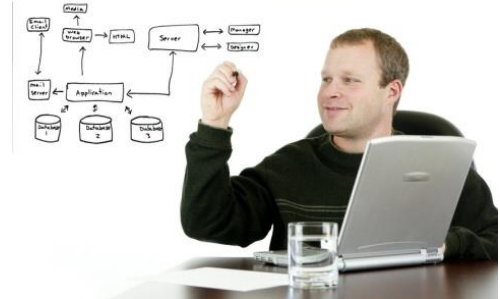


Discussion

Discuss in the group your experience of the exercise. How easy was it to maintain focus? Did you feel calm at the end of it?

Career plans

You may not be sure what you would like to do as a career, you may have several different options, or you may be sure exactly what you want to do. Below, can you list, perhaps in order of priority, what career options you are considering?



.....

.....

.....

Qualities in your abilities

Everyone has qualities in his or her abilities. What are you **proud** of or have received **compliments** about in your abilities? This can include being an expert on a specific topic, achieving good grades at school, creating or repairing something, being awarded a certificate or just knowing you are particularly good at something such as memory for facts, playing an instrument, a particular sport or computer games.

List below any of your qualities in terms of abilities:

.....

.....

.....

.....

Qualities in your personality



Qualities in personality describe characteristics such as being kind, helpful, resilient, non-judgemental, supportive, trustworthy, thoughtful, honest, having a sense of humour or a vivid imagination, or being self-confident, intelligent, quiet, cheerful or generous. These are just some of the many hundreds of words used to describe someone's personality.

Can you write below your own qualities in terms of your personality? These can be characteristics about yourself that you know or that other people have used to describe you.



.....

.....

.....

.....

Group discussion

The participants will be split into two groups and each group will explore with a group leader, how each person's qualities are an advantage in terms of:

- making friends and relationships
- self-esteem and self-identity
- enjoyment of life
- employment





During the discussion, make notes below on how **your** qualities are an advantage in each of these areas that will be important in your adult years:

1. Making friends and relationships

.....

.....

2. Self-esteem and self-identity

.....

.....

3. Enjoyment of life



.....

.....

4. Employment

.....

.....



The group recombines and each group leader summarises the key points.

Compliments activity

Giving and receiving a compliment can help you feel happy, boost self-esteem and be an antidote to feeling sad. In this activity, each member of the group is to give another group member a compliment based on an ability or aspect of personality that they have noticed and admire.



What were your compliments?

.....

.....

.....

How did you feel when you listened to the compliment?

.....

.....

.....



Projects

Coming to the group is a great way to learn how to beat depression and live a more enjoyable, meaningful life. However, the ideas will not work unless you think about them and practise them in between sessions. To help you to do this in the most effective way we have designed projects to complete between sessions. Try to do as much of the project as you can. Ask someone else to write down your thoughts/ideas if you hate writing, or type your thoughts up, or record them on your phone. Come ready each week to discuss what you thought and experienced (even if you have not recorded it).



Project 1

Discuss with your family and perhaps a friend, if there are more qualities that you have in your abilities and personality. If there are, write them below.

Additional qualities in **abilities**:

.....

.....

Additional qualities in **personality**:

.....

.....

Project 2

Is there someone in your family whose qualities you admire? If yes, who? What are his or her qualities in abilities or personality that you would like to have in your own list?

.....

.....

.....

.....



Is there a character in a film, TV series or book whose qualities you admire? If yes, who? What are his or her qualities in abilities or personality that you would like to have in your own list?

.....

.....

.....

.....



Project 3: Reasons why someone who has Asperger's syndrome can sometimes feel sad or depressed

There are many reasons why anyone can feel sad or depressed for a while. People who have Asperger's syndrome are more **vulnerable** to sadness and depression due to having more than their fair share of reasons. Here is a list of those reasons. Tick the reasons that **apply to you**.

- Feeling lonely
- Being rejected or humiliated by people at school
- Being bullied and teased by people at school
- Feeling exhausted from trying to be accepted and liked
- Believing the criticisms of students at school
- Being sensitive to the suffering of others
- Feeling exhausted from constant anxiety
- Being aware of your faults and being a perfectionist
- Being bored at school
- Not getting the school grades to match your intelligence
- Worrying about whether you will ever have a relationship
- Worrying about whether you will have a successful career
- Believing that past bad experiences will continue forever
- Feeling constant pressure to fit in and be like everyone else
- Experiencing the loss of a friendship, pet or family member
- Not being able to cope with intense sensory sensitivity
- Experiencing too many changes in your life
- Being diagnosed with Asperger's syndrome
- Getting into trouble because of your anger
- Not having enough strategies to feel happy again
- Not being understood by your parents
- Feeling invisible at school



Any other reasons



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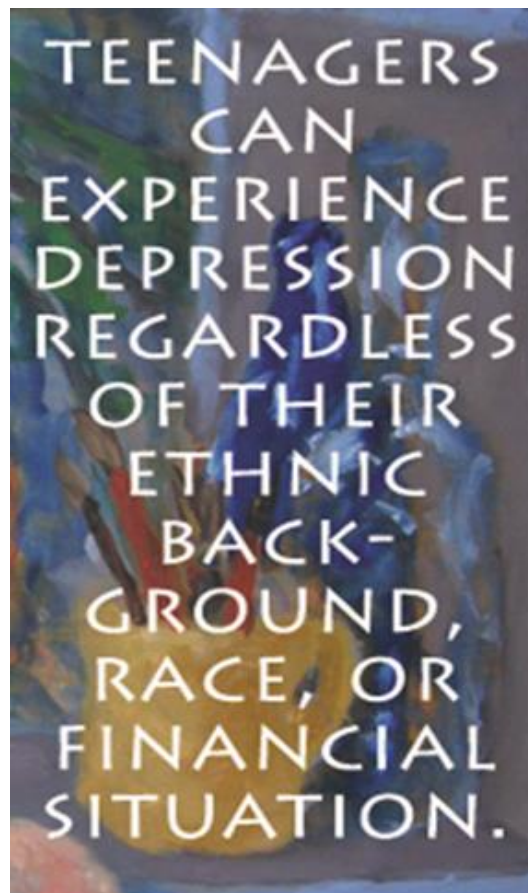
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Exploring Depression

Session 2

What is Depression?

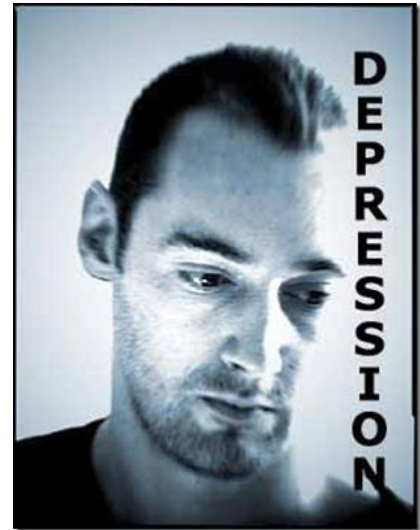
Name: _____



Session 2: What is Depression?

Plan for Session 2

- Quiz
- Feedback from Session 1 project
- Objectives of Session 2
- Self-awareness activity
- Reasons for feeling sad or depressed.
- What is depression?
- Why do we stay depressed?
- Does having Asperger's syndrome contribute to feeling sad?
- Project



Quiz

What was the compliment that you received about yourself at the end of our last session?

What were some of the qualities and abilities that you listed about yourself?

Feedback from Session 1 project

What did your family and friends add to your list of qualities and abilities? Did you agree with them?

.....

.....

What qualities would you like to acquire from a family member or hero?

.....

.....

Reasons why someone who has Asperger's syndrome can sometimes feel sad or depressed.

.....

.....

Objectives of Session 2

- To increase your self-awareness.
- To understand why we feel depressed and how we stay depressed.

Self-awareness activity

We are going to complete the self-awareness activity now. It will take three minutes and then we will briefly discuss it.

Three minute exercise

Take some time to settle yourself into your chair.

Sit with both feet on the floor, eyes gently closed or looking into the middle distance.

Rest your hands on your lap, or your forearms on the arms of the chair, whichever is more comfortable.

Start to become aware of your breath. Notice the *in* breath...and the *out* breath...

Become aware of being in your body.

Notice the feeling of your feet on the floor...the chair under your thighs, supporting you...the clothes on your skin...the light brush of air on your hands and face.

Pause

Next, become aware of your sense of taste. Notice the sensation of taste inside your mouth. It is okay just to notice the sensations, no need to label them.



Pause

Next, become aware of your sense of smell, what you can smell... Open your awareness to the aromas around you... again, not labelling so much as noticing...

Pause

And now become aware of your sense of sight. Whether your eyes are open or closed, take in what you can see...the colour, shapes, light, shade...

Pause

And now begin to become aware of what you can hear. First, notice the sounds closest to you, the sounds in the room. Next, open your awareness to the sounds a little way away, in the middle distance...noticing sounds... Next, begin to be aware of the sounds in the distance...the sounds coming from far away...and then become aware of the silence that exists in between the sounds...

Discussion

Discuss in the group your experience of the exercise. How easy was it to maintain focus? Did you feel calm at the end of it?

Reasons for feeling sad and/or depressed

As part of your project last week you were given a questionnaire to complete about reasons for feeling sad. Take the completed questionnaire out now to complete the following activity.

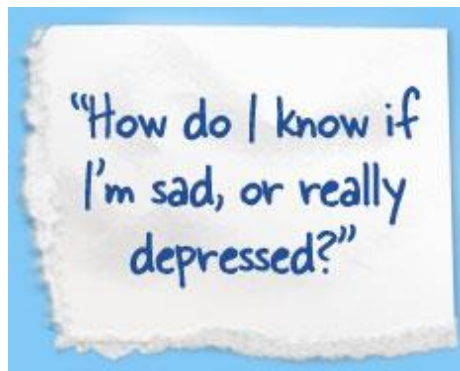


Choose which are the five most important reasons for feeling sad or depressed for you? Write them in the section below.

Next to each of the five reasons, can you measure the power of each reason in your life using a **percentage**, ensuring the percentages for all five add to 100.

For example, being bullied and teased could be 30 per cent, getting into trouble with being angry 50 per cent, worry about having a relationship 10 per cent, being bored at school 5 per cent and sensory sensitivity 5 per cent (30+50+10+5+5 = 100).

1.	<input type="text"/>
2.	<input type="text"/>
3.	<input type="text"/>
4.	<input type="text"/>
5.	<input type="text"/>
	Total	100



What is depression?

Depression is a state of low mood and aversion to activity that can have a negative effect on a person's thoughts, behaviour, feelings, world view, and physical well-being. Depressed people may feel sad, anxious, empty, hopeless, worried, helpless, worthless, guilty, irritable, hurt, or restless. They may lose interest in activities that once were pleasurable, experience loss of appetite or overeating, have problems concentrating, remembering details, or making decisions, and may contemplate or attempt suicide. Insomnia, excessive sleeping, fatigue, loss of energy, or aches, pains, or digestive problems that are resistant to treatment may also be associated with depression.

Depressed mood is not necessarily a psychiatric disorder. It is a normal reaction to certain life events, a symptom of some medical conditions, and a side effect of some medical treatments. Depressed mood is also a primary or associated feature of certain psychiatric syndromes such as clinical depression.

Depression is very common. Around 100,000 Australian adolescents have depression. On average, one in six people will experience depression in their lifetime – one in five females and one in eight males.

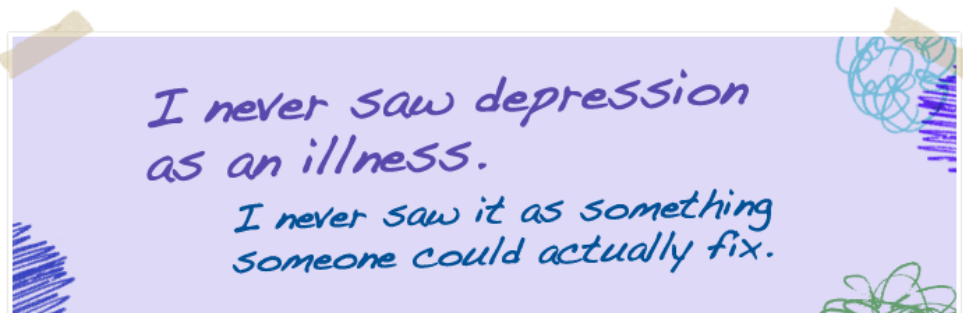
How do you express your feelings of depression?

Common characteristics associated with depression include:

- moodiness that is out of character
- increased irritability and frustration
- difficulty accepting minor personal criticisms
- tendency to spend less time with friends and family
- loss of interest in food, sex, exercise or other pleasurable activities
- wakefulness throughout the night
- preference for staying home from school or university
- increase in physical health complaints such as fatigue, pain, and digestive problems
- slowing down of thoughts and actions
- feeling of sadness for long periods of time
- feeling of helplessness
- feeling of apathy
- feeling of anxiety
- feeling of “emptiness”
- feeling of hopelessness
- feeling of guilt
- poor concentration
- difficulty making decisions
- tendency to contemplate suicide
- tendency to not care about others
- preoccupation with gloomy thoughts
- tendency to be critical of your own abilities
- difficulty enjoying the happiness of others.

Treatment

There are many ways to treat and reduce depression. These range from medication to psychological treatments such as Cognitive Behaviour Therapy (commonly referred to as CBT). This programme is based on CBT.

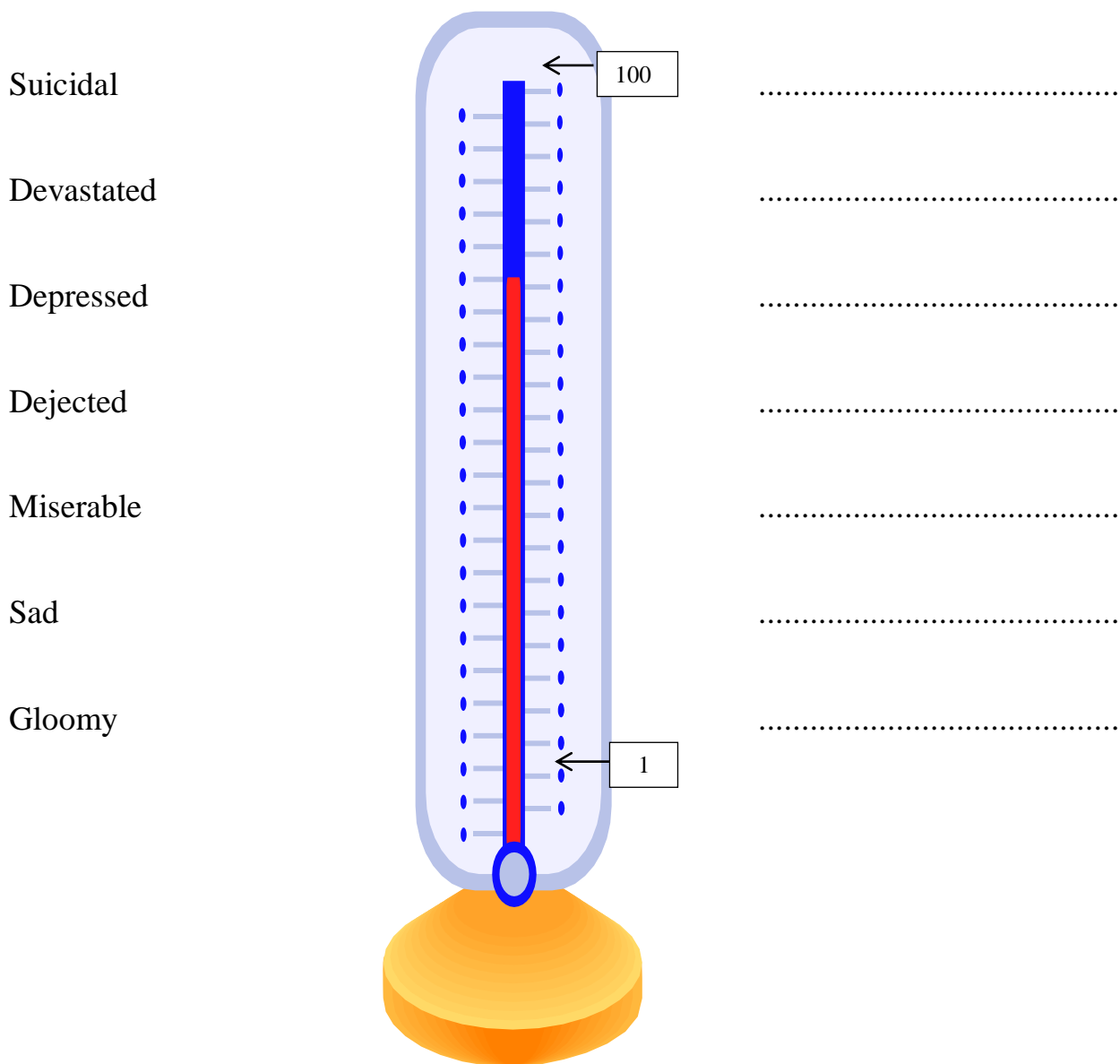


Measuring depression

Below is a 'thermometer' to measure the 'temperature' (that is, the depth or intensity) of feeling sad.

On the left of the thermometer are the words to describe the different levels of intensity. You may want to change the words to those that you personally use.

On the right of the thermometer, write down the different reasons for your own sadness or depression corresponding to the level of depression or sadness they can trigger.



How do we stay depressed?

Did you know that life circumstances are only one small part of why we feel happy or sad?

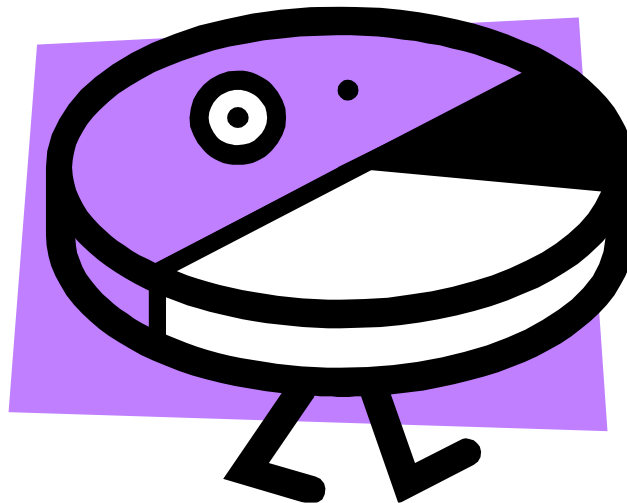


Research has shown that everyone has a ‘set point’ for happiness. There have been many studies conducted to understand why people feel happy, sad or depressed. One of the reasons is that we were born that way. Our **genes** are a big contributor to how we are feeling from day to day. But it is not the whole story. Most of us tend to think that we feel a certain way because of something that happened to us, that is our life circumstances - for example being poor or rich, healthy or ill, popular or unpopular, having two parents or one. However, surprisingly, research shows us that life circumstances account for a very small part of how we feel. In fact the biggest factors, apart from our genes, in influencing how we feel are our **thoughts** or **attitudes**, and what we do, that is, our **actions**.

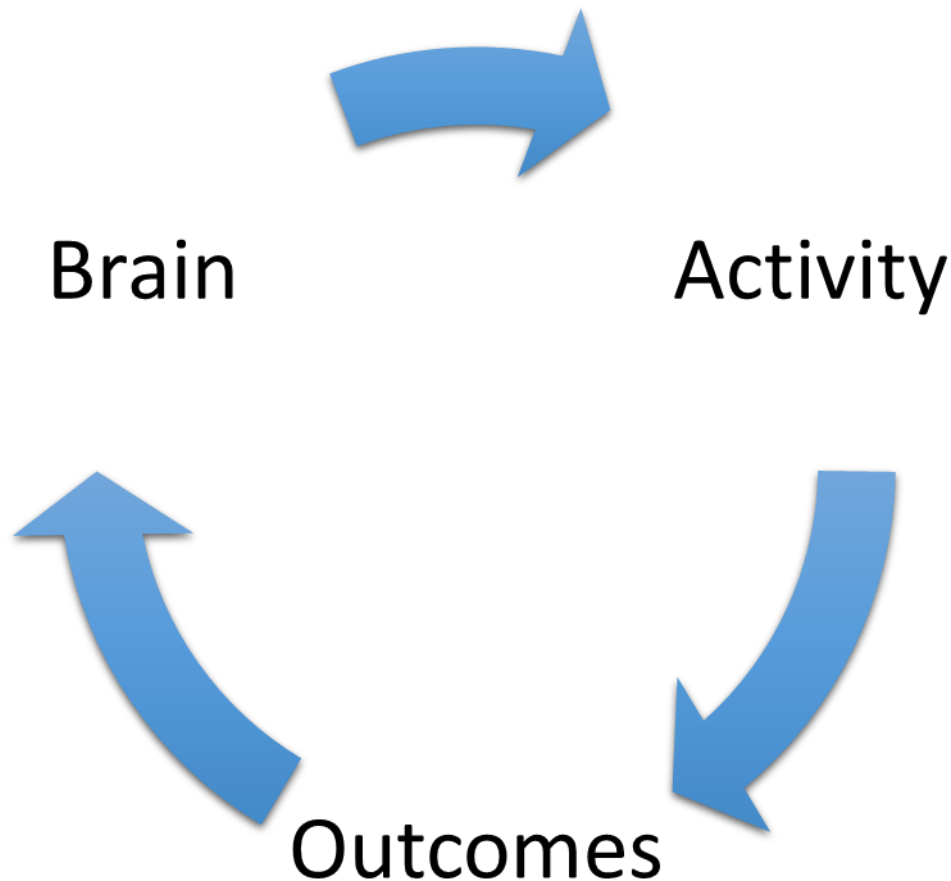
50% Genes

10% Life circumstances

40% Thinking and actions

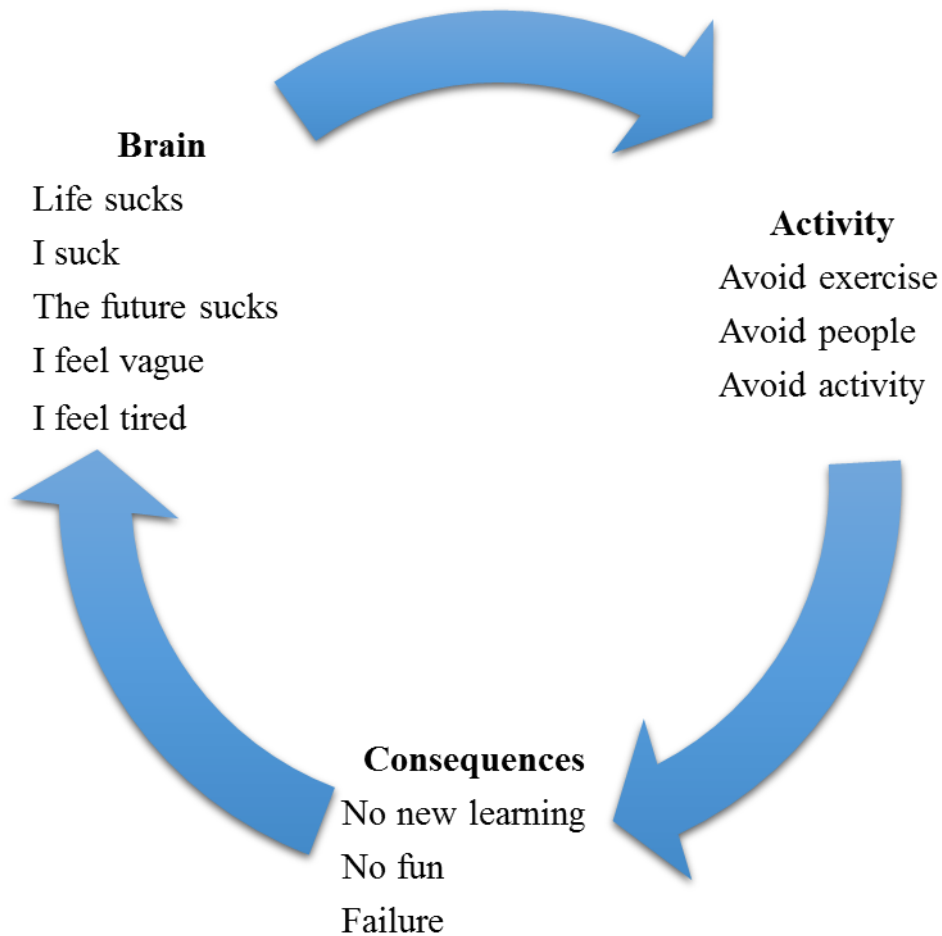


If we look at the diagram below, we can understand that depression is a cycle. We are born with a particular brain and a set-point for happiness. Our brain gives us information about how to think and feel. How we think and feel determines what we do, e.g. whether we exercise, make goals, stay in bed, avoid people etc. What we do affects what happens to us, that is, our outcomes.



The cycle of depression

In depression, the cycle usually looks like this...



What thoughts do you have when you feel depressed?

.....
.....

What feelings do you have when you are depressed?

.....
.....

What do you do or not do when you are depressed?

.....
.....



Does having Asperger's syndrome contribute to your feeling sad or depressed? If yes, how?

.....

.....

.....

.....

.....

.....



Does having Asperger's syndrome give you any positive qualities and experiences?

.....

.....

.....

.....

.....

.....

Project

Read the article entitled 'The Discovery of Aspie.' Ask your parent/s to also read it. Discuss it with them. What do you think about it?

.....

.....

.....

Think of a time during the last week when you felt **happy**.
What were your happy thoughts?

.....

.....

.....



How happy were you from 0 to 100?



Think of a time during the last week when you felt **sad**.
What were your sad thoughts?

.....

.....

.....



How sad were you? Use the Sadness Thermometer on page 20 to measure your sadness from 0 to 100.



The Discovery of Aspie

Carol Gray and Tony Attwood

Some of this century's best discoveries were creative and determined efforts to answer "What if...?" questions. What if people could fly? What if electrical energy could be harnessed to produce light? What if there was an easily accessible, international communication and information network? The answers have resulted in permanent changes: air travel, light bulbs, the Internet. These discoveries have rendered their less effective counterparts to relative extinction from use: gone are the stagecoach, gas lighting, and multi-volume hardbound encyclopedias. These improvements remind us of our option and ability to experiment, re-mold, re-think, and imagine. In that spirit, this article submits a new question: What if Asperger's syndrome was defined by its strengths? What changes might occur?

Moving from Diagnosis to Discovery

Making any diagnosis requires attention to weaknesses, the observation and interpretation of signs and symptoms that vary from typical development or health. Certainly it would be a little disarming to visit a doctor for a diagnosis, only to have her inquire, "So, what feels absolutely great?" The DSM-5 (American Psychiatric Association, 2013) assists in the identification of a variety of disorders. It is used by psychiatrists and psychologists to match observed weaknesses, symptoms and behaviours to text. In DSM-5 Autism Spectrum Disorder, which includes Asperger's syndrome, is identified by specific diagnostic criteria, a constellation of observed social and communication characteristics. Once diagnosed, a child or adult with the diagnosis is referred to with politically correct "people first" terminology, i.e. a *person with an Autism Spectrum Disorder*.

Unlike *diagnosis*, the term *discovery* often refers to the identification of a person's strengths or talents. Actors are discovered. Artists and musicians are discovered. A great friend is discovered. These people are identified by an informal combination of evaluation and awe that ultimately concludes that this person – more than most others – possesses admirable qualities, abilities, and/or talents. It's an acknowledgment that, "...you know, he's better than me at...". In referring to people with respect to their talents or abilities, politically correct "people first" terminology is not required; labels like *musician*, *artist*, or *poet* are welcomed and considered complimentary.

If Asperger's syndrome was identified by observation of strengths and talents, it would no longer be in the DSM-5, nor would it be referred to as a syndrome. After all, a reference to someone with special strengths or talents does not use terms with negative connotations (it's *artist* and *poet*, not *Artistically Arrogant* or *Poetically Preoccupied*), nor does it attach someone's proper name to the word *syndrome* (it's *vocalist* or *soloist*, not *Sinatra's Syndrome*).

New ways of thinking often lead to discoveries that consequently discard their outdated predecessors. It could result in typical people rethinking their responses and rescuing a missed opportunity to take advantage of the contribution of those with autism to culture and knowledge.

Discovery criteria for *Asperger's syndrome* by Attwood and Gray

- A. A qualitative advantage in social interaction, as manifested by a majority of the following:
1. peer relationships characterized by absolute loyalty and impeccable dependability
 2. free of sexist, "age-ist", or culturalist biases; ability to regard others at "face value"
 3. speaking one's mind irrespective of social context or adherence to personal beliefs
 4. ability to pursue personal theory or perspective despite conflicting evidence
 5. seeking an audience or friends capable of: enthusiasm for unique interests and topics; consideration of details; spending time discussing a topic that may not be of primary interest to others
 6. listening without continual judgement or assumption
 7. interested primarily in significant contributions to conversation; preferring to avoid "ritualistic small talk" or socially trivial statements and superficial conversation
 8. seeking sincere, positive, genuine friends with an unassuming sense of humour.

B. Fluent in autism, a social language characterized by at least three of the following:

1. a determination to seek the truth
2. conversation free of hidden meaning or agenda
3. advanced vocabulary and interest in words
4. fascination with word-based humour, such as puns
5. advanced use of pictorial metaphor.

C. Cognitive skills characterized by at least four of the following:

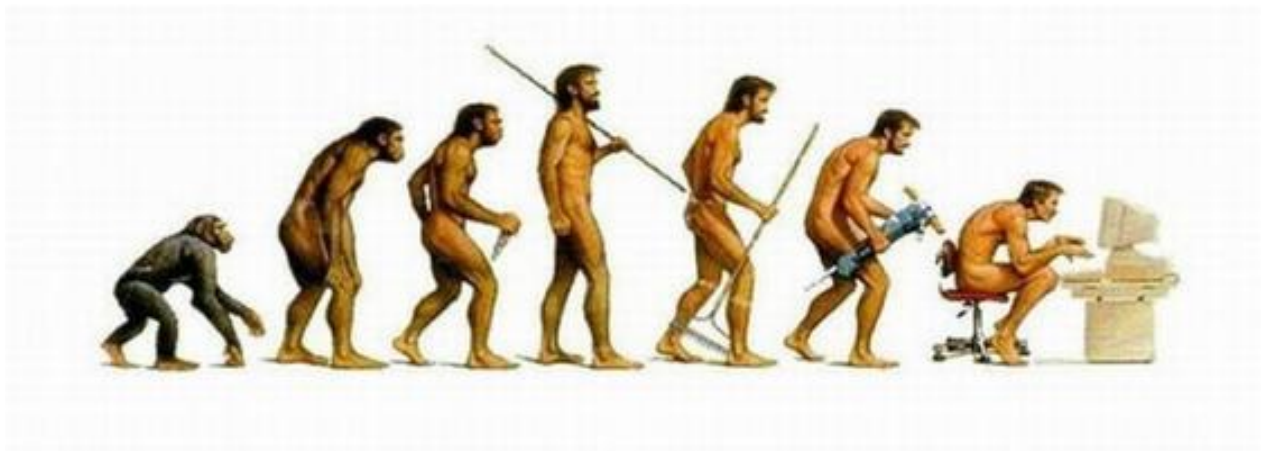
1. strong preference for detail
2. original, often unique perspective in problem solving
3. exceptional memory and/or recall of details often forgotten or disregarded by others, for example: names, dates, schedules, routines
4. avid perseverance in gathering and cataloguing information on a topic of interest
5. persistence of thought
6. encyclopaedic or digital knowledge of one or more topics
7. knowledge of routines and a focused desire to maintain order, consistency and accuracy
8. clarity of values/decision making unaltered by political or financial factors.

D. Additional possible features:

1. acute sensitivity to specific sensory experiences and stimuli, for example: hearing, touch, vision, and/or smell
2. strength in individual sports and games, particularly those involving endurance, visual accuracy or intellect, including rowing, swimming, bowling, chess
3. “social unsung hero” with trusting optimism: frequent victim of social weaknesses and prejudices of others, while steadfast in the belief of the possibility of genuine friendship

4. increased probability over general population of attending university after high school
5. often take care of others outside the range of typical development.

Perhaps we have discovered the next stage of human evolution?



Exploring Depression

Session 3

Tools to Combat Depression

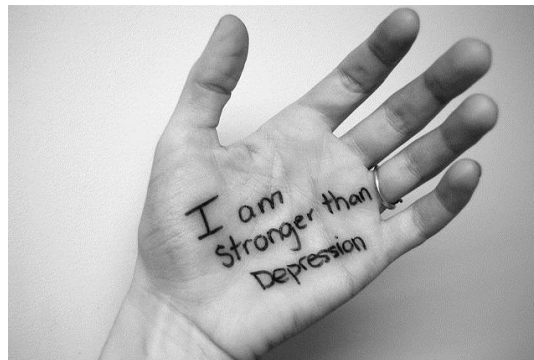
Name: _____



Session 3: Tools to Combat Depression

Plan for Session 3

- Quiz
- Feedback from Session 2 project
- The advantages of Asperger's syndrome
- Self-awareness activity
- Objectives of Session 3
- How do we beat depression? Using the Emotion Repair Toolbox
- Project



Quiz

We discussed the reasons for feeling depressed.

How can what we **do** contribute to depression?

How can what we **think** contribute to depression?

Feedback from Session 2 project

What were your happy thoughts during the week?

.....

.....

.....

What were your sad thoughts?

.....

.....

.....

What did you think about the Discovery of Aspie article?

.....

.....

.....

Which qualities of Aspie did you relate to?

.....

.....

.....

The advantages of Asperger's syndrome



People who have Asperger's syndrome have a **different** (but not defective) way of perceiving the world, learning and achieving success, especially in the areas of talent associated with Asperger's syndrome. The talents can include **expertise** on a particular topic, **originality** in problem solving, being **creative** in the arts and being kind and **compassionate**. The **pleasures in life** for someone with Asperger's syndrome can also be different but intensely enjoyable, such as having a special interest or talent.

Self-awareness activity

We are going to complete the self-awareness activity now. It will take three minutes and then we will briefly discuss it.

Three minute exercise

Take some time to settle yourself into your chair.

Sit with both feet on the floor, eyes gently closed or looking into the middle distance.

Rest your hands on your lap, or your forearms on the arms of the chair, whichever is more comfortable.

Start to become aware of your breath. Notice the *in* breath...and the *out* breath...

Become aware of being in your body.

Notice the feeling of your feet on the floor...the chair under your thighs, supporting you...the clothes on your skin...the light brush of air on your hands and face.

Pause

Next, become aware of your sense of taste. Notice the sensation of taste inside your mouth. It is okay just to notice the sensations, no need to label them.

Pause

Next, become aware of your sense of smell, what you can smell... Open your awareness to the aromas around you...again, not labelling so much as noticing...

Pause

And now become aware of your sense of sight. Whether your eyes are open or closed, take in what you can see...the colour, shapes, light, shade...

Pause

And now begin to become aware of what you can hear. First, notice the sounds closest to you, the sounds in the room. Next, open your awareness to the sounds a little way away, in the middle distance...noticing sounds... Next, begin to be aware of the sounds in the distance...the sounds coming from far away...and then become aware of the silence that exists in between the sounds...

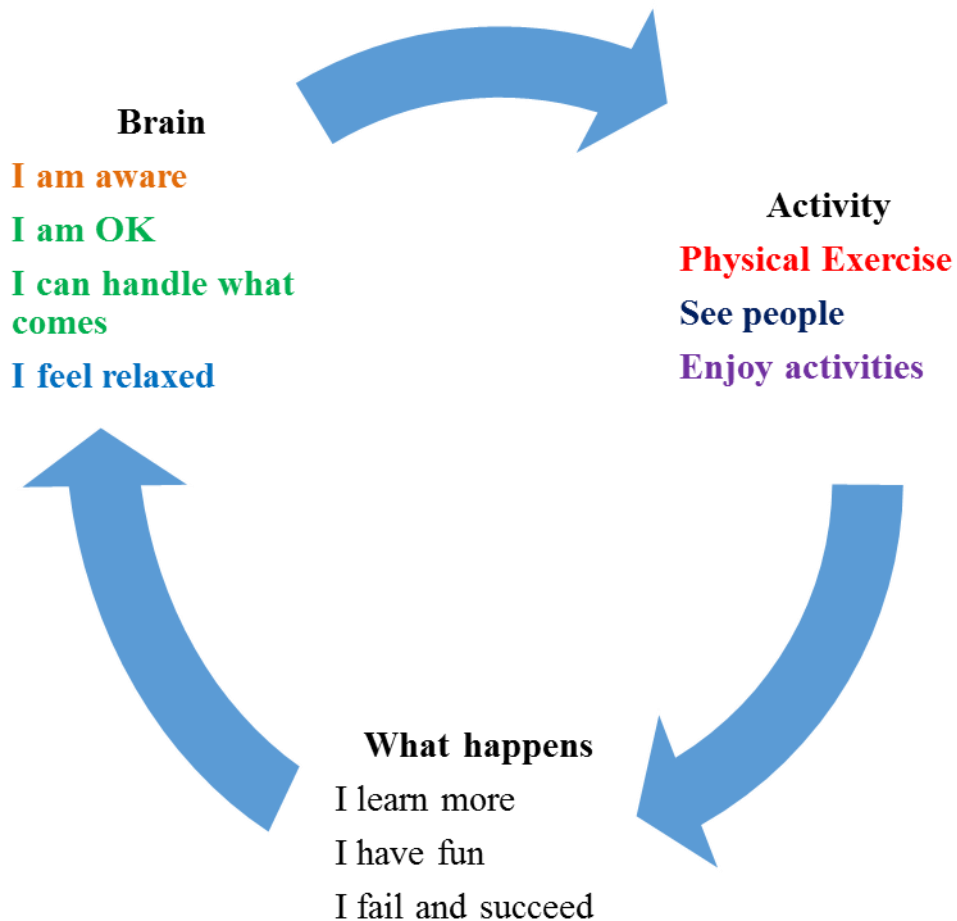


Objectives of Session 3

- To increase your self-awareness.
- To understand the variety of tools available to combat depression.
- To choose a physical tool that you can start using from today to combat depression or feelings of sadness.

How do you beat depression?

Understanding how depression starts and continues is the key to understanding how to beat it.



An Emotion Repair Toolbox

Embedded in the above diagram are clues for how to repair depression and sadness. The six tools, each represented by a different colour, comprise the Emotion Repair Toolbox. Each tool is specifically designed to fix one of the reasons for ongoing depression, just as typical tools are specifically designed for a particular job, e.g. a hammer is well-designed for banging in a nail. Using just one tool may be enough to get rid of the sadness, but if you have a deep level of sadness, or the sadness has been around for a long time, you are likely to need several tools, possibly all six.



Overview of the tools in the Emotion Repair Toolbox

Self-awareness tools	For self-regulation and clarity of thought
Physical tools	For well-being and energy
Pleasure tools	For feeling good
Thinking tools	To stay in touch with reality
Social tools	To combat loneliness
Relaxation tools	To feel calm and confident

During the next few sessions we will be exploring each of these to assist you first, to develop your own personal Toolbox, and next, to learn how to use it and calibrate it as needed.

Self-awareness tools

We have already started to use the tool of self-awareness. Self-awareness is important for:

1. Self-regulation: understanding what you are thinking and feeling so that you can do something about it if you are feeling depressed.
2. Planning a life that will suit you, from knowing how much sleep you need, to choosing a career and how much socializing is optimal for you.



In the Emotion Repair Toolbox this tool could be represented by a compass.

Self-awareness provides a compass to find the direction of travel in your journey into the future.

There is a large body of research that indicates that self-awareness helps us to use our brain better, so that we are smarter, happier and calmer. Each week we will practise self-awareness. From now on we will ask you to also practise the self-awareness exercise daily at home. This will be one of your projects for the week.

Physical Tools

We recognise that energetic activity can improve a person's mood and clarity of thought.



Physical exercise can repair feelings of sadness and misery, and make you smarter and improve your concentration and memory.

In the emotion repair toolbox, this tool could be represented by a **hammer**.

Think of your favourite physical activities that can restore a sense of optimism and confidence in your abilities.

Some 'tools' may be physical activities that you **used to do** but you may enjoy doing again, activities you do now but could do **more often** and physical activities you would like to **experience** to see if they improve your mood and thinking.

The physical tools do not have to be team sports or ball games.

They can be divided into those that can be used at **home** and at **school**

What are the physical tools you can use at home and at school?

Home

School

.....
.....
.....
.....
.....
.....
.....
.....

Project

Planning

On the next page is a weekly planner. Take a few minutes now to put in some key activities that you know occur for you most weeks. These may include attending school, or home schooling, shopping, visits, chores etc. Think next about when would be a good time for one of the physical activities that you have chosen for home or school. Plan for two 30 minute sessions in the next week. Place them on the planner.



Next think about when you can do the self-awareness activity. Aim for 3 minutes each day, and mark these times on the planner.

Think about where you will put the planner when you get home so that you can see it and remember to incorporate these new activities into your week. You may need to make several copies as they can get lost.

Weekly Planner

Schedule physical activities and a daily self-awareness activity.

WEEKLY PLANNER			
	AM	PM	EVENING
MONDAY			
TUESDAY			
WEDNESDAY			
THURSDAY			
FRIDAY			
SATURDAY			
SUNDAY			

Self-monitoring

Use the self-monitoring sheet below for keeping a record of when and for how long you exercised, and the times that you practised the self-awareness exercise during the week.

Do this at the end of each day, before you go to bed. We will discuss your self-monitoring sheet during Session 4.



Self-monitoring Sheet (S3)

Record when and for how long you exercised, and when you practised the self-awareness exercise.

	SELF-AWARENESS EXERCISE	PHYSICAL ACTIVITY
MONDAY		
TUESDAY		
WEDNESDAY		
THURSDAY		
FRIDAY		
SATURDAY		
SUNDAY		

Exploring Depression

Session 4

Art and Pleasure Tools

Name: _____



Session 4: Art and Pleasure Tools

Plan for Session 4

- Quiz
- Feedback from Session 3 project
- Self-awareness activity
- Objectives of Session 4
- Art activity
- Pleasures in life
- Project

Quiz

In session 3 we discussed two tools for combating depression. What were they?

.....
.....

Feedback from Session 3 project

We asked you to follow a Plan that you had made for incorporating two new tools into your life. We asked you to complete a self-monitoring sheet to show when you had remembered to do these two things. Please take out the self-monitoring sheet now. Discuss the project with the group. Ask these questions:

What helped you to remember to use the tools?

.....
.....

What were the barriers to remembering or using the tools?

.....
.....

How did the tools affect your mood and abilities?

.....
.....

Self-awareness activity

We are going to complete the self-awareness activity now. It will take three minutes and then we will briefly discuss it.

Three minute exercise

Take some time to settle yourself into your chair.

Sit with both feet on the floor, eyes gently closed or looking into the middle distance.



Rest your hands on your lap, or your forearms on the arms of the chair, whichever is more comfortable.

Start to become aware of your breath. Notice the *in* breath...and the *out* breath...

Become aware of being in your body.

Notice the feeling of your feet on the floor...the chair under your thighs, supporting you...the clothes on your skin...the light brush of air on your hands and face.

Pause

Next, become aware of your sense of taste. Notice the sensation of taste inside your mouth. It is okay just to notice the sensations, no need to label them.

Pause

Next, become aware of your sense of smell, what you can smell... Open your awareness to the aromas around you...again, not labelling so much as noticing...

Pause

And now become aware of your sense of sight. Whether your eyes are open or closed, take in what you can see...the colour, shapes, light, shade...

Pause

And now begin to become aware of what you can hear. First, notice the sounds closest to you, the sounds in the room. Next, open your awareness to the sounds a little way away, in the middle distance...noticing sounds... Next, begin to be aware of the sounds in the distance...the sounds coming from far away...and then become aware of the silence that exists in between the sounds...

Objectives of Session 4

- To understand the importance of expressing your emotions through art.
- To discover **pleasure tools** in the Emotion Repair Toolbox

Art activity

Explore with the group how using art (e.g. painting, sculpture, writing, photography, movie-making, music) can ‘eloquently’ communicate your emotion of sadness.

Key Points:

.....
.....

What are some examples of art being successful in making people creatively express sadness or anguish?

.....
.....

How can being creative or appreciative of the artistic expression of sadness alleviate **your** feelings of sadness?

Key points:

.....
.....

Pleasures in life

What are your pleasures in life? What activities, experiences, thoughts, memories, people (and animals), and dreams of the future create within you a feeling of well-being and optimism?



Activities

.....
.....

Experiences

.....
.....

Thoughts

.....
.....

Memories

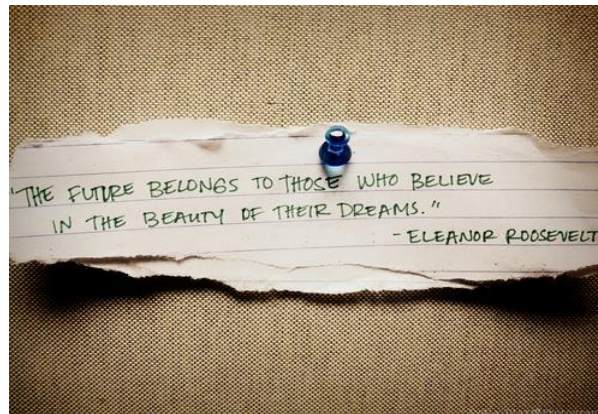
.....
.....

People and animals

.....
.....



Dreams of the future



Special interest

You may have a special interest, that is a topic or activity that you really enjoy. You may have a natural ability in an area such as music, mathematics or fine art, or remembering facts and information, or have a collection of objects that give you pleasure. Lots of practice and time devoted to the interest may lead to recognised and appreciated success and intense personal enjoyment when engaged in the interest.

The degree of enjoyment may be far superior to any of the other pleasures in your life.

Intense happiness, success and enjoyment are powerful antidotes to feeling sad.

Nick Dubin, an adult author with Asperger's syndrome has written, "I have never met anyone with Asperger's syndrome who was depressed when they were involved with a special interest."

The special interest can also restore energy and strengthen self-esteem, as well as acting as a thought blocker to anxious or sad thoughts.

Time engaged in the special interest can be a very useful tool in the emotion repair tool box.

However, it can be so enjoyable that you can be criticized by parents for spending too much time engaged in the special interest. When that occurs, you will need alternative tools in your toolbox.



The special interest could be represented by a torch that enables you to see something in more detail.

What is your special interest?

.....
.....

How much enjoyment do you experience when you are absorbed in your special interest on a scale from 1 to 100?

.....



Project

Expressing sadness through art

We have been talking a lot about sadness and depression. Sometimes it is difficult to express feelings in face-to-face conversation. Some people find that a better way to express their feelings is through art. The project for this week is

for you to see if you can find a way to express your feelings of being sad through some form of art. Here are some suggestions to help:

- Find a piece of music or a song
- Find a photograph on Google Images, or a painting
- Find part of a movie
- Find a poem or an essay
- Find a sculpture
- Write a song or piece of music
- Take a photograph
- Create a video
- Write a poem or an essay
- Create a sculpture or collage

Next week bring in your example of sadness expressed through art that describes your experience of sadness.

More pleasures in life

Talk with your parents about your pleasures, and together add to the list you created earlier in today's session. These thoughts and experiences can act as an antidote to feeling sad or depressed and will be explored during the next session.



Weekly Planner

For scheduling physical and self-awareness activities and pleasurable activities.

WEEKLY PLANNER			
	AM	PM	EVENING
MONDAY			
TUESDAY			
WEDNESDAY			
THURSDAY			
FRIDAY			
SATURDAY			
SUNDAY			

Self-monitoring

Use the self-monitoring sheet as you did last week, to record when you complete your two sessions of physical activity, and your daily self-awareness practice. This time there is space for rating how you felt before and after your physical exercise on your depression scale.



Self-monitoring Sheet (S4 & S5)

Record how you felt before and after you practised the self-awareness exercise, your physical activity and pleasurable activity during the week. Use a happiness rating scale from 1 to 100.

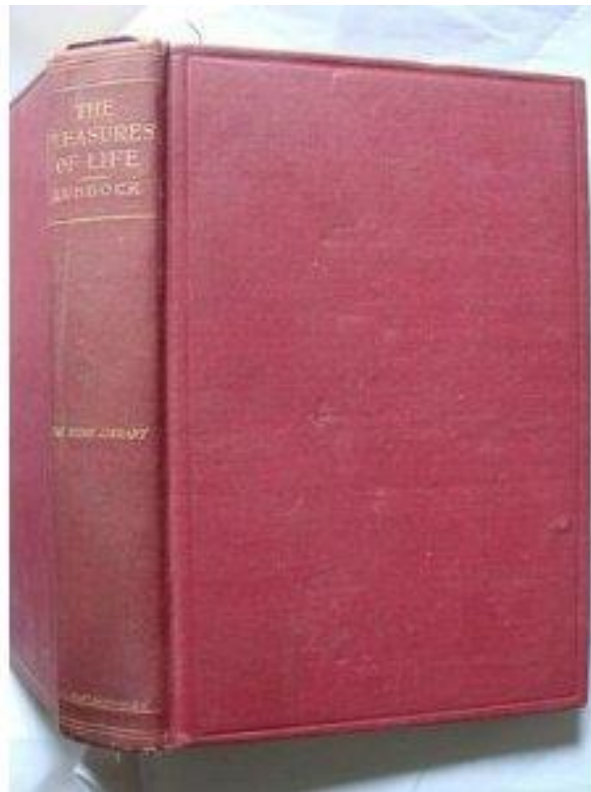
	SELF-AWARENESS EXERCISE <i>1</i>	PHYSICAL ACTIVITY <i>2</i>	PLEASURABLE ACTIVITY <i>3</i>	RATING					
				Before			After		
				<i>1</i>	<i>2</i>	<i>3</i>	<i>1</i>	<i>2</i>	<i>3</i>
MONDAY									
TUESDAY									
WEDNESDAY									
THURSDAY									
FRIDAY									
SATURDAY									
SUNDAY									

Exploring Depression

Session 5

Thinking Tools (part 1)

Name: _____



Session 5: Thinking Tools (part 1)

Plan for Session 5

- Quiz
- Feedback from Session 4 project
- Self-awareness activity
- Objectives of Session 5
- Thinking tools
- Project



Quiz

Why is it important to schedule pleasurable activities into your week?

Why is it important to schedule a wide range of pleasurable experiences other than your special interest during your week?

Feedback from Session 4 project

Self-awareness and physical activity

You were asked to follow a plan that you had made for incorporating two new tools into your life, and to complete a self-monitoring sheet to show when you had remembered to do these two things. Please take out the self-monitoring sheet now. Discuss your results with the group. Ask these questions:

What helped you to remember to use the tools?

.....
.....

What were the barriers to remembering or using the tools?

.....
.....

How did you feel before and after your physical exercise?

.....
.....

Expression through art

Please share with the group members the piece of music, art, sculpture, pictures or photographs that express your own sadness.

Pleasurable activities

You were asked to discuss with your parents any other pleasurable activities that you could think of to add to your list of pleasures. Did you come up with any extra ideas?

Self-awareness activity

We are going to complete the self-awareness activity now. It will take three minutes and then we will briefly discuss it.

Three minute exercise

Take some time to settle yourself into your chair.

Sit with both feet on the floor, eyes gently closed or looking into the middle distance.

Rest your hands on your lap, or your forearms on the arms of the chair, whichever is more comfortable.

Start to become aware of your breath. Notice the *in* breath...and the *out* breath...

Become aware of being in your body.



Notice the feeling of your feet on the floor...the chair under your thighs, supporting you...the clothes on your skin...the light brush of air on your hands and face.

Pause

Next, become aware of your sense of taste. Notice the sensation of taste inside your mouth. It is okay just to notice the sensations, no need to label them.

Pause

Next, become aware of your sense of smell, what you can smell... Open your awareness to the aromas around you...again, not labelling so much as noticing...

Pause

And now become aware of your sense of sight. Whether your eyes are open or closed, take in what you can see...the colour, shapes, light, shade...

Pause

And now begin to become aware of what you can hear. First, notice the sounds closest to you, the sounds in the room. Next, open your awareness to the sounds a little way away, in the middle distance...noticing sounds... Next, begin to be aware of the sounds in the distance...the sounds coming from far away...and then become aware of the silence that exists in between the sounds...

Objectives of Session 5

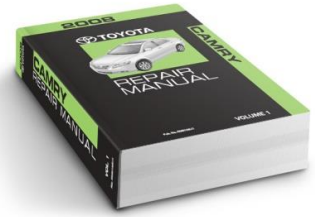
- To understand the importance of expressing your emotions through art.
- To discover **thinking tools** in the Emotion Repair Toolbox

Thinking tools

Thinking tools change knowledge, beliefs and attitudes. Thinking tools use intellectual strength to repair feelings of sadness.

These tools can be designed to repair specific distortions in thinking.

They can be conceptualized as a repair manual.



Thinking tools include:

- A **reality check**: is the event or comment actually as serious as you believe?
- Giving yourself a **compliment**: change a negative self-perception that is pessimistic about your abilities or future to one of optimism and self-worth.
- Noticing something in your environment that you **appreciate**.
- Creating a **Pleasures Book** that is similar to a diary, but records in words or photographs the pleasures you experience each day or week as examples of your qualities and achievements.
- Reading and reflecting on your list of **qualities** and **achievements** in life that are recorded in your pleasures book whenever you feel sad.



Thinking tools could, therefore, be represented by a tape measure that measures the real significance of an event or the dimensions of your qualities, achievements and pleasures.

Let's practise using some thinking tools:



What compliment could you give yourself?

.....
.....

What can you see or sense in the room at the moment that makes you feel happy or optimistic?

.....
.....

What quality in yourself do you admire?

.....
.....

What achievement are you proud of?

.....
.....

What is one of the pleasures in your life?

.....
.....



Your hero

You may have a hero in literature or films such as Harry Potter, or a family member who is your hero. Another thinking tool is to imagine what your hero would do in a particular situation.

Who is your hero?

.....
.....

What qualities does he or she have that you admire?

.....
.....

Think or imagine what your hero would do or say in a situation that makes you feel sad. How could you adopt their qualities and ability not to feel sad?

You could:

.....
.....
.....
.....

Thinking activity

Consider this situation.

You are waiting at the movie theatre for your friend to arrive. The movie starts at 6.30pm and you had arranged to meet at 6pm to buy the tickets, a drink and something to eat. It is now 6.25pm and there is no sign of your friend.

Person A starts to think: "What did I do wrong last time I spoke to my friend? She seemed fine and agreed to go to the pictures, but now she has not turned up. I just know I turned her off. Now she doesn't like me. Just like all the other times. I will never make a friend. I am hopeless and unlikeable. There is just something terribly wrong with me."

How is Person A feeling?

.....
.....

Why do you think she feels this way?

.....
.....

What is the evidence for her thought “I am hopeless and unlikeable.”?

.....
.....



Person *B* is in the same situation. He starts to think: “I do hope that something bad hasn’t happened to my friend. He is usually very reliable. It is unusual for him to be 10 minutes late. The bus he catches may have been held up. The traffic was very bad getting here.”

How is Person *B* feeling?

.....
.....

Why do you think he feels this way?

.....
.....

What is the difference between Person *B*’s thinking style compared to that of Person *A*?

.....
.....

COMMON VIEW:

Situation -----→ Feelings

IN REALITY:

Situation -----→ Thoughts and beliefs -----→ Feelings

Project

Recognizing and measuring happiness and sadness

During the week choose a time when you feel happy or have a happy thought.

What happened?

.....
.....
.....

What were your happy thoughts?

.....
.....
.....

How happy were you on a scale from 1 to 100 where 1 is 'Neutral' and 100 is 'Ecstatic'?

Your score



Next choose a time when you feel sad or have a sad thought.

What happened?

.....
.....
.....
.....

What were your sad thoughts?

.....
.....
.....
.....

How sad were you on a scale from 1 to 100 where 1 is 'Neutral' and 100 is 'Suicidal'?

Your score



Weekly Planner

Schedule two physical activities, a daily self-awareness activity and two pleasurable activities,.

WEEKLY PLANNER			
	AM	PM	EVENING
MONDAY			
TUESDAY			
WEDNESDAY			
THURSDAY			
FRIDAY			
SATURDAY			
SUNDAY			

Self-monitoring

Use the self-monitoring sheet on the next page to record, as you have previously, when you complete your two sessions of physical activity, your daily self-awareness practice and your pleasurable activities. Once again, there is space for rating how you felt before and after your physical activity and pleasurable activity on your happiness scale.

Self-monitoring Sheet (S4 & S5)

Record how you felt before and after you practised the self-awareness exercise, your physical activity and pleasurable activity during the week. Use a happiness rating scale from 1 to 100.

	SELF-AWARENESS EXERCISE <i>1</i>	PHYSICAL ACTIVITY <i>2</i>	PLEASURABLE ACTIVITY <i>3</i>	RATING					
				Before			After		
				<i>1</i>	<i>2</i>	<i>3</i>	<i>1</i>	<i>2</i>	<i>3</i>
MONDAY									
TUESDAY									
WEDNESDAY									
THURSDAY									
FRIDAY									
SATURDAY									
SUNDAY									

Exploring Depression

Session 6

Thinking Tools (part 2) and Social Tools

Name: _____



Session 6: Thinking Tools (part 2) and Social Tools

Plan for Session 6

- Quiz
- Feedback from Session 5 project
- Self-awareness activity
- Objectives of Session 6
- Thinking tools (part 2)
- Social tools
- Project

Quiz

How can changing your thinking change your feelings?

What compliment could you give yourself?

How could your hero model how to cope with adversity and being positive?

Feedback from Session 5 project

Self-awareness and physical activity

You were asked to follow a plan that you had made for incorporating two new tools into your life, and to complete a self-monitoring sheet to show when you had remembered to do these two things. Please take out the self-monitoring sheet now. Discuss your results with the group. Ask these questions:

What helped you to remember to use the tools?

.....
.....

What were the barriers to remembering or using the tools?

.....
.....

How did you feel before and after your physical exercise?

.....
.....

Which pleasurable activities did you schedule?

1.....
2.....

How did these pleasurable activities go?

1.....
2.....



Thoughts and Feelings

What were some examples of your sad thoughts?

.....
.....
.....

What were some examples of your happy thoughts?

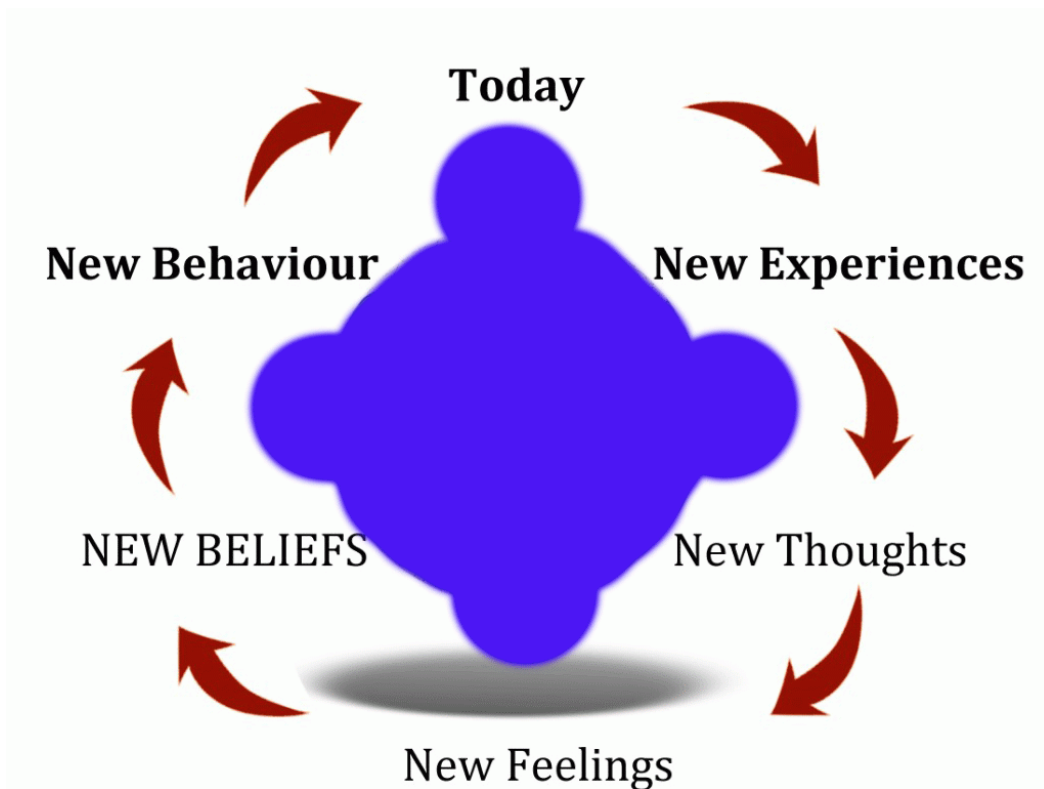
.....
.....
.....

What is the connection between your thinking and how you felt?

.....

.....

.....



Self-awareness activity

We are going to complete the self-awareness activity now. It will take three minutes and then we will briefly discuss it.

Three minute exercise

Take some time to settle yourself into your chair.

Sit with both feet on the floor, eyes gently closed or looking into the middle distance.

Rest your hands on your lap, or your forearms on the arms of the chair, whichever is more comfortable.

Start to become aware of your breath. Notice the *in* breath...and the *out* breath...

Become aware of being in your body.

Notice the feeling of your feet on the floor...the chair under your thighs, supporting you...the clothes on your skin...the light brush of air on your hands and face.

Pause

Next, become aware of your sense of taste. Notice the sensation of taste inside your mouth. It is okay just to notice the sensations, no need to label them.

Pause

Next, become aware of your sense of smell, what you can smell... Open your awareness to the aromas around you...again, not labelling so much as noticing...

Pause

And now become aware of your sense of sight. Whether your eyes are open or closed, take in what you can see...the colour, shapes, light, shade...

Pause

And now begin to become aware of what you can hear. First, notice the sounds closest to you, the sounds in the room. Next, open your awareness to the sounds a little way away, in the middle distance...noticing sounds... Next, begin to be aware of the sounds in the distance...the sounds coming from far away...and then become aware of the silence that exists in between the sounds...



Objectives of Session 6

- To learn more about **thinking tools** in the Emotion Repair Toolbox.
- To discover **social tools** in the Emotion Repair Toolbox.

Thinking tools (part 2)

Challenging and changing your thoughts

Part of your project last week was remembering a time when you felt sad.

What were your sad **thoughts**?

.....
.....
.....



What was the **evidence** to confirm those thoughts?

.....
.....
.....

What could be alternative **objective** or **optimistic** thoughts in that situation?

Objective

.....
.....
.....

Optimistic

.....

.....

.....



Perception is everything!

We learned in the last session that we do have some control over how we feel, and through our thoughts and actions we do not have to stay depressed. In other words, the way we think about a situation determines in large part how we feel about that situation. We have a choice. Unfortunately, when we are tired, anxious, stressed or depressed our automatic/default thinking style tends to be pessimistic, therefore our thoughts can keep us depressed and stressed if we let them.



The trick is to recognise the pattern and don't believe your first thought.

Let's think about some common thinking distortions that can keep us depressed...

Common distortions in thinking in depression

- **Black and white thinking:** Thinking things are always one way or the other, e.g. I can never do anything right, it will never work.
- **Overgeneralization:** Just because one thing goes wrong you think everything will go wrong.
- **Magical thinking:** You think you will have a bad day or something bad will happen based on something else happening that is completely unrelated, e.g. I saw five yellow cars this morning and yellow cars are bad luck.
- **Mental filter:** You see the world through a filter that effectively screens out any positive thoughts or events.
- **Disqualifying the positive:** If something good happens you dismiss it as being irrelevant or unique and never to be repeated.
- **Jumping to conclusions:** You decide that you know what someone is thinking or what will happen in the future, even though you can't read someone else's mind or read the future. These are:

- *Mind reading*
- *Fortune telling*
- **Magnification and minimization:** You magnify the problems so that is all you see, and minimise the positive. This is:
 - *Catastrophizing*
- **Emotional reasoning:** “I feel it, therefore it must be true.”
- **‘Should’ statements:** Your thoughts reflect rigid rules about how about how you or others ‘should’ behave.
- **Labeling and mislabeling:** You rely on naming yourself, others or events, and therefore miss out on a thorough understanding of yourself others or events, e.g. “I am a loser,” “He is mean,” or “That was a disaster.”
- **Personalization:** You think, “it was all my fault” even when you did not have control of everything that happened.

Activity

Do you recognise any of these patterns of thinking in yourself?

- | | |
|--------------------------------|--------------------------|
| Black and white thinking | <input type="checkbox"/> |
| Overgeneralization | <input type="checkbox"/> |
| Magical thinking | <input type="checkbox"/> |
| Mental Filter | <input type="checkbox"/> |
| Disqualifying the positive | <input type="checkbox"/> |
| Jumping to conclusions | <input type="checkbox"/> |
| Magnification and minimization | <input type="checkbox"/> |
| Emotional reasoning | <input type="checkbox"/> |
| ‘Should’ statements | <input type="checkbox"/> |

Labeling and mislabeling

Personalization

What thoughts can correct each of these distortions?

Black and white thinking

.....
.....

Overgeneralization

.....
.....

Magical thinking

.....
.....

Mental Filter

.....
.....

Disqualifying the positive

.....
.....

Jumping to conclusions

.....
.....

Magnification and minimization

.....
.....

Emotional reasoning

.....
.....

'Should' statements

.....
.....

Labeling and mislabeling

.....
.....

Personalization

.....
.....

Social tools

Social tools are strategies that help you repair feelings of sadness by being with **someone** who you know can cheer you up, put the event in perspective, correct any distortions in thinking and 'soak up' your despair.

Sometimes there is wisdom in the phrase, 'A problem shared is a problem halved'.

The person is a good listener, non-judgemental, validates your feelings and gives support, reassurance and compliments, not criticism or expressions of disappointment.

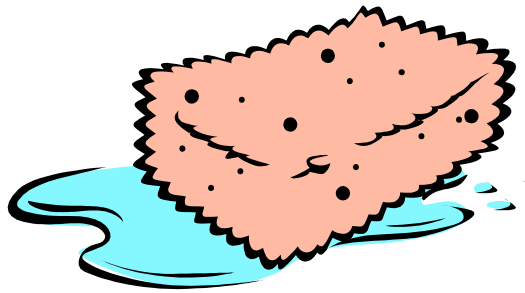


The repair may not be a face-to-face conversation, but communication through the Internet, text, or telephone.

A special type of social tool that you may consider is **helping** someone. An effective emotion repair ‘tool’ is an act of kindness or help. Being needed and valued is a very powerful emotional repair mechanism.

A social tool could be an animal, your pet, who is perhaps your ‘best friend’.

Social tools could be represented by a sponge that ‘cleans’ the feeling.



What social tools could you use at home and school? Who could be your ‘go-to’ person at home or at school?

Home

School

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.....

Group Activity

This group is an excellent opportunity to develop new friendships. **We often find that like-minds attract. You may find there are others in the group who think like you or have similar interests. Seeing each other outside the group is a good way to build friendships.** We will pass around a piece of paper. If you are interested in keeping in touch with the group members in between sessions, write down your name and the best way to contact you, e.g. mobile phone, text, email or Facebook, with the number or address.

Project

Weekly planner

Take out your weekly planner from Session 3. Think about a time in the coming week that you can schedule in a social activity, e.g. emailing the group to arrange a get-together; emailing one member of the group; talking to a parent; going to the movies with someone you like, etc. You may need to make some changes, so there is a new sheet for planning if you need it.

Weekly Planner

Schedule physical activities, pleasurable activities, daily self-awareness practice, and social activities.

WEEKLY PLANNER			
	AM	PM	EVENING
MONDAY			
TUESDAY			
WEDNESDAY			
THURSDAY			
FRIDAY			
SATURDAY			
SUNDAY			

Self-monitoring

Use the self-monitoring sheets on the next two pages to record, as you have previously, when you complete sessions of your daily self-awareness activity and physical activity, there is also a separate self-monitoring sheet to record your pleasurable activity and your social activity. Again, there is space for rating how you felt before and after your physical exercise on your happiness scale from 1 to 100. Aim to complete three sessions of physical activity this week as well as two sessions of pleasurable activity and also record your daily self-awareness practice.

Self-monitoring Sheet (S6-1)

Record how you felt before and after you practised the self-awareness exercise and your physical activity. Use a happiness rating scale from 1 to 100.

	SELF-AWARENESS EXERCISE <i>1</i>	PHYSICAL ACTIVITY <i>2</i>	RATING			
			Before		After	
			<i>1</i>	<i>2</i>	<i>1</i>	<i>2</i>
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
SATURDAY						
SUNDAY						

Self-monitoring Sheet (S6-2)

Record how you felt before and after you practised the pleasurable activity and your social activity during the week. Use a happiness rating scale from 1 to 100.

	PLEASURABLE ACTIVITY 3	SOCIAL ACTIVITY 4	RATING			
			Before		After	
			3	4	3	4
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
SATURDAY						
SUNDAY						

Assignment

Read through the following thinking activity based on an imaginary event. This will prepare you well for Session 7.

A boy at school told me that he did not want to hang around with me anymore because I was boring.

1. List which emotions you felt, and rate how much on, a scale from 1 to 10:

For example...

Devastated 9/10



Confused 7/10



.....

.....

.....

.....

.....

.....

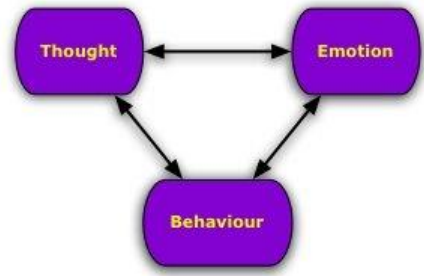
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2. Circle any of the following thoughts that may have come along with the emotion you have just described. Add your own if you have one.

- a) I must be boring.
- b) Maybe other people think I am boring too.
- c) I am not very likeable.
- d) I will never make another friend and will be friendless forever.
- e)

3. Identify the distortion in the thought:

- a) mislabeling and magnification
- b) mind-reading
- c) mislabeling and overgeneralization
- d) fortune-telling and catastrophizing
- e)



4. Write down a rational response to the thought. These are some examples:

- a) Just because one person thinks I am boring doesn't mean that everyone will. He may have reasons for saying that that are nothing to do with me, and that I do not know about.
- b) Other people may think I am boring, but that is okay, I don't have to be wildly interesting to everyone. There will be people who think I am interesting.
- c) Just because one person says that I am boring, it does not mean that I am unlikeable. Boring may not mean unlikeable, and even if it does, it is still only one person saying it. Other people will find me likeable. There is a lot of variety in the world.
- d) Just because one friendship has come to an end does not mean that there will never be another friendship. Friendships break up all the time. I have made friends with other people, and will continue to do so.
- e)

.....
.....
.....

5. Are there any other rational responses to each thought?

- a).....
- b)
- c).....
- d)
- e).....

6. Think about the event again, then read your rational responses. How do you feel now and how much on a scale from 1 to 10? Compare the original thoughts and ratings with your new thoughts and ratings, now you have challenged the distortions, in your thinking:

e.g.

Hopeful 7/10



.....

.....

.....

.....

.....

.....

.....

Exploring Depression

Session 7

Thinking Tools (part 3) and Relaxation Tools

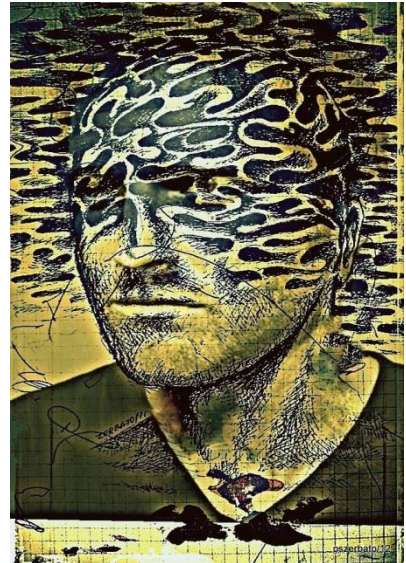
Name: _____



Session 7: Thinking Tools (part 3) and Relaxation Tools

Plan for Session 7

- Quiz
- Feedback from Session 6 project
- Self-awareness activity
- Objectives of Session 7
- Thinking tools (part 3)
- Relaxation tools
- Project



Quiz

What is a thinking distortion?

What happens to your mood if you tend to have a lot of thinking distortions?

Why are social tools important?

Feedback from Session 6 project

Self-awareness and physical activity

You were asked to follow a plan that you had made for incorporating four new tools into your life, and to complete a self-monitoring sheet to show when you had remembered to do these four things. Please take out the self-monitoring sheet now. Discuss your results with the group. Ask these questions:

How did you feel before and after your physical exercise?

.....
.....

What did you schedule as your pleasurable activities?

.....
.....

How is your self-awareness exercise going?

.....
.....

What did you schedule as your social activity?

.....
.....

How did it go?

.....
.....

Self-awareness activity

We are going to complete the self-awareness activity now. It will take three minutes and then we will briefly discuss it.

Three minute exercise

Take some time to settle yourself into your chair.

Sit with both feet on the floor, eyes gently closed or looking into the middle distance.

Rest your hands on your lap, or your forearms on the arms of the chair, whichever is more comfortable.

Start to become aware of your breath. Notice the *in* breath...and the *out* breath...



Become aware of being in your body.

Notice the feeling of your feet on the floor...the chair under your thighs, supporting you...the clothes on your skin...the light brush of air on your hands and face.

Pause

Next, become aware of your sense of taste. Notice the sensation of taste inside your mouth. It is okay just to notice the sensations, no need to label them.

Pause

Next, become aware of your sense of smell, what you can smell... Open your awareness to the aromas around you...again, not labelling so much as noticing...

Pause

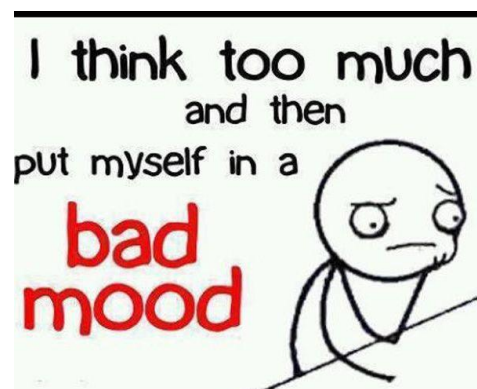
And now become aware of your sense of sight. Whether your eyes are open or closed, take in what you can see...the colour, shapes, light, shade...

Pause

And now begin to become aware of what you can hear. First, notice the sounds closest to you, the sounds in the room. Next, open your awareness to the sounds a little way away, in the middle distance...noticing sounds... Next, begin to be aware of the sounds in the distance...the sounds coming from far away...and then become aware of the silence that exists in between the sounds...

Objectives of Session 7

- To learn more about **thinking tools** in the Emotion Repair Toolbox.
- To discover **relaxation tools** in the Emotion Repair Toolbox.



Thinking activity



1. Describe a situation that led to you feeling down, sad or angry:

.....
.....
.....
.....

2. Rate which emotions you felt and how much on a scale from 1 to 10:

.....
.....
.....
.....
.....

3. Write down the thoughts that came along with the emotion you have just described:

.....
.....
.....
.....
.....

4. Identify the distortion in the thought:

.....
.....
.....
.....

Distortions in thinking

- Black and white thinking
- Overgeneralization
- Magical thinking
- Mental filter
- Disqualifying the positive
- Jumping to conclusions
- Magnification and minimization
(Catastrophizing)
- Emotional reasoning
- ‘Should’ statements
- Labeling and mislabeling
- Personalization



5. Write down a rational response to the thought:

.....
.....
.....

6. Think about the event again, then read your rational responses. How do you feel now, and how much, on a scale from 1 to 10?

.....

.....

.....



Relaxation tools



Relaxation tools help you feel **calm**, prevent ‘**catastrophizing**’ or feeling **angry**, enable you to carefully consider the situation, and give you time to repair any distortions in thinking that were described in the previous session.

These ‘tools’ lower your heart rate, and induce a feeling of well-being and tranquillity.

Relaxation tools can be represented by a paint brush.



They can include artistic activities such as drawing or listening to music; finding a quiet sanctuary; meditation; or routine chores.

They can be divided into those that can be used at **home** and at **school**

Home

School

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.....
.....
.....
.....

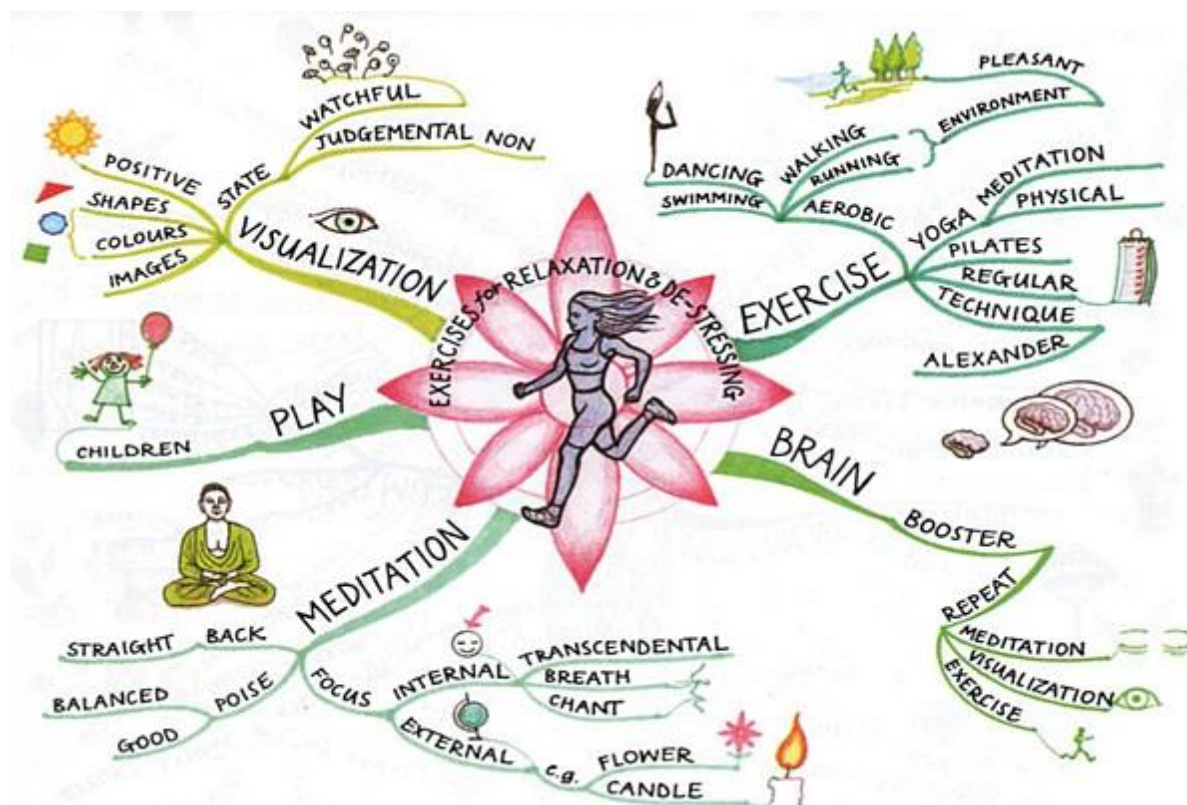
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Project

Weekly Planner

Take out your new weekly planning sheet for the week. Think about a time in the coming week that you can schedule in a relaxation activity. You may remember in Session 4 we discussed using art as a means for expression of emotion, so you may prefer to schedule time for art this week, as an excellent relaxation activity. Also, schedule in three physical exercise sessions, two pleasurable activities, your daily self-awareness exercise and a social activity.



Self-monitoring

Use your new self-monitoring sheets to record when you complete sessions of physical activity, pleasurable activity, your daily self-awareness practice, your social activity and your relaxation activity.

Weekly Planner

Schedule physical exercise (3 sessions), relaxation, two pleasurable activities, social activities and a daily self-awareness activity.

WEEKLY PLANNER			
	AM	PM	EVENING
MONDAY			
TUESDAY			
WEDNESDAY			
THURSDAY			
FRIDAY			
SATURDAY			
SUNDAY			

Self-monitoring Sheet (S7-1)

Record how you felt before and after you exercised and practised the self-awareness exercise during the week. Use a happiness rating scale from 1 to 100. This time there is a separate sheet to record your pleasurable, social and relaxation activities.

	SELF-AWARENESS EXERCISE <i>1</i>	PHYSICAL ACTIVITY <i>2</i>	RATING			
			Before		After	
			<i>1</i>	<i>2</i>	<i>1</i>	<i>2</i>
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
SATURDAY						
SUNDAY						

Self-monitoring Sheet (S7-2)

Record how you felt before and after your pleasurable, social and relaxation activities. Use a happiness rating scale from 1 to 100.

	PLEASURABLE ACTIVITY 3	SOCIAL ACTIVITY 4	RELAXATION ACTIVITY 5	RATING						
				Before			After			
				3	4	5	3	4	5	
MONDAY										
TUESDAY										
WEDNESDAY										
THURSDAY										
FRIDAY										
SATURDAY										
SUNDAY										

COGNITIVE DISTORTIONS

**Real life
recognizing
distortions**

**practice in
cognitive**

Apply your new knowledge about thinking distortions to a situation that happens over the next week.

The situation that led you to feeling down, sad or angry:

.....
.....

Rate which emotions you felt and how much, on a scale from 1 to10:

.....
.....
.....

The thoughts that came along with the emotions:

.....
.....
.....

Identify the distortions in the thoughts:

.....
.....
.....

The rational responses to the thoughts:

.....

.....

.....

Think about the event again, then read your rational responses.

How do you feel now? Indicate how much on a scale from 1 to 10?

.....

.....

.....

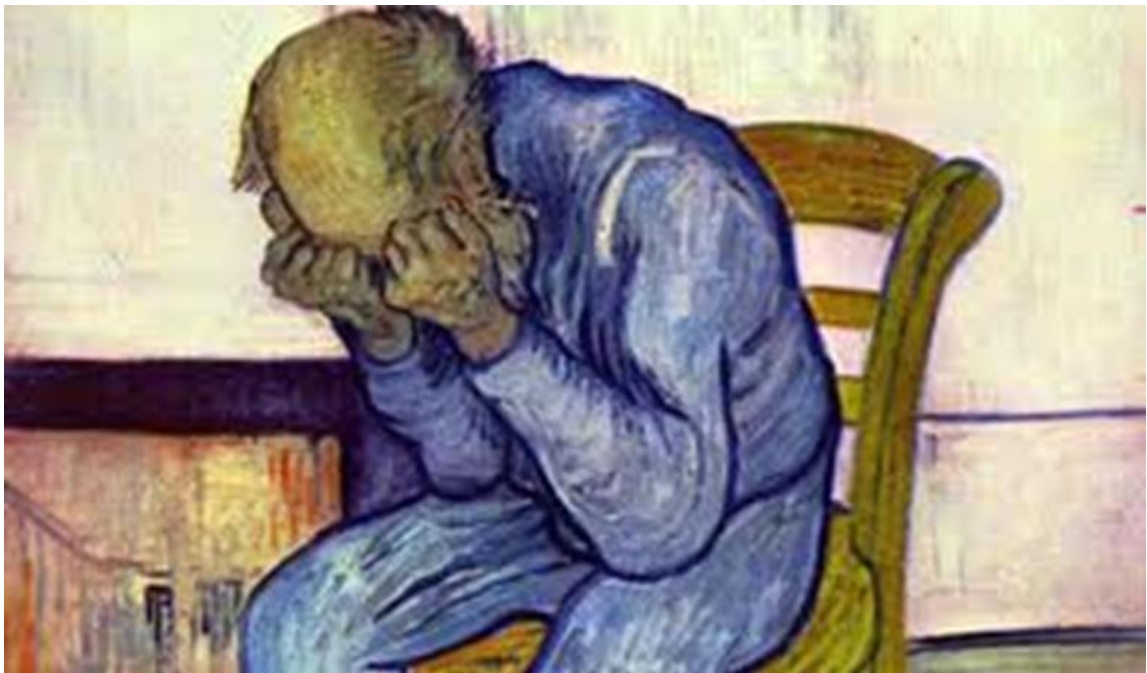


Exploring Depression

Session 8

Relaxation and Helpful and Unhelpful Tools

Name: _____



Depression by Van Gogh

Session 8: Relaxation and Helpful and Unhelpful Tools

Plan for Session 8

- Quiz
- Feedback from Session 7 project
- Self-awareness activity
- Objectives of Session 8
- Relaxation for self-awareness
- Tools that do not help
- Project

Quiz

Which thinking distortion do you tend to use a lot?

What is the benefit of relaxation?

Why would this help for depression?



Feedback from Session 7 project

Self-awareness and physical activity

You were asked to follow a plan that you had made for incorporating four new tools into your life, and to complete a self-monitoring sheet to show when you had remembered to do these four things. Please take out the self-monitoring sheet now. Discuss your results with the group. Ask these questions:

How did you feel before and after your physical exercise?

.....
.....



What did you schedule as your pleasurable activity?

.....
.....

How is your self-awareness exercise going?

.....
.....

What did you schedule as your social activity?

.....
.....

How did it go?

.....
.....

What did you schedule for your relaxation activity?

.....
.....

How did it go?

.....
.....

You applied your new knowledge about thinking distortions for an event or thought over the last week. Share your experiences and strategies with the group.



Self-awareness activity

We are going to complete the self-awareness activity now. It will take three minutes and then we will briefly discuss it.

Three minute exercise

Take some time to settle yourself into your chair.

Sit with both feet on the floor, eyes gently closed or looking into the middle distance.

Rest your hands on your lap, or your forearms on the arms of the chair, whichever is more comfortable.

Start to become aware of your breath. Notice the *in* breath...and the *out* breath...

Become aware of being in your body.

Notice the feeling of your feet on the floor...the chair under your thighs, supporting you...the clothes on your skin...the light brush of air on your hands and face.

Pause

Next, become aware of your sense of taste. Notice the sensation of taste inside your mouth. It is okay just to notice the sensations, no need to label them.

Pause

Next, become aware of your sense of smell, what you can smell... Open your awareness to the aromas around you...again, not labelling so much as noticing...

Pause

And now become aware of your sense of sight. Whether your eyes are open or closed, take in what you can see...the colour, shapes, light, shade...

Pause

And now begin to become aware of what you can hear. First, notice the sounds closest to you, the sounds in the room. Next, open your awareness to the sounds a little way away, in the middle distance...noticing sounds... Next, begin to be aware of the sounds in the distance...the sounds coming from far away...and then become aware of the silence that exists in between the sounds...



Objectives of Session 8

- To use relaxation for self-awareness.
- To discover other helpful tools and unhelpful tools.

Relaxation for self-awareness

Settle yourself comfortably in your chair. We will take you through a mind exercise to help you to relax and to discover more aspects of self.

Seat yourself comfortably in the chair. If you wish to, close your eyes. Closing your eyes can be helpful to allow the mind to focus on what is being said. Start to become aware of your breath. You may breathe through your nose or your mouth. Notice which, and feel the sensation of the air entering your body, filling your lungs, and then leaving your body. You may wish to control your breathing by increasing the breaths you take into deep ones that fill your lungs, or you may wish to simply observe your breathing. Both are just perfect. As you are focussing on the breath, you are aware of sounds in the room and particularly my voice. As you relax in the chair, I am going to describe a scene that you can go to in your imagination.



I want you to imagine that you are in a time capsule and about to travel back into the past. Enter the time capsule and begin to go back in time to a place where you felt very, very happy about something you did, an achievement, a success. It is good to stop at the first memory you have when there was a success that you achieved, or were a part of, and you felt really good about yourself. There may have been someone else there who was important to you, and that person shared with you how proud they were about your achievement. Take yourself to that time now.

When you have a picture in your mind of a time when you felt happy and successful, raise your thumb slowly. Good. Now stay with that memory for a bit. Imagine that you are that age now, the very age you were when you experienced that delicious experience of success. Begin to feel again the experience. Take your time to expand the memory in your mind, imagine your surrounds, see them vividly in your mind, the colours, the quality of the light, who was there, what were they saying? If someone was there, imagine seeing them now, and imagine them saying something really nice to you about what you have achieved. Feel again the temperature of the scene, experience what you can smell and hear. Now take yourself inside your body and experience how it feels to be so happy, to feel achievement, success, and fulfilment. Experience the sensation in your body, in your legs and arms, your stomach, your heart. Say to yourself: 'Yes. I did it. Well done. I have achieved at something I know is important. I am happy and proud.' Reflect on your key strengths and say them to yourself. Know that your success is tied to you, to your abilities and qualities. You always have these strengths in you, no one can take them away, they make up a crucial part of you. And whenever you wish to, you can draw on these strengths and experience success, happiness, and fulfilment.

Now, slowly begin to experience your body in the room, and as you come back to that awareness, bring the experience of success with you. Wiggle your fingers and toes. Notice your breath. Open your eyes.





Discussion

Now the group will take it in turns to share what they experienced. When it is your turn to share, describe your own experience of success or achievement, including how your own key strengths contributed to this success.

Other helpful tools

Medication can be a successful treatment for depression.



Has medication been a useful tool in your tool box?

.....
.....

What have been the good aspects of medication?

.....
.....

What have been your concerns?

.....
.....

Are there any other helpful tools you have discovered that we have not explored?

.....

.....

.....

.....

.....

.....



Unhelpful Tools

Some tools for dealing with depression are not recommended. These include taking illegal drugs, using alcohol, injuring yourself, or hurting someone, either verbally or physically.



What ‘tools’ have you used that you found did not work, and made or could make the situation worse?

.....

.....

.....

.....

Project

Weekly Planner

Take out your new weekly planning sheet for the week. Think about a time in the coming week that you can schedule in a relaxation or art activity. Schedule in two relaxation activities this week. Also schedule in three physical exercise sessions, two pleasurable activities, your daily self-awareness exercise and a social activity.

Self-monitoring

Use your new self-monitoring sheets to record when you complete sessions of physical activity, your daily self-awareness practice, your social activity, your pleasurable activities and your relaxation activity.

Weekly Planner

Schedule physical exercise, relaxation, social activities, pleasurable activities and a daily self-awareness activity.

WEEKLY PLANNER			
	AM	PM	EVENING
MONDAY			
TUESDAY			
WEDNESDAY			
THURSDAY			
FRIDAY			
SATURDAY			
SUNDAY			

Self-monitoring Sheet (S8-1)

Record how you felt before and after you exercised and practised the self-awareness exercise during the week. Use a happiness rating scale from 1 to 100. Again, there is a separate sheet to record your pleasurable, social and relaxation activities.

	SELF-AWARENESS EXERCISE <i>1</i>	PHYSICAL ACTIVITY <i>2</i>	RATING			
			Before		After	
			<i>1</i>	<i>2</i>	<i>1</i>	<i>2</i>
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
SATURDAY						
SUNDAY						

Self-monitoring Sheet (S8-2)

Record how you felt before and after your pleasurable, social and relaxation activities. Use a happiness rating scale from 1 to 100.

	PLEASURABLE ACTIVITY 3	SOCIAL ACTIVITY 4	RELAXATION ACTIVITY 5	RATING						
				Before			After			
				3	4	5	3	4	5	
MONDAY										
TUESDAY										
WEDNESDAY										
THURSDAY										
FRIDAY										
SATURDAY										
SUNDAY										

Applying your key strengths to be more successful in a chosen area of your life.



Within which area of your life would you like to gain more success?

.....
.....

What are your key strengths? (Refer to notes from Sessions 1 and 8 as needed)

.....
.....

How can you apply your strengths in your chosen area?

.....
.....

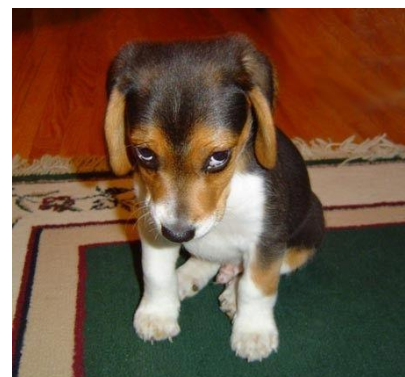


.....
.....
.....
.....

Relax and imagine a positive and successful future using these strengths.

Have you felt sad in the last week?

Have you had any of these **thoughts** in the last week? If you have, can you indicate with a X or ✓ whether that has been sometimes (once or twice) or often (three times or more).



	<i>Not at all</i>	<i>Sometimes</i>	<i>Often</i>
I am a failure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My life will never get better	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nobody likes me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
People are disappointed in me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I disappoint myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can't change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What would it be like if I were dead?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I want to be alone and just cry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

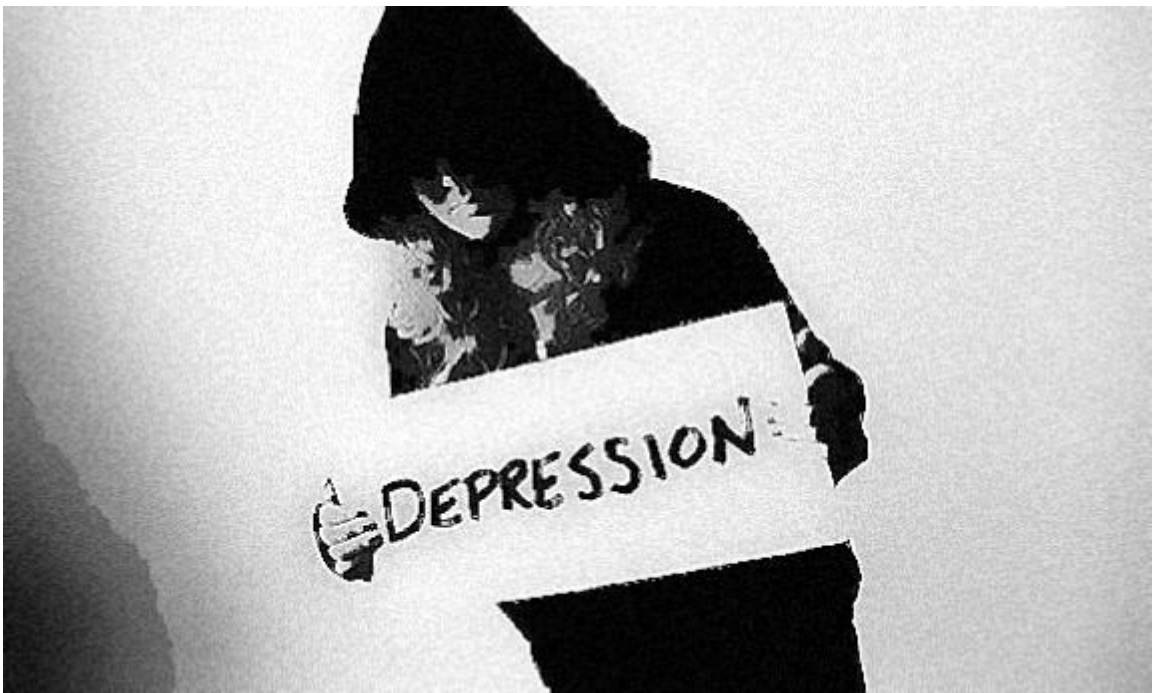


Exploring Depression

Session 9

A Safety Plan

Name: _____



Session 9: A Safety Plan

Plan for Session 9

- Quiz
- Feedback from Session 8 project
- Self-awareness activity
- Objectives of Session 9
- A safety plan
- Acknowledging strengths
- Project



Quiz

Which success experience did you reflect on during the relaxation exercise?
Which of your own strengths allowed you to make that experience a success?
Which tools do not work for emotion repair?





Feedback from Session 8 project

Self-awareness and physical activity

You were asked to follow a plan that you had made for incorporating five new tools into your life, and to complete a self-monitoring sheet to show when you had remembered to do these four things. Please take out the self-monitoring sheet now. Discuss your results with the group. Ask these questions:

How did you feel before and after your physical exercise?

.....
.....

How is your self-awareness exercise going?

.....
.....

How are your pleasurable activities going?

.....
.....

What did you schedule as your social activity?

.....
.....

How did it go?

.....
.....



What did you schedule for your relaxation activity?

.....
.....

How did it go?

.....
.....

Were you able to relax and imagine a positive and successful future based on your qualities and strengths?

.....
.....

What was that future?

.....
.....

Share with the group how sad you felt in the last week.



Self-awareness activity

We are going to complete the self-awareness activity now. It will take three minutes and then we will briefly discuss it.

Three minute exercise

Take some time to settle yourself into your chair.

Sit with both feet on the floor, eyes gently closed or looking into the middle distance.

Rest your hands on your lap, or your forearms on the arms of the chair, whichever is more comfortable.

Start to become aware of your breath. Notice the *in* breath...and the *out* breath...

Become aware of being in your body.

Notice the feeling of your feet on the floor...the chair under your thighs, supporting you...the clothes on your skin...the light brush of air on your hands and face.

Pause

Next, become aware of your sense of taste. Notice the sensation of taste inside your mouth. It is okay just to notice the sensations, no need to label them.

Pause

Next, become aware of your sense of smell, what you can smell... Open your awareness to the aromas around you...again, not labelling so much as noticing...

Pause

And now become aware of your sense of sight. Whether your eyes are open or closed, take in what you can see...the colour, shapes, light, shade...

Pause

And now begin to become aware of what you can hear. First, notice the sounds closest to you, the sounds in the room. Next, open your awareness to the sounds a little way away, in the middle distance...noticing sounds... Next, begin to be aware of the sounds in the distance...the sounds coming from far away...and then become aware of the silence that exists in between the sounds...



Objectives of Session 9

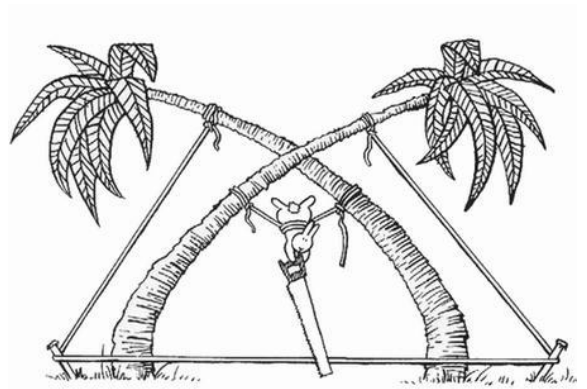
- To make a safety plan for very low emotional times.
- To further our self-awareness of our own strengths.

Safety plan

Over the last year, have you ever been so sad that you have thought of **ending your life**?

Yes

No



If you have, why did you think that death would be a **solution**?

.....
.....

What made you decide not to end your life?

.....
.....

If you have those thoughts again, it is important to have **constructive strategies** to alleviate feeling so sad that you consider suicide. Some constructive strategies are:

.....
.....

Who could you disclose your feelings and experiences to?

.....
.....

How would you want them to help you?

.....
.....

What **strategies** have you used in the past to recover from feeling so desperately sad?

.....
.....

What **new strategies** have you learnt in these group sessions that you could use in the future?

.....
.....

WHEN SOMETHING BAD HAPPENS
YOU HAVE THREE CHOICES. YOU
CAN EITHER LET IT DEFINE YOU,
LET IT DESTROY YOU, OR YOU
CAN LET IT STRENGTHEN YOU.

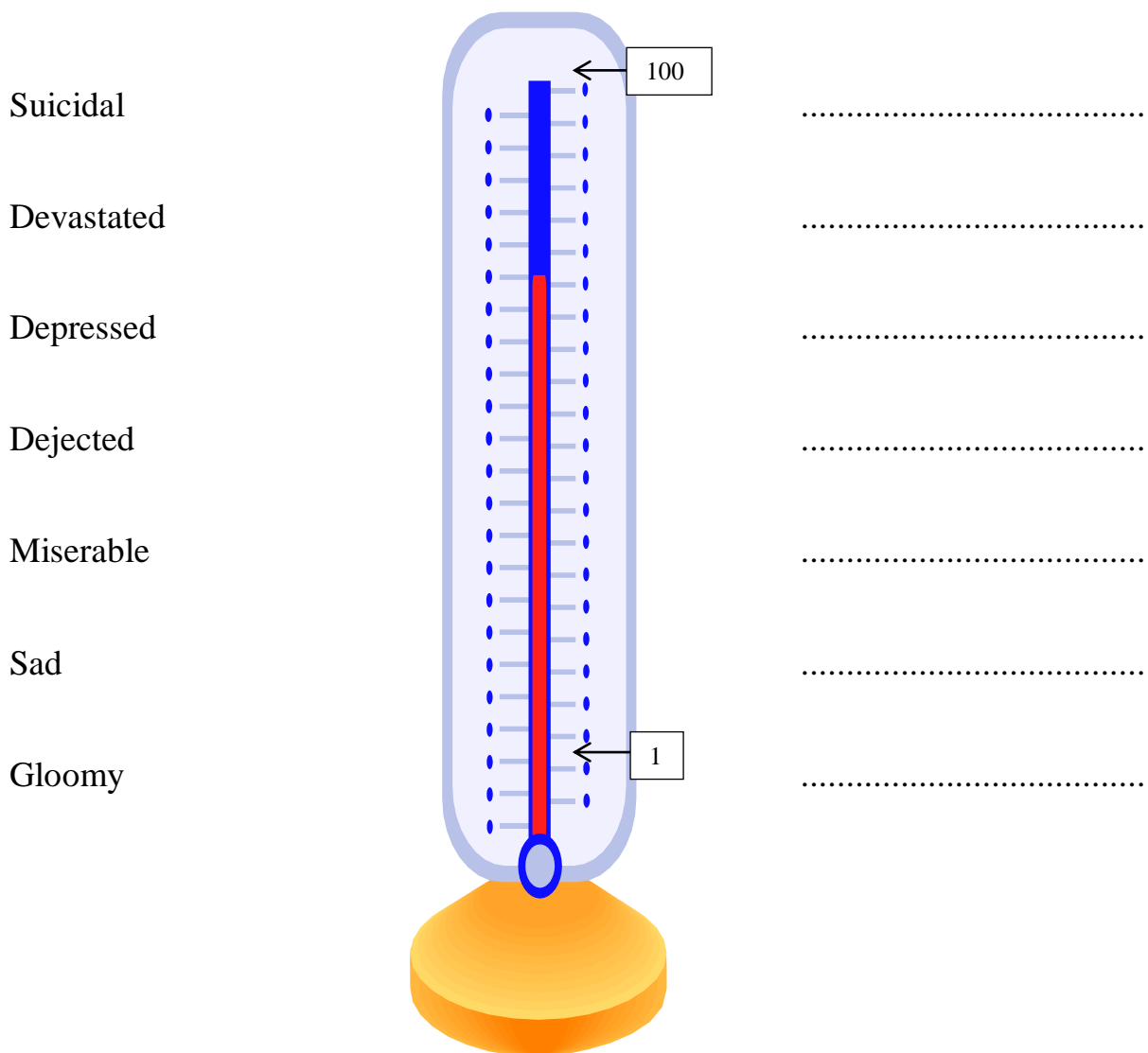
END OF W 2013

Measuring sadness

Below is a ‘thermometer’ to measure the ‘temperature’ or intensity of feeling sad.

On the left of the thermometer are the words to describe the different levels of intensity. You may want to change the words to those that you personally use.

On the right of the thermometer, write the specific tools from your emotion repair toolbox that could fix or repair that level of sadness



Safety plan for intense sadness

Sometimes you can no longer remain calm, rational and in control. You can have sudden, unexpected and intense feelings of utter despair and there appear to be no solutions to your overwhelming problems. It is a catastrophic reaction to adversity, a 'depression attack'. While the feelings are unbearable, there are strategies to make the despair less intense and to prevent actions that are destructive. Here are some suggestions to help you cope with a 'depression attack':



- Seek practical or emotional help, from a parent, friend or teacher.
- Take a break to calm down.
- Try not to injure yourself.
- Use your special interest as an antidote to feeling intense sadness.

The following are strategies that someone can use to help you while you are experiencing a 'depression attack'. They should:

- stay calm and reassuring
- not ask what is causing the distress
- stay with you
- not try to 'fix the problem'
- not move in too close
- validate the feeling and listen
- briefly explain that the intense despair will go
- engage in minimal conversation or distraction
- find a quiet sanctuary you can share to relax
- avoid intense eye contact
- allow you to process the intense emotions and move on to a new, positive activity.

Which of these strategies would help you when you are feeling intense despair?

.....

.....

.....

.....

.....

Create a plan with the group to manage a future ‘depression attack’:

.....

.....

.....

.....



Share that plan with your parents and friends.

Acknowledging strengths

Over the past nine weeks you have had the opportunity to get to know some great people here in the group. Take some time now to think about each member of the group. Write down a compliment for each group member. Say a **compliment** to each participant in the group that expresses your admiration for his or her **abilities or personality**.

Name of Group Member

Compliment



Project

Weekly Planner



Take out your new weekly planning schedule for the week. Think about times in the coming week that you can schedule in relaxation or art activities. Schedule in two relaxation activities this week. Also schedule in three physical exercise sessions, two pleasurable activities, your daily self-awareness exercise and a social activity.

Self-monitoring

Use your new self-monitoring sheets to record when you complete sessions of physical activity, your daily self-awareness practice, pleasurable activities, your social activity and your relaxation activity.

Weekly Planner

Schedule three physical exercise sessions, two pleasurable activities, two relaxation activities, social activities and a daily self-awareness activity.

WEEKLY PLANNER			
	AM	PM	EVENING
MONDAY			
TUESDAY			
WEDNESDAY			
THURSDAY			
FRIDAY			
SATURDAY			
SUNDAY			

Self-monitoring Sheet (S9-1)

Record how you felt before and after you exercised and practised the self-awareness exercise during the week. Use a happiness rating scale from 1 to 100. Again, there is a separate sheet to record your pleasurable, social and relaxation activities.

	SELF-AWARENESS EXERCISE <i>1</i>	PHYSICAL ACTIVITY <i>2</i>	RATING			
			Before		After	
			<i>1</i>	<i>2</i>	<i>1</i>	<i>2</i>
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
SATURDAY						
SUNDAY						

Self-monitoring Sheet (S9-2)

Record how you felt before and after your pleasurable, social and relaxation activities. Use a happiness rating scale from 1 to 100.

	PLEASURABLE ACTIVITY 3	SOCIAL ACTIVITY 4	RELAXATION ACTIVITY 5	RATING					
				Before			After		
				3	4	5	3	4	5
MONDAY									
TUESDAY									
WEDNESDAY									
THURSDAY									
FRIDAY									
SATURDAY									
SUNDAY									

Sharing your safety plan

Share your safety plan with your parents and friends.



Choosing to be more successful

Identify an area of your life where you would like to be more successful. It could be a desire to make a good friend, or to have a better quality of friendship than you currently have, or a better relationship with your Mum or Dad. It may be you wish to do better at school, or include more physical exercise. Choose something that is healthy for you, and will not hurt or harm others.

Write down what you have chosen:

.....

.....

.....

.....

.....



Think about how you can apply your key strengths to be more successful in the area of life that you have chosen.

Write down any ideas that you have:

.....

.....

.....

Exploring Depression

Session 10

Your Future

Name: _____



Session 10: Your Future

Plan for Session 10

- Quiz
- Feedback from Session 9 project
- Self-awareness activity
- Objectives of Session 10
- Time machine
- Planning how to have the life you want
- Group review – discussion
- Keeping it up
- Project



Quiz

What is your safety plan for when you feel very low?

Which emotion repair tools could you use?

What compliments did you receive from other group members last session?

Feedback from Session 9 project

Self-awareness and physical activity

You were asked to follow a plan that you had made for incorporating five important tools into your life, and to complete a self-monitoring sheet to show when you had remembered to do these four things. Please take out the self-monitoring sheet now. Discuss your results with the group. Ask these questions:

How did you feel before and after your physical exercise?

.....
.....

How is your self-awareness exercise going?

.....
.....

What did you schedule as your social activity?

.....
.....

How did it go?

.....
.....

What did you schedule for your pleasurable activities?

.....
.....

How did it go?

.....
.....

What did you schedule for your relaxation activity?

.....
.....

How did it go?

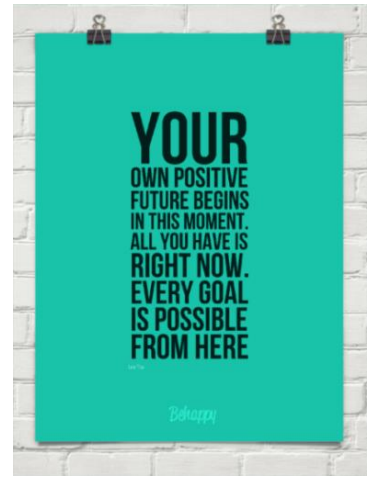
.....
.....

What were your parents' and friends' thoughts on your safety plan?

.....
.....

What area of your life would you like to be more successful?

.....
.....
.....
.....



Self-awareness activity

We are going to complete the self-awareness activity now. It will take three minutes and then we will briefly discuss it.

Three minute exercise

Take some time to settle yourself into your chair.



Sit with both feet on the floor, eyes gently closed or looking into the middle distance.

Rest your hands on your lap, or your forearms on the arms of the chair, whichever is more comfortable.

Start to become aware of your breath. Notice the *in* breath...and the *out* breath...

Become aware of being in your body.

Notice the feeling of your feet on the floor...the chair under your thighs, supporting you...the clothes on your skin...the light brush of air on your hands and face.

Pause

Next, become aware of your sense of taste. Notice the sensation of taste inside your mouth. It is okay just to notice the sensations, no need to label them.

Pause

Next, become aware of your sense of smell, what you can smell... Open your awareness to the aromas around you... again, not labelling so much as noticing...

Pause

And now become aware of your sense of sight. Whether your eyes are open or closed, take in what you can see...the colour, shapes, light, shade...

Pause

And now begin to become aware of what you can hear. First, notice the sounds closest to you, the sounds in the room. Next, open your awareness to the sounds a little way away, in the middle distance...noticing sounds... Next, begin to be aware of the sounds in the distance...the sounds coming from far away...and then become aware of the silence that exists in between the sounds...

Objectives of Session 10

- To imagine the sort of life you want.
- To plan how to get there, using your self-awareness, strengths and tools.
- To review the group.



Time machine – imagine the life you want

We will use relaxation and imagery to imagine a celebration in your life in about **ten years' time**.

It is a celebration of an **achievement** that you have yearned for. There will be people there that you know now and new people that you have welcomed into your life.

Consider **where** you are living, what **work or study** you are doing and **who** is important in



your life.

Where are you living?

.....
.....

What work or study are you doing?

.....
.....

Who is important in your life?

.....
.....

When you have imagined the context and company in your celebration, you can **share** the situation and emotions with your friends in the group.



Planning how to have the life you want

Knowing *what you want* from life is necessary. How do you get somewhere if you don't know where you want to go?

Knowing *how to get there* is also necessary. You will need a plan, abilities and tools. Your personal qualities will help.

Which *abilities* do you have that will help you get where you want to go?

.....
.....

Which personal qualities do you have that will help you get where you want to go?

.....
.....

Which *tools* have you discovered through your own practice have been most helpful to date? On a scale from 1 to 10, rate how helpful each has been, with 10 being the most helpful. Add your own comments.

Self-Awareness Tools

Rating

Comment _____

Physical Tools

Rating

Comment _____

Pleasure Tools

Rating

Comment _____

Thinking Tools

Rating

Comment _____

Social Tools

Rating

Comment _____

Relaxation Tools

Rating

Comment _____

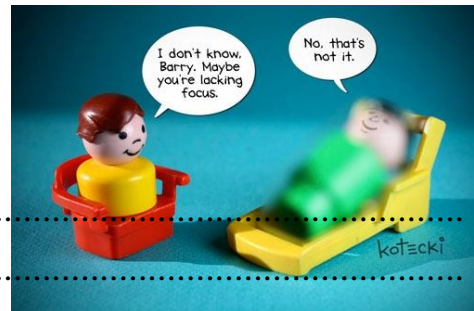
Are there any tools that you felt may have worked but you did not get to try them very much?
Which tools?

.....

.....

.....

.....



What were the barriers to trying them?

.....

.....

.....

Group review - discussion



What did you find most helpful about the group?

.....

.....

What was least helpful?

.....

.....

How could we improve the group?

.....
.....

Keeping it up

We will be meeting again in approximately four weeks for a booster session. You have four new weekly planning sheets and four new self-monitoring sheets for these weeks. Use these tools to maintain the new knowledge and skills that you have gained in these past ten weeks.

Congratulations on all your hard work!





Project for next four weeks

Take out your new planning sheet for the week. Think about a time in the coming weeks that you can schedule in a relaxation or art activity. Schedule in two relaxation activities and two pleasurable activities this week and also schedule in three physical exercise sessions, your daily self-awareness exercise and a social activity.

Use your new self-monitoring sheet to record when you complete sessions of physical activity, pleasurable activity, your daily self-awareness practice, your social activity and your relaxation activity.

Weekly Planner

Schedule two relaxation or art activities, two pleasurable activities, three physical exercise sessions, a social activity and your daily self-awareness activity.

WEEKLY PLANNER			
	AM	PM	EVENING
MONDAY			
TUESDAY			
WEDNESDAY			
THURSDAY			
FRIDAY			
SATURDAY			
SUNDAY			

Self-monitoring Sheet (S10-1)

Record how you felt before and after you exercised and practised the self-awareness exercise during the week. Use a happiness rating scale from 1 to 100. Again, there is a separate sheet to record your pleasurable, social and relaxation activities.

	SELF-AWARENESS EXERCISE <i>1</i>	PHYSICAL ACTIVITY <i>2</i>	RATING			
			Before		After	
			<i>1</i>	<i>2</i>	<i>1</i>	<i>2</i>
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
SATURDAY						
SUNDAY						

Self-monitoring Sheet (S10-2)

Record how you felt before and after your pleasurable, social and relaxation activities. Use a happiness rating scale from 1 to 100.

	PLEASURABLE ACTIVITY 3	SOCIAL ACTIVITY 4	RELAXATION ACTIVITY 5	RATING						
				Before			After			
				3	4	5	3	4	5	
MONDAY										
TUESDAY										
WEDNESDAY										
THURSDAY										
FRIDAY										
SATURDAY										
SUNDAY										

Appendix D

Exploring Depression Programme Clinician's Notes

Exploring Depression

Cognitive Behaviour Therapy to Understand and Cope with Depression

A programme for adolescents with Asperger's syndrome or
ASD Level 1 from 13 to 17 years

CLINICIAN'S NOTES

Background information for CBT programme

Professor Tony Attwood and Dr Michelle Garnett
Minds and Hearts Clinic: Brisbane, Australia

CONTENTS

Depression and Asperger's syndrome

Modifications of CBT for use with adolescents with
Asperger's syndrome

Characteristics of Asperger's syndrome that impact on CBT

Depression and Asperger's syndrome

People with Asperger's syndrome appear vulnerable to feeling depressed, with about one in three adolescents having a clinical depression (Clarke *et al.* 1999; Dickerson Mayes *et al.* 2013; Gadow *et al.* 2012; Gillot, Furniss and Walter 2001; Green *et al.* 2000; Kanne, Christ and Reiersen 2009; Kim *et al.* 2000; Konstantareas 2005; Pouw *et al.* 2013). However, two out of three do not have signs of a clinical depression. The reasons why a significant minority of adolescents with Asperger's syndrome become depressed are many and include:

- feelings of social isolation and loneliness
- the long-term consequences on self-esteem of feeling rejected and not respected or valued by peers
- the mental exhaustion from trying to succeed socially
- being teased, humiliated, bullied and ridiculed by peers, and internalizing and believing the peer criticisms and torments
- a cognitive style that focuses on errors and what could go wrong, and a fear of failure that leads to a pessimistic or grumpy outlook on personal abilities and life
- not being able to cope with intense sensory sensitivity
- being diagnosed with Asperger's syndrome, which is perceived as a disability.

There can be a relative lack of optimism, and as the adolescent with Asperger's syndrome achieves greater intellectual maturity, this can be associated with an increased insight into being different and self-perception of being irreparably defective and socially stupid. Treatment for a clinical depression in someone with Asperger's syndrome should be a combination of medication, Cognitive Behaviour Therapy (CBT) and programs to encourage social acceptance and success. This is a CBT programme designed for adolescents with Asperger's syndrome and is based on the extensive clinical experience of the authors.

The duration and intensity of depression

Some of the characteristics of Asperger's syndrome can prolong the duration and increase the intensity of depression. The adolescent with Asperger's syndrome may have considerable difficulty conceptualizing and disclosing his or her inner feelings to parents and peers, preferring to retreat into solitude. He or she may avoid conversation (especially when the conversation is about negative feelings and experiences), and try to resolve the depression by subjective thought or by using the special interest as a thought blocker. Typical adolescents are better at, and more confident about, disclosing feelings and knowing that another person may provide a more objective opinion and validation of emotions, and act as an emotional restorative. Family and friends of a typical person may be able to temporarily halt, and to a certain extent alleviate, the depressed mood by words and gestures of compassion, reassurance and affection. They may be able to distract the person who is depressed by initiating enjoyable social experiences, or using humour. Adolescents and adults with Asperger's syndrome can have considerable difficulty resonating with, or being infused or 'infected' by the happiness of others. Thus, some emotional rescue strategies used by adolescents may be less effective for people with Asperger's syndrome, who try to solve

personal issues by themselves, and for whom affection and compassion and absorbing the positive and optimistic feelings of others may not be as effective an emotional restorative.

Another characteristic of Asperger's syndrome is a 'disconnection' between mind and body, such that the person does not seem to be aware of internal and physical signals or warning signs of deepening sadness. For example, a teenager was recounting at the clinic his experiences of being bullied at school that morning. As he told the story, tears were welling in his eyes. The tears were about to cascade down his cheeks and were clearly visible to his mother, and to us. His mother handed him a tissue, which he looked at in amazement and said, "How did you know I was going to cry?" Sometimes the adolescent with Asperger's syndrome is the last person to recognize the signs of sadness or depression. CBT programs for such individuals will need to include strategies to improve self-awareness in terms of the physical signs of intense emotions.

The majority of the clinical signs of depression in an adolescent with Asperger's syndrome can be the same as would be expected of typical adolescents, but clinicians who specialize in Asperger's syndrome have noted another specific feature that can be indicative of depression. The special interest of the person with Asperger's syndrome is often associated with pleasure and the acquisition of knowledge on an intellectually stimulating topic. However, when the adolescent with Asperger's syndrome becomes depressed, the interest can become morbid, and the adolescent preoccupied with aspects of death, perhaps almost obsessively watching movies that have a theme of despair and death. The reason for the change in the focus of the interest to the macabre is mystifying, but is the adolescent's attempt to communicate confusion, sadness and uncertainty about his or her personal circumstances, and to understand deep negative inner emotions. The morbid interest can be 'a cry for help', and an attempt to understand intense sadness and despair without having to engage in social interactions and conversation. Parents and clinicians may need to look beyond the focus of the interest and recognize a mood disorder that is being expressed in an unconventional way.

Clinical experience confirms that many typical adolescents can consider suicide as a means of ending the emotional pain and despair of their circumstances and self-perception. The adolescent carefully plans a means of suicide over days or weeks. However, some adolescents with Asperger's syndrome can experience what can be described as a 'depression attack': an intense, catastrophic and unanticipated spur-of-the-moment decision to make a dramatic end to one's life. Clinicians recognize the occurrence of a panic attack in typical people, which can occur very quickly and be unanticipated: the person has a sudden and overwhelming feeling of anxiety. In a depression attack, the person with Asperger's syndrome has a sudden and overwhelming feeling of depression that is a catastrophic overreaction to a relatively minor negative experience. There can then be an impulsive and dramatic attempt at suicide, for example, the adolescent can suddenly run in front of a moving vehicle or go to a bridge to jump from a height to end his or her life. Those who have been with the person immediately prior to the depression attack may not have identified any conspicuous preceding depressive thoughts, but a minor irritation, such as being teased or making a mistake, can trigger an intense emotional overreaction. Quite remarkably, a short while later the adolescent usually returns to his or her typical emotional state. This programme includes strategies to create a safety plan for a depression attack.

Modifications of CBT for use with adolescents with Asperger's syndrome

Conventional Cognitive Behaviour Therapy (CBT) for adolescents has five components or stages: the first is an assessment of the nature and degree of problems associated with a specific emotion using self-report scales and a clinical interview. The next component is affective education to increase the person's knowledge of emotions within him- or herself and others. Discussion and activities explore the connection between thoughts, emotions and behaviour, and identify the ways in which the person conceptualizes emotions and perceives various situations. The principle is that the more someone identifies and understands emotions, the more he or she is able to express and control them appropriately. The third stage of CBT is behavioural activation to increase physical activity and pleasurable experiences. The fourth stage is cognitive restructuring to correct distorted conceptualizations and dysfunctional beliefs, and to constructively manage emotions. The fifth and last stage is a schedule of activities for practising new cognitive skills to enable comprehension and expression of emotions in real life situations. All the components are included in this program for adolescents with Asperger's syndrome.

The therapeutic approach of CBT is to encourage the person to be more consciously aware of his or her emotional state, learn to respond more appropriately and effectively to the situation or emotion, and to become more sensitive to how others are feeling. Self-reflection and reflecting on the thoughts and feelings of others is particularly difficult for those with Asperger's syndrome. They also have a limited repertoire of behavioural and cognitive responses to emotional arousal. Thus, CBT provides an opportunity to learn self-awareness and self-control and more constructive strategies to repair emotions.

Throughout a CBT program, the adolescent with Asperger's syndrome will have to learn about emotions within him- or herself and others, and acquire new skills to manage emotions. The distinctive learning profile associated with Asperger's syndrome will need to be recognized by the clinician, especially during the affective education and cognitive restructuring components. The therapy session will also be affected by the profile of language abilities associated with Asperger's syndrome, especially impaired pragmatic and semantic language abilities. There will need to be adjustments to the therapy to accommodate the interpersonal and social abilities and experiences of the person with Asperger's syndrome. There will also need to be an explanation of the social conventions and protocol expected in therapeutic situation, for example, the importance of listening to each group member, taking turns to speak, and showing courtesy and respect for group members' opinions, even when these are different from one's own opinions.

Characteristics of Asperger's syndrome that impact on CBT

Learning profile associated with ASD

Adolescents who have Asperger's syndrome have a different and clinically distinctive way of perceiving, thinking and learning, and tend to perform at the extremes of cognitive ability

(Attwood 2007). Despite having an IQ in the normal range, they usually have a very uneven cognitive profile on an IQ test. For the clinician designing a CBT program, information from an IQ assessment can be invaluable in determining learning strengths and weaknesses. For example, if the adolescent has advanced verbal reasoning skills, with a relatively high verbal Intelligence Quotient (IQ) and recognized reading comprehension abilities, understanding of the concepts and strategies used in CBT may be improved by the inclusion of relevant literature in the program. When reading a text, there are no interpersonal or conversational skills required, and the adolescent with Asperger's syndrome can give full cognitive attention to the text. If the adolescent has advanced visual reasoning abilities and a relatively high performance IQ, learning may be facilitated by computer programs, demonstration, observation and visual imagery, placing less emphasis on conversation. The phrase 'a picture is worth a thousand words' is particularly relevant to such adolescents. If this programme is being conducted in a group setting, there will probably be a mixture of 'verbalizers' and 'visualizers' among participants.

Adolescents with Asperger's syndrome can also be very logical and rational in their thinking, and the inherent logic and rationality of CBT programs help explain to the adolescent why we have emotions, and how to identify and measure these emotions, along with an exploration of new strategies to communicate and manage emotions. This approach appeals to the logical, scientific thinking of adolescents with Asperger's syndrome.

Attention Deficit Disorder and Executive Function

Extensive research has confirmed that adolescents with Asperger's syndrome are at risk of a secondary diagnosis of Attention Deficit Disorder (ADD) or Attention Deficit Hyperactivity Disorder (ADHD). The attention difficulties can include problems with sustaining attention, paying attention to relevant information, and shifting attention, and a tendency to be distracted by inner imagination (i.e. day dreaming). These characteristics will obviously affect the content and duration of many of the components of a CBT program. Impulsivity and hyperactivity will need to be accommodated and can require that the clinician provides more vigilant supervision, especially if the CBT is being conducted in a group format. Adolescents with Asperger's syndrome are more responsive to programs that are highly structured, with short, discrete activities, and assignments broken down into smaller units, in keeping with the adolescent's attention span. Relevant information should be highlighted, and graphics should be informative and not potentially distracting. The clinician should regularly monitor and give feedback to maintain attention, and the amount of environmental distractions should be reduced. Clinical experience has indicated that parents may need to be advised that medication for ADD should be administered prior to the CBT session in order to facilitate concentration and cooperation.

An adolescent who has ADD or ADHD often has conspicuous problems with organizational and planning abilities, working memory and time management skills, described by psychologists as impaired executive functioning. This characteristic will have an impact on a CBT program, such that the clinician and a parent supervising the between-sessions projects and practice in real life situations, may have to become 'executive secretaries' to minimize the effect of impaired executive function.

Due to the problems with generalization associated with Asperger's syndrome, and the adolescent's difficulties sitting still, role plays and practice in real life situations need to be included in the program to a greater extent than would occur with a typical adolescent. It is

also important that the clinician conducting the CBT program is aware of the time adolescents with Asperger's syndrome take to cognitively, rather than intuitively, process and respond to social/emotional information. It is thus very important that the clinician remain patient.

One track mind

A lack of flexibility in problem solving is a characteristic of impaired executive function, but is also a very conspicuous characteristic associated with Asperger's syndrome that has long been recognized by parents. The metaphor for this learning characteristic is that of a train on a singular track, representing a 'one track mind'. Clinical experience has indicated that those with Asperger's syndrome are often the last to know and seek help if they are on the 'wrong track' and cannot solve a problem. They tend to continue using incorrect strategies, not learning from mistakes – that is, failing to 'switch tracks' to get to the destination (i.e. find a solution). This cognitive rigidity tends to become greater with increased anxiety. The inability to conceptualize an alternative response or strategy clearly influences the progress of a CBT program. It is therefore important that the clinician encourage flexible thinking, asking, 'What else could you do?' and providing multiple choice options rather than anticipating the generation of spontaneous alternatives. Strategies to improve relaxation can also be used to facilitate flexible thinking within the CBT session and in real life practice situations.

Fear of making a mistake

A learning characteristic of Asperger's syndrome is a tendency for the adolescent to have a fear of making a mistake (Attwood 2007). When unsure what to do or say, the situation becomes a trigger for a flight, fight or freeze response. Research on the cognitive abilities of adolescents with Asperger's syndrome has identified a conspicuous tendency to notice detail and errors more than typical adolescents. When combined with a fear of appearing stupid and being ridiculed by peers, this can have a significant effect on the ability to learn or cope with potential mistakes. There can be a refusal to attempt a new activity that could result in failure, with the attitude of, 'If you don't try, you don't make a mistake.' Another reaction to possible failure can be extreme anxiety, which can disintegrate into a feeling of panic or extreme frustration at not knowing what to do or say, that may subsequently lead to explosive and agitated behaviour. Over the long term, the pervasive fear of failure can lead to a need to be right, and a tendency to criticize others in order to feel good about one's own abilities. This is a form of compensation, and criticism is used as a way of demonstrating intellectual prowess to others as a counterbalance to feeling incompetent and stupid when making a mistake. The sometimes pathological fear of making mistakes, yet avidly pointing out other's mistakes, can affect cooperation and cohesion within the CBT sessions, especially when using a group format. Rules of the group can include no malicious laughing or derision in response to a suggestion from participants, and to give positive feedback and praise for constructive suggestions.

It is important that the clinician encourages any suggestion or attempt, and adopts a positive approach to problem solving, implying that making a mistake or not knowing what to do is not a tragedy or a sign of intellectual disability. People with Asperger's syndrome can be very sensitive to any indication of intellectual impairment and some can develop a form of intellectual arrogance as a compensation mechanism. A valuable motivation in a learning situation can be to appeal to intellectual vanity by remarking on the adolescent's intellectual

abilities. This verbal encouragement can be a more effective reinforcement than any altruistic desire to please the clinician. Thus, a comment such as, ‘that suggestion demonstrates your amazing intellectual ability’ can be a more powerful motivator than, ‘You have just made my day.’ Another useful strategy when encouraging self-control can be to use the self-talk comment, ‘If I stay calm, I will be smarter’, or, ‘If I become agitated, I lose 30 IQ points.’

Desire for consistency and certainty

Adolescents with Asperger’s syndrome seem to have a strong desire to seek consistency and certainty in their daily lives. They thrive on routine and predictability. They also often need careful preparation for unexpected change. It is important that the participants have a schedule of activities for each session, with clear information on the objectives and the duration of the activity. There is a list of activities provided at the start of each session workbook for this purpose. There can also be a compulsion for closure, i.e. not being able to change activities or ‘switch tracks’ until the activity is complete to the satisfaction of the adolescent. Unfortunately, such adolescents can also be very pedantic, over focus on detail, and be perfectionistic, thereby resisting a clinician’s attempts to hurry up or get to the point.

Special interests and talents

One of the central characteristics of Asperger’s syndrome is the development of special interests. This can include collections of objects such as rocks or spark plugs, information on topics such as the life cycle of a butterfly, or an encyclopaedic knowledge of presidents of the USA or of television programs such as *Star Trek* or *Dr Who*. The special interest has many functions, including feelings of enjoyment or euphoria in acquiring new items or knowledge on a specific theme; the intense mental focus acting as a thought blocker for feelings of anxiety, sadness or anger; and a means of demonstrating an admired talent to peers. The interest can be incorporated into a CBT program, for example, the enjoyment associated with the activity becoming an antidote to feeling sad and a thought blocker for depressive thoughts. A special interest in a character such as Harry Potter or Dr Who can be used to provide an illustration of how a perceived hero copes with adversity, thus providing a model of how to cope with negative feelings when being bullied and tormented by peers, or being set what seem impossible tasks.

The interests and talents associated with Asperger’s syndrome can also be used to improve motivation, attention and conceptualization. For example, if the special interest of an adolescent is weather systems, his or her emotions could be expressed as a weather report. The special interest can also be used in the affective education component of CBT. A project or field study for an adolescent, whose special interest is commercial planes, can be to visit an airport to observe the emotions of passengers saying farewell, greeting friends and relatives, and coping with a flight being delayed.

Alexithymia and converting thoughts and emotions to speech

Clinical experience and recent research have confirmed characteristics in adolescents with Asperger’s syndrome of alexithymia, namely, an inability to express emotions verbally, especially the more subtle or complex and interpersonal emotions (Fitzgerald and Bellgrove 2006; Liss, Mailoux and Erchull 2008). The affective education component of this CBT programme is designed to improve the adolescent’s ability to use words to describe the various levels of sadness and despair, thereby diminishing the effects of alexithymia. An

alternative approach, if the precise word is elusive, is to quantify the degree of expression using a thermometer or numerical rating, thus indicating the perceived intensity of emotional experience.

Many adolescents with Asperger's syndrome have considerable difficulty describing their thoughts as well as emotions in a face-to-face conversation. Although the person may have acquired, through the affective education component of CBT, a reasonable and precise vocabulary to describe a particular depth of emotion, there can still be considerable difficulty answering questions such as, 'What were you thinking?' or providing a coherent and cogent answer to the question, 'Why did you do that?' However, there can be greater communication of inner thoughts using communication systems other than having a face-to-face conversation. If the explanation is incoherent or elusive, there can often be greater clarity and insight using typing rather than talking. The clinician can request the explanation is included in an email or text message. There can also be greater insight into inner thoughts and feelings using music and art; for example, an adolescent may choose a track on a CD that, through the music or lyrics, explains his or her inner thoughts and emotions. Sometimes, creating a drawing, cartoon or collage may help to express the inner workings of the mind more than in a face-to-face conversation.

Language profile

It is important to remember that adolescents with Asperger's syndrome have a distinctive profile of language abilities (Attwood 2007), tending to make a literal interpretation and being confused by sarcasm, double meanings and idioms. The clinician needs to ensure his or her speech is clear and unambiguous. Adolescents with Asperger's syndrome can also have difficulties with the pragmatic aspects of language, namely the art of conversation. This can include the ability to recognize the cues of when to speak and when not to interrupt, avoid monologues and excessive pedantry, listen attentively, give just the right amount of eye contact at key points to regulate the flow of conversation, and read and respond to the facial expressions and body language of other participants. There can also be issues with regard to narrative ability: that is, the ability to give a coherent, logical and sequential description of an event. The content may be accurate, but perplexing in logic and order to the listener. There may need to be understanding and gentle guidance for some participants in specific areas of the pragmatic aspects of language.

It is also important that the clinician recognizes that the adolescent with Asperger's syndrome may need time to process verbal information. Minimising long explanations and allowing time for response from participants will be helpful. It may also be useful to provide the session workbook to each participant a few days prior to the start of each session to allow the participant time to peruse the material and reflect on its content.

Sensory Issues

Many of the adolescents will have sensory issues. It will be important to set the room up with consideration of light intensity, noise reduction, and ample personal space. We find having sensory toys available to play with helps some participants to focus.

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Exploring Depression

Cognitive Behaviour Therapy to Understand and Cope with Depression

A programme for adolescents with Asperger's syndrome or
ASD Level 1 from 13 to 17 years

CLINICIAN'S SESSION NOTES

Professor Tony Attwood and Dr Michelle Garnett
Minds and Hearts Clinic: Brisbane, Australia

General information for conducting the group sessions

Group size and facilitators

The group is best to run with a Group Facilitator/Group Participant ratio of 1:3-4. In addition, it is very useful to have an observer be present for each group session. The observer can take the role of teachers aide as needed for students with greater learning needs, a scribe for documenting information generated by the group, and for taking down “Words of Wisdom” (see below).

Assessment activity

The assessment is conducted at the beginning of the programme and again at the end, to measure the changes in each participant’s understanding of sadness and the way in which he or she has learnt to apply the coping strategies that have been taught.

Have ready an assessment sheet for each participant in both Sessions 1 and 10. Ask that the 2 Serpent to write down the answers to the questions. If the participant is adverse to using the skill of handwriting, offer to be a scribe. Saying the answers out loud may promote an inhibitory response. Offer to complete the questions outside of the room. If no answers are forthcoming, it is advisable to use a view prompts and encourages, for example, “what would help **you** in this situation?” or the r “it is fine to take some time with this.” However, try not to make suggestions and give the answers away.

Visual schedule

At the start of each session the clinicians will have prepared a visual schedule of activities for that session. The schedule of activities is listed at the beginning of each session workbook.

Words of Wisdom

During each session, assign one group facilitator or the observer to listen out for “Words of Wisdom” from the group participants. These are statements or phrases that express an idea well, demonstrating eloquence, humour, acceptance, insight or all of these qualities. “Words of Wisdom” may also include compliments by group members to each other. The “Words of Wisdom” and the authors name I typed up and distributed during the following week’s session.

Projects

An essential component of the programme is the completion of projects between sessions. Clinicians will need to explain to parents the importance of the projects, and that they should be completed at leisure during the week (and not in the car on the way to the session or in the waiting room!)

Suggestions from group members

Sometimes the insight and strategies from group members can be more eloquent and powerful than those from clinicians. The suggestions also have more credibility due to the personal experience of the person who makes them. There are times when it may be wise to let the group run with the topic to encourage confidence in abilities and to have ownership of strategies.

Personal disclosure

We all feel sad sometimes, and during the programme the clinicians may choose to disclose sad times in their own lives, and strategies they have found helpful in alleviating the sadness. This personal experience adds greater authenticity to the programme.

An App to record strategies

There is a free App that can be used by the participants to record strategies or ‘tools’ for emotion management in specific situations. The App is: How2Cope and was originally designed by Tony and OParish.Inc. for adults with Asperger’s syndrome, but can be used by adolescents. This App enables the participants to have easy access, wherever they are, to a personalized emotion repair tool box. The clinicians may need to remind the participants to add new components to their App as the programme explores the many aspects of depression and how to cope.

Time with parents after each session

The programme includes time at the end of each session for discussion with the parents to exchange information regarding their son’s or daughter’s responses and abilities during the activities, to explain the project, and to seek information on particular issues that could be addressed in a subsequent session. It is also essential that family members are encouraged to respond positively and appropriately to the participants’ new abilities and understanding of emotion management, and to facilitate the successful application of strategies discovered during the program in real life situations.

Clinical experience has indicated that some family members of a person with Asperger’s syndrome may also have problems communicating emotion; thus, group discussion with parents may encourage solutions to problems experienced by other family members that can have a positive influence on the emotional atmosphere at home, and consequently on the emotional equilibrium of the adolescent with Asperger’s syndrome.

Assessment Activity

Name: Date:

Feeling Sad

There are times when various events and thoughts can make you feel sad. Sometimes the sadness is due to one brief experience of unhappiness that is transitory, and your usual level of happiness soon returns. However, sometimes there may be many feelings of intense sadness that seem to never end. If you have a friend who sometimes feels very sad, they may need you to help them cheer up.

What could you say to them?

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What could you do to cheer them up?

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Who could help you repair their feelings?

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Session 1: Qualities and Abilities

Aims of the programme

Clinicians read out the aims of the programme as written in the participants' manual.

The topic of the group is understanding and coping with depression. Everyone feels sad sometimes, but depression is a deep sadness that can be difficult to break out of. One in five people suffer depression at some point in their lives. In this group, we will be exploring what depression is and how to recover from it. Depression can take away your energy and enjoyment of life. This group is about helping you to overcome depression, rediscover enjoyment of life and appreciate who you are.

Assessment

During this programme you will learn many skills to understand and manage your own and others' emotions. As a way of measuring your progress, we will do a short, simple assessment now, and repeat it at the end of the programme.

Hand out the sheets

We have an imaginary scene where a friend is feeling sad. You have the opportunity to cheer up that person. What could you do or say?

Introduction of participants

Ask each group member to introduce themselves by saying their name and their career aspirations. There may be some career aspirations shared by group members that might encourage conversation before and after the sessions, and the creation of friendships that could last longer than the duration of the programme. The career aspirations can also be incorporated in subsequent activities and group discussion.

Group rules

Read the rationale for the group rules to the participants:

It is important that each person here feels respected and safe. We will choose some rules together now that will assist all of us to ensure that we keep our group respectful, constructive and safe.

Using some poster paper positioned so that everyone can see it, create group rules, ensuring the rules reflect the following concepts:

- Respect
- Confidentiality
- Trust
- Take turns speaking
- Be understanding and supportive

During the course of the programme, new rules may be added to the list and the clinicians may need to refer to the list should the rules be broken.

Objectives of Session 1

Refer to the visual schedule of the plan for the session:

- To begin self-awareness.
- To identify personal strengths, qualities and abilities.

Self-awareness activity

This is a brief activity to relax and focus the participants and to encourage awareness of internal signals of emotion and experience. This activity will occur at the start of each of the subsequent sessions.

Who are you? Answering this question accurately can mean the difference between feeling depressed and feeling that life is good. One part of this group will be about increasing your self awareness, starting today. We are going to complete a self-awareness activity now. It will take three minutes, and then we will briefly discuss it.

In discussion of the self-awareness activity on its completion, it is important to ask open-ended questions about each group participants' experience, for example, "What did you notice during the activity?", "How do you feel now?" It is important that participants realise through facilitator's questions and answers during this section that there are no 'rights' or 'wrongs' within this activity. For example, many participants will report that their mind wanders during the activity. It is important to affirm and validate that mind-wandering is normal and expected. Also, to suggest to the participant that he or she simply brings his or her mind back to the exercise when this happens.

Career plans

The introduction of participants included each person's career aspirations. These are now written by the participants in their Session 1 manual and will be used in a subsequent activity.

Qualities in your abilities

A key component of the programme is a positive attitude and concept of self as an antidote to negative thinking. When feeling sad or depressed, there can be an inability or reluctance to consider positive qualities in abilities and personality. The clinicians may need to give considerable encouragement for the participants to identify current and past qualities in abilities. The list may include qualities identified by the clinicians in previous reports or from conversations with parents prior to the first session.

Qualities in your personality

Clinical experience has indicated that adolescents with Asperger's syndrome can have a limited vocabulary to describe personality attributes compared to their peers. The clinicians may nominate qualities in personality and the participants decide whether they have these qualities. Some of these qualities may have been provided by parents to the clinicians prior to the session.

Group discussion

The participants are divided into small groups, each group with one clinician as leader, to discuss how each participant's qualities in abilities and personality will be an advantage in their adult years. There are four areas to consider:

- making friends and relationships
- self-esteem and self-identity
- enjoyment of life
- employment.

Each participant writes in their manual their own, the group's and the clinician's suggestions as to how their personal qualities will be an advantage in the four areas of adult life. The project for Session 1 includes an opportunity for family members and friends to add to the list of qualities.

The groups recombine and each group leader summarizes the key points from the small group discussions.

Compliments activity

One of the characteristics of Asperger's syndrome identified by family members and clinicians is that the person may not understand either the value of compliments in a friendship, relationship or within a family, or the power of giving and receiving compliments as an antidote to feeling miserable. This group activity, where each participant gives a compliment to another group member, enables the participants to gain insight into how compliments can cheer you up.

Projects

Project 1

Participants to explore **additional qualities** in abilities and personality suggested by family members and perhaps a friend or friends. This can include past and current qualities and could also include a past compliment on a specific quality in abilities or personality.

Project 2

Participants nominate a **family member** who has qualities the participant admires. This can identify qualities the participant has or would like to have and which could be achieved.

They also identify any **heroes** in fiction or the media whose qualities they admire. This can be used to provide a role model for how to cope with specific situations; for example, if the hero is Harry Potter, the participant could be asked to imagine, in a situation where they are being teased or bullied (a major contributor to feeling depression in adolescents with Asperger's syndrome) what Harry would do. How would he cope when bullied by Draco Malfoy? Remember that he never gave up hope in finding the seven Horcruxes.

Project 3

Participants are to complete the list of **reasons** why someone with Asperger's syndrome may feel sad or depressed. The list includes reasons identified by typical adolescents, but the authors of this programme have included reasons that are specifically applicable to adolescents with Asperger's syndrome.

Session 2: What is Depression?

Start with a quick review of group rules and the key points from Session 1.

Distribute any notes taken during discussion from the last session to record any particular words of wisdom, advice or insight from the participants or clinicians.

Quiz

Ask the participants to consider the following questions:

- What was the compliment or compliments you experienced at the end of the last session?
- What were some of your qualities in ability and personality that you recorded during the last session?

Allow time for some sharing and a brief discussion.

Feedback from Session 1 project

- What did your family and friends add to your list of qualities and abilities and did you agree with them? These additional qualities are shared with the group with affirmation from the clinicians.
- What qualities would you like to acquire from a family member or hero? The clinicians can ask the participants to make a mental note of when in the future he or she demonstrates a quality of a family member or hero. These demonstrations can be communicated to parents for approval and recorded in a diary.
- Reasons why someone who has Asperger's syndrome can sometimes feel sad or depressed. Ask the participants for any other reasons that were not on the list and make a note of these reasons to distribute to the participants at the next session.

Objectives of Session 2

Refer to the visual schedule of the plan for the session:

- To increase your self-awareness
- To understand why we feel depressed and how we stay depressed.

Self-awareness activity

See notes from Session 1

Depression

Reasons for feeling sad or depressed

The percentage component of this activity may initially appear complex but a clinician could use the five most important reasons of a participant to illustrate how to complete the activity. The clinicians compare with the group different reasons and percentages between group members, exploring common themes and the relative intensity of some reasons.

What is depression?

Participants read the text and the clinicians ask if there are any questions.

How do you express your feelings of depression?

The participants tick each box that describes the characteristic that he or she associates with depression. The clinicians ask the participants if there are any more characteristics that are not included in the list.

Treatment

The clinicians then describe the range of treatments for depression, and explain that this programme is based on CBT. The clinicians may provide more information on the theoretical basis for CBT if needed.

Measuring Depression

The metaphor of a thermometer is used to measure the 'temperature' or intensity of feeling sad, from gloomy to suicidal. The group can suggest additional or alternative words that are used by themselves and peers to describe the different levels. Earlier in the session, the five most important reasons for feeling sad were identified for each participant. Each participant then places their five reasons on the right side of the thermometer to measure the degree of associated sadness. The five reasons will probably be close to the top of the thermometer. Then ask the participants to write on the right side of the thermometer, reasons that would trigger lower levels of sadness, (participants to refer to the list identified in their Session 1 project).

How do we stay depressed?

Ask the participants to read the text, or the clinicians describe the concepts explored in the text. The next part of this activity is to explore each participant's thoughts, feelings and behaviour when experiencing depression. Discussion can be on shared characteristics, with the clinicians emphasizing that participants are not alone in experiencing the thoughts and feelings associated with depression, and that each participant has a depression cycle.

Asperger's syndrome and depression

Does having Asperger's syndrome contribute to you feeling sad or depressed?

Typically, adolescents with Asperger's syndrome have a negative attitude towards the diagnosis, often because they are sensitive to how teenage peers are intolerant of someone who is perceived as different, weird and not 'cool'. They can also express despair at not being able to make and keep friendships, having sensory sensitivity, being clumsy and having different interests and ways of thinking and learning. The clinicians can compare and comment on the attributes of Asperger's syndrome that contribute to the participants having a negative perception of themselves and fellow teenagers.

Does having Asperger's syndrome give you any positive qualities and experiences?

There are positive qualities and experiences associated with Asperger's syndrome, and the clinicians first ask participants for suggestions and then nominate additional qualities and experiences. These can include reference to famous people: in science, Einstein and Alan Turing; in the arts, Mozart and Andy Warhol; and in information technology, Bill Gates and Steve Jobs, all of whom may have or have had the characteristics of Asperger's syndrome. The clinicians can explain the advantages to society of those characteristics, and that being different does not mean being defective.

Project

- Read *The Discovery of Aspie* at home, discuss the content with family members, and perhaps add a few more qualities.
- Recall a time during the week when you felt happy and a time when you felt sad.
- Make a note of the happy or sad thoughts, with the intensity of happiness or sadness measured on a 'thermometer' from zero to one hundred. This information will be needed for the next session.

Session 3: Tools to Combat Depression

Start with a quick review of the group rules and key points from Session 2: What is Depression?

Distribute any notes from the last session.

Quiz

Ask the participants to consider the following questions:

- How can what we **do** contribute to depression?
- How can what we **think** contribute to depression?

Allow time for some sharing and a brief discussion.

Feedback from Session 2 project

- Discuss what the participants thought about *The Discovery of Aspie* article.
- Discuss which qualities in the *Discovery Criteria* each participant relates to. Explore common themes and the advantages of Asperger's syndrome to the individual and society. Did any of the participants add any further qualities to the list?
- Share and discuss happy and sad thoughts experienced since the last session, with a rating from zero to one hundred on the emotion intensity thermometer.

The advantages of Asperger's syndrome

Clinician to read aloud 'The advantages of Asperger's syndrome' from the text. This is a brief summary of the *Discovery Criteria*.

Self-awareness activity

See previous explanation for how to conduct this activity. Explore participants' reactions to the activity, which is designed to promote a sense of well-being, self-awareness and greater focus.

Objectives of Session 3

Refer to the visual schedule of the plan for the session:

- To increase your self-awareness.
- To understand the variety of tools available to combat depression.

- To choose a physical tool that you can start using from today to combat depression or feelings of sadness.

How do you beat depression?

Explain the strategy using the text and graphic as a group discussion with examples, suggested by the clinicians, to illustrate key points.

An Emotion Repair Toolbox

Explain the concept of an emotion repair toolbox with each of the six tools designed to repair feelings of depression. This is a ‘mechanical’ analogy that experience has indicated is understood and appreciated by adolescents with Asperger’s syndrome. Other analogies would be a First Aid kit for treating emotional problems and restoring health, or a sewing kit to mend emotions.

Self-awareness tools

The self-awareness activity practised at the start of each session is an example of this type of emotional repair mechanism. Adolescents with Asperger’s syndrome value intelligence very highly and it is important to stress that feeling calm will improve intellectual abilities and problem solving. The two phrases, ‘Being calm is being smart’, and ‘When feeling despair, the IQ drops 30 points’ both emphasize the personal value of self-awareness tools.. Self-awareness is also important in making wise decisions in terms of friendships and career.

Physical tools

It is important to emphasize that physical activity is well known as a means of improving mood and cognitive abilities. Unfortunately, many of the preferred activities of adolescents with Asperger’s syndrome are sedentary, particularly the use of modern technology and sitting staring at a screen. Due to clumsiness being associated with Asperger’s syndrome, participants may have been discouraged since early childhood from playing team games in the playground, and team sports and gym activities at school. A lack of energy is also a sign of feeling sad or depressed, which can further inhibit access to physical activities. The participants and clinicians can suggest physical activities for use at home and school that take into consideration the physique and personality of each person.

Project

Planning

Explain the **weekly planner**, asking participants to write on the planner times to schedule physical and self-awareness activities, starting with only two 30 minute physical activities over the next week. If the physical activities are perceived as enjoyable and an antidote to

feeling sad, then the frequency can be increased over the next few weeks. The self-awareness activity should be for three minutes each day.

Self-monitoring

The **self-monitoring sheet** is designed to record on which day, and for how long, each emotion repair tool was used during the week between sessions. The participants may choose to record on the self-monitoring sheet whether and to what degree the tool was successful.

Session 4: Art and Pleasure Tools

Start with a quick review of the group rules and key points from Session 3: the concept of an emotional toolbox, and the self-awareness tools and the physical tools discussed during the session.

Distribute any notes from last week.

Quiz

Each participant to write in their manual the answer to the question: ‘In Session 3 we discussed two tools for combating depression. What were they?’

Invite participants to share their answers with the group.

Feedback from Session 3 project

Group discussion of how these tools affect mood and abilities. Start with an exploration of what helped each participant to remember when to use the tools and any barriers, such as homework, domestic chores or family commitments. The most important component of this activity is sharing and comparing thoughts and experiences on how effective the tools were on improving mood and abilities.

Self-awareness activity

Another opportunity to practise the self-awareness activity and share the positive effects.

Objectives of Session 4

Refer to the visual schedule of the plan for the session:

- To understand the importance of expressing emotions through **art**.
- To discover **pleasure tools** in the Emotion Repair Toolbox

Art activity

The clinicians may have previously collected examples of how art can express the various levels of depression from Google Images. These are distributed to the participants for thoughts and comments. The key points are explored and written into each participant’s session manual, with personal choices of the most descriptive and representative of their own experience of sadness. The group can discuss reasons why a particular work of art is an

‘eloquent’ description of feeling sad, with the clinicians reminding the participants of the phrase, ‘A picture is worth a thousand words.’

Pleasures in life

Explore the participants’ current and previous pleasures in life that are or have been antidotes to feeling sad and depressed. The group can also suggest future pleasures associated with increased maturity and independence, such as owning a car or travelling to another country. These pleasures can create feelings of well-being and optimism for the future. Discussion can be on shared pleasures and how sometimes just thinking of current or past pleasures can be an antidote to feeling sad.

Special interests

Read through with the participants the information in their manual, and allow time for them to complete the activity. Encourage discussion and sharing.

Special interests can be a source of great pleasure for those with Asperger’s syndrome, far greater than any interpersonal experience. The clinicians and participants can compare interests and the degree of enjoyment associated with those interests. It is important to emphasize that the degree of enjoyment could become almost addictive, especially when there are few other pleasures in life. Often, adolescents with Asperger’s syndrome feel energized and validated by the interest, and sometimes intoxicated by the admiration of peers, while parents may not understand how important the interest is in the daily life of the adolescent and are worried about the time spent engaged in it. The clinicians may need to explain to the parents the constructive value of the interest, meanwhile acknowledging how dominant it can be in the adolescent’s life, to the exclusion of other activities such as homework and being with the family. There can also be concern regarding the nature of some interests, such as weapons and retribution, or horror movies, and the clinicians may explain to and discuss with the participants the perspective of parents and teachers.

Project

Expressing sadness through art

The participants explore how the various forms of artistic expression can express his or her feelings of sadness or depression. Examples are collected during the week to share with the group at the next session.

More pleasures in life

The participants are to have conversations with parents and family members during the coming week to add to the list of pleasures created during the session. These will be explored during the next session.

Weekly planner

The participants are to schedule and record physical, self-awareness and pleasurable activities during the next week to maintain the effectiveness of the tool box.

Self-monitoring

The new component of the self-monitoring activity is to record mood, on a rating scale from zero (content) to one hundred (suicidal) before and after the pleasurable event, and physical exercise. The first measure is the depth of sadness prior to employing the emotion repair tool, the second measure is how the person felt after the repair.

Session 5: Thinking Tools (part 1)

Start with a quick review of the group rules and the key points from Session 4, namely art as a means of communicating emotions, personal pleasures in life and the value of special interests.

Distribute any notes from the previous session.

Quiz

Ask the participants to consider the following questions:

- Why is it important to schedule pleasurable activities into your week?
- Why is it important to schedule a wide range of pleasurable experiences other than your special interest during your week?

Feedback from Session 4 project

Self-awareness, physical activity and pleasurable activity

Participants to refer to self-monitoring sheets, and share with the group what helped them to remember to use the three tools. Were there any barriers to using the tools? Discuss and compare their feelings and abilities before and after physical exercise and pleasurable activities.

Expression through art

Compare and contrast examples brought to the session by participants. This can be a fascinating component on the programme and may disclose aspects and experiences of feeling depressed that may be elusive for the participants when using speech in a face-to-face conversation.

Pleasurable activities

Group to discuss any new pleasures in life suggested by parents and other group members.

Self-awareness activity

As previously explained. The participants should now be practised and familiar with this activity.

Objectives of Session 5

Refer to the visual schedule of the plan for the session:

- To understand the importance of expressing your emotions through art.

- To discover **thinking tools** in the Emotion Repair Toolbox

Thinking tools (part 1)

Explain the characteristics and value of thinking tools, which can be conceptualized as a repair manual.

Thinking tools can provide a **reality check** to put an event in perspective. Adolescents with Asperger's syndrome are prone to having a catastrophic reaction to events and often need to recognize that an event is not necessarily as important as they perceive, and that the degree of their emotional response is out of proportion to the event.

The value of **compliments** has been explored in the first session, and a useful thinking tool is to give yourself a compliment, or remember a compliment from a family member or friend that is relevant to the situation.

Another thinking tool is to notice something you **appreciate** in your current environment, almost as a distraction, thought switching or positive antidote to feeling sad.

The **Pleasures Book** is similar to a diary and records in words or photographs pleasures experienced that day or during the week. It is a way of recording examples and illustrations of the **qualities** of the participant discovered in session one. This is tangible evidence of success, enjoyment and **achievements** that can be read at times of feeling sad to change thoughts and expectations.

The participants write in the manual compliments they could give themselves in situations associated with feeling sad or depressed. The clinicians can then ask the participants to look about the room and to identify an object or person that makes them feel happy or optimistic and to explain to the group why that object or person is appreciated as an antidote to feeling sad.

Next, each participant writes a **quality** they admire in themselves, an **achievement** they are proud of, and a **pleasure** in life. When feeling depressed, there can be a tendency to only perceive and remember negative qualities and experiences, and great difficulty perceiving and appreciating the enjoyable aspects of life. This list is a means of identifying the aspects of life that are enjoyable.

Another thinking tool is to **imagine being your hero**. Participants nominate a personal hero, in fiction, films or real life, and the qualities that are admired in that person. The next stage is for the participants to think of a particular situation that can be a trigger to feeling sad, and to explore what that hero would think, do and say in that situation. This becomes a potential script for those situations in the future.

Thinking activity

This activity is designed to explore how changing thinking about an event can change the emotional response. The participants define how the person in each story is feeling, why she or he could have those thoughts, and what is the actual evidence for those thoughts. The

participants are encouraged to be a detective or scientist examining the facts, evidence or data, and to analyze the different thinking styles and effects on feelings and self-perception.

Project

Recognizing and measuring happy and sad thoughts

Each participant is asked to identify times in the following week when he or she feels happy or sad. They are to record what happened, what their thoughts were, and the degree of emotional response measured on an emotion intensity thermometer. This information will be used in an activity in Session 6.

Weekly planner

Remind the participants that this is used to schedule pleasurable activities, physical exercise and self-awareness activities in the coming week.

Self-monitoring sheet

This is a repeat of the project from the last session, where the participants are able to rate the change in the intensity of their feelings of sadness or depression due to their using the two types of emotion repair tools: physical activities and pleasurable events. One of the key components of CBT is practice in real life situations and this is a means of applying the strategies or tools in reality between sessions. The group can discuss, encourage and reinforce positive applications of the new tools in their lives at home and at school.

Session 6: Thinking Tools (part 2) and Social Tools

Start with a quick review of group rules and the key points from Session 5 on thinking tools.

Distribute any notes from the previous session.

Quiz

Ask the participants to consider the following questions:

- How can changing your thinking change your feelings?
- What compliment could you give yourself?
- How could your hero model how to cope with adversity and being positive?

Feedback from Session 5 project

Self-awareness, physical activity and pleasurable events

Explore with the participants their experiences over the last week of using these tools and the effect on mood and thinking.

Thoughts and Feelings

Explore participants' sad and happy thoughts over the last week. What were their ratings on the 0 to 100 scale? Discuss any perceived connections between thoughts and feelings that illustrate the key points of last week's session.

Self-awareness activity

Another opportunity to practise self-awareness.

Objectives of Session 6

Refer to the visual schedule of the plan for the session:

- To learn more about **thinking tools** in the Emotion Repair Toolbox.
- To discover **social tools** in the Emotion Repair Toolbox.

Thinking tools (part 2)

Challenging and changing your thoughts

This activity uses the data collected by the participants on recalling a time when he or she felt sad during the last week, recording in the manual what were the sad thoughts

and once again being a detective or scientist to identify what was the actual **evidence** to confirm those thoughts.

The next part of the activity is to explore **alternative** more objective and optimistic thoughts in that same situation. Each participant may suggest his or her own alternative thoughts, but the other group members may suggest additional alternative thoughts for each other.

Perception is everything

There is a great deal of information to convey in this activity, so clinicians will need to illustrate the common distortions in thinking with **practical examples**, perhaps using suggestions by the participants where possible. It may help to have the list of distortions on a white board, 'Giant Post It' or sheet of butcher's paper, with space to write illustrations from the clinicians and participants.

The next stage is for participants to record in their manual any distortions they tend to make when feeling sad or depressed.

The group can then suggest what **thoughts can correct** each type of distortion, with the thoughts written on a white board, 'Giant Post It' or sheet of butcher's paper for all to see. The participants then write these suggestions in their manuals. This information can also be recorded by the clinicians for distribution to each participant next session so they have a separate set of notes that can be carried with them at school to help dissolve sad or depressed thoughts.

Social Tools

Unfortunately, adolescents with Asperger's syndrome usually have very few, if any friends at school to repair feelings of sadness or despair. However, each participant may think of **someone** who could fulfil that role. This might be a student or school staff member, or someone at home within the family, who could help repair emotions experienced during the day. Encourage the group to suggest the personality qualities of someone who could listen to and repair sad thoughts.

The clinicians can stress how **disclosing and sharing feelings** can alleviate sad thoughts, and is wise and effective; but be aware that talking about feelings and experiences in a face-to-face conversation can be difficult for those who have Asperger's syndrome. The social repair does not always have to be face-to-face, and may instead be through communication technology. Adolescents with Asperger's syndrome are often more eloquent in describing feelings and experiences through typing rather than talking.

For typical adolescents, **affection** can be an extremely effective emotional repair mechanism. This may not be the case with adolescents with Asperger's syndrome. The group can discuss the relative 'power' of affection in improving mood, and the degree and type of affection needed or rejected in specific situations. An effective emotion

repair mechanism used by parents and typical friends can be a hug. Unfortunately, parents can provide hugs that are perceived as too intense and overwhelming for the adolescent with Asperger's syndrome, who is also very logical and may complain, 'How can a hug solve the problem?' It is possible to create a range of hugs with an intensity and duration given a value from one to ten. The adolescent with Asperger's syndrome can then nominate the type of hug or affection that would be effective and appreciated.

Another social tool associated with feelings of happiness and high self-esteem is **helping** someone. Adolescents with Asperger's syndrome are renowned for being kind, caring and having a strong sense of social justice. This quality can be utilized as an antidote to feeling sad and having a sense of low self-worth. The clinicians can ask group members for personal examples of expressing caring and compassion and the subsequent effect on thoughts and feelings.

A valued 'social' tool is **caring** for and being with **animals and pets**. Animals are non-judgemental, have not read the DSM 5 diagnostic criteria and are pleased to be with you. Pets can become social companions that create a feeling of being valued and not so lonely.

The participants explore the social tools that could be used at home and at school. If time is available, the clinicians and participants can **role play** a conversation that includes the strategies used to repair someone who is feeling sad. The clinicians may initially take on the role of an attentive and supportive listener with a participant, the group then breaking into pairs to practise both roles. The clinicians can emphasize how the ability to repair someone's emotions is considered as a very valued friendship skill among typical adolescents, and is also an important skill in adult relationships.

The final activity for this session is to pass around a piece of paper for participants to write down their contact details. Suggest to the group that the group participants themselves could be valued social tools for each other. When feeling sad or depressed, they could **contact another participant** who could use the tools suggested during the programme. Should this occur, the group may benefit from and enjoy listening to how this strategy or tool has proved effective for both participants.

Project

Weekly planner and self-monitoring sheet

These are to record pleasurable events, physical activities and self-awareness activities over the next week, but to also record **social activities** and the effect of a social activity on prior feelings of sadness. The group can suggest the type of social activity that can be an emotional restorative. Parents may need to be contacted to suggest that they encourage positive social experiences during the week, and provide the opportunities for the participant to talk to someone about his or her feelings.

Assignment

This is a thinking activity that provides information needed for the next session. It is important that there needs to be some time devoted during the week to completing this assignment, and assistance may be needed from parents.

Session 7: Thinking Tools (part 3) and Relaxation Tools

Start with a quick review of group rules and the key points from Session 6 on thinking tools (part 2) and social tools.

Distribute any notes from the previous session.

Quiz

Ask the participants to consider the following questions:

- What is a thinking distortion?
- What happens to your mood if you tend to have a lot of thinking distortions?
- Why are social tools important?

Feedback from Session 6 project

Self-awareness, pleasurable events, social and physical activities.

Participants refer to their self-monitoring sheets, and write into their manuals.

Explore with the group the combined power of four types of tool to repair feelings, and especially the effect of social tools.

Self-awareness activity

Another opportunity to practise and appreciate self-awareness.

Objectives of Session 7

Refer to the visual schedule of the plan for the session:

- To learn more about **thinking tools** in the Emotion Repair Toolbox.
- To discover **relaxation tools** in the Emotion Repair Toolbox.

Thinking Activity

The first part of the activity is for each participant to describe a situation that led to an intense emotion, either sadness or anger. The clinicians may describe how an emotional reaction to a situation can be **internalized** (depression) or **externalized** (anger) and may be associated with several emotions.

The second part is to explore the **range** of emotions experienced in that situation. There may have been initial feelings of contentment, then the situation became a trigger for feelings such as agitation, despair, confusion or anxiety, and subsequent feelings of low self-esteem, guilt

or remorse. There can be specific and different emotions before, during and after an event. Each participant **rates the strength** of each emotion on a scale of zero to ten.

The third part is to determine **the thoughts** that were associated with each emotion.

Fourth, the participants identify the **distortion in thinking**, with a cue list included in the text of the participant's manual.

The fifth part is to consider a **more rational**, logical or realistic response to the thought or situation. This can be an individual activity, or suggestions can be made by all the participants for each person's thoughts.

The final part is to recall the event again, this time using more logical and realistic emotional responses and measuring the intensity of those emotions. Participants can then compare the two ratings between part 2 and part 6.

Relaxation tools

Relaxation tools are explored in this section. They are activities that can help the participants feel **calm**, prevent a catastrophic reaction, panic or anger, and help maintain self-control and enable wise decision making, i.e., 'being calm is being smart.' This phrase can be particularly appealing for adolescents with Asperger's syndrome, who value intellectual ability in themselves and others. The group can discuss how relaxation affects the body in terms of heart rate, perspiration and breathing; emotions in terms of feeling content and general well-being; and thinking in terms of being more able to consider alternative responses (flexibility in thought), and coping with errors and the taunts and teasing of peers.

The individual participants can identify relaxation strategies or tools that can be used at home and at school, sharing suggestions or '**borrowing**' tools from each other. There may be discussion of ways of becoming more relaxed such as yoga and meditation, and the use of drawing and art, and participants may disclose whether such strategies have been beneficial in managing their emotions.

Project

Planner

The participants take a look at the weekly planning sheet for the next week and consider when they can schedule a relaxation activity. The planning sheet should also include pleasurable, physical, social and self-awareness activities.

The self-monitoring sheet

This can be used during the next week to record the emotion ratings before and after the use of individual or combined tools (pleasurable, physical, social and relaxation activities, and the self-awareness practice.)

Real life practice in recognizing cognitive distortions

This is quite a complex and time consuming component of the project, and participants may benefit from discussion with family members and guidance from a parent. This is an opportunity for parents and adolescents to practise using the strategy of recognizing and challenging cognitive distortions, so that they can manage situations that will occur after the programme has been completed.

Session 8: Relaxation and Helpful and Unhelpful Tools

Start with a quick review of the group rules and key points from Session 7 on thinking and relaxation tools.

Distribute any notes from the previous session.

Quiz

Ask the participants to consider the following questions:

- Which thinking distortion do you tend to use a lot?
- What is the benefit of relaxation?
- Why would this help for depression?

Feedback from Session 7 project

Review of the participants' experiences of using four tools to repair feelings of sadness or depression. Start with the self-monitoring sheet and discuss as a group:

What did you schedule as your pleasurable activities?

How did it go?

How did you feel before and after your physical exercise?

How is your self-awareness exercise going?

What did you schedule as your social activity?

How did it go?

What did you schedule for your relaxation activity?

How did it go?

Self-awareness activity

Another opportunity to practise and appreciate self-awareness.

Objectives of Session 8

Refer to the visual schedule of the plan for the session:

- To use relaxation for self-awareness.
- To discover other helpful and unhelpful tools.

Relaxation for self-awareness

This activity starts with the clinician reading to the group the text in their manual. At the end of the new relaxation activity, the participants share and discuss their own experience of success or achievement recalled during the exercise, and how such thoughts affect mood and thinking. There is an emphasis on the positive qualities applied by each participant to achieve success.

Other helpful tools

Medication

Some of the participants will probably be taking prescribed medication to treat a clinical depression, some may never have considered taking medication, while others may have actively refused to take medication. Those who have benefitted from medication can describe how it has helped, the possible side effects and whether they would recommend to other participants to consider taking medication.. The concerns of those who have rejected medication as a tool in the emotion repair tool box also need to be considered and appreciated.

Other tools

The participants can share and discuss other successful tools from their own experience that can be used to repair sad thoughts that have not already been included in the programme. These can be recorded and distributed to the participants at the start of the next session. The clinicians may need to comment on the suitability and efficacy of the suggested strategies or tools. The clinicians can make suggestions for group comment, such as how a change of teachers' attitude, teachers' support, an anti-bullying programme, and a safe haven at school for relaxation could all help. Strategies at home could include greater reassurance and less criticism from a parent, a calmer atmosphere, and greater help with homework and assignments.

Unhelpful tools

Some of the participants may have considered strategies or tools that are not recommended, but could be tempting, especially in response to peer pressure among adolescents. **Legal drugs** such as alcohol and nicotine can induce a temporary feeling of relaxation. However, the consequences on abilities as well as physical and mental health are well known, and may need to be reinforced in the group. Some **illegal drugs**, especially marijuana, can induce a sense of relaxation and isolation from concerns, but almost always have a toxic effect on abilities, relationships, and emotional and cognitive maturity, and could lead to expulsion from school, as well as legal sanctions.

A reaction to depression and despair can be self-loathing and **self-injury**. Someone in the group may have thought of, or actually engaged in self-injury. The group can discuss why this may occur and the consequences. Some adolescents with Asperger's syndrome may

recognize the degree of emotional pain associated with depression and use self-injury to experience an alternative pain that takes their mind off their troubles. There can also be in Asperger's syndrome a detachment between mind and body, and self-injury enables a connection between the two. Self-injury can also be a 'cry for help', with a need for someone to take their despair seriously.

Clinical experience has indicated that some adolescents with Asperger's syndrome can use **anger** as a quick emotional repair mechanism. An explosion of anger is used as a way of 'cleansing' negative emotions, with a tendency to feel better after smashing or damaging objects or hurting someone physically or emotionally. The adolescent with Asperger's syndrome who feels depressed may not engage in self-blame but blaming others, becoming argumentative and arrogant and going into 'attack mode'. If any of the participants have used these emotion repair strategies or unhelpful tools, then there will need to be discussion on why this apparently successful strategy for the adolescent is not recommended in the long term.

A constructive application of anger can be to use the concept of **creative destruction** in the range of physical tools. This can be crushing cans or packaging for the home recycling bin or tearing old clothing to become rags. Depression is usually associated with a lack of energy, but especially in Asperger's syndrome, it can be associated with an explosion of energy that can be destructive and frightening for others.

Project

Planner and self-monitoring sheet

These sheets are to be used to record the use and value of the growing range of tools, and now include relaxation or art activities.

Your key strengths

This component of the project is designed to explore each participant's key strengths, the areas in their lives in which they would like to gain more success, and how their strengths could be applied and useful in those areas. The activity is used to imagine a positive and successful future based on specific strengths, some of which are characteristics of Asperger's syndrome.

Have you felt sad in the last week?

The completion of this activity will need honesty and trust. Depression is associated with morbid thoughts and the participants are likely to have experienced some of the thoughts in the list. Some participants may not want parents to know their thoughts for fear of upsetting their family. This part of the project could be completed within the group just before the next session starts. The ratings will be needed for the theme of the next session, which is creating a safety plan.

Session 9: A Safety Plan

Start with a quick review of the group rules and key points from Session 8 on relaxation tools and unhelpful and helpful tools

Distribute any notes from the previous session.

Quiz

Ask the participants to consider the following questions:

- Which success experience did you reflect on during the relaxation exercise?
- Which of your own strengths allowed you to make that experience a success?
- Which tools do not work for emotion repair?

Feedback from Session 8 project

Self-awareness, physical, social, pleasurable and relaxation activities

The group discusses and writes in the dedicated space in their manual, their use of the emotion repair tools in real life situations; also their vision of a positive and successful future based on individual qualities and strengths. This can be a very effective antidote to feeling pessimistic about the future.

The participants can also discuss their feelings and depth of sadness over the last week. The clinicians can refer to the clinical difference between having thoughts of suicide as one way of escaping the pain of life, and actually planning and making a suicide attempt. Many typical adolescents will consider suicide as an option when feeling depressed, but it is much more significant and of far greater concern if the thought becomes an action.

Self-awareness activity

This has become a regular and well-practised component of the programme and once again encourages the participants to disengage from worries and be prepared for the session.

Objectives of Session 9

Refer to the visual schedule of the plan for the session:

- To make a safety plan for very low emotional times.
- To further our self-awareness of our own strengths.

Safety plan

Honesty and trust are again needed for this activity. The clinicians ask each question in turn, with participants writing their answers in their own manual. There follows a brief group discussion of the range of answers for each question.

Measuring sadness

The ‘thermometer’ component of the activity is designed to determine which emotion repair tools explored in the programme will be effective at different levels of sadness. The clinicians can comment on the general consensus of which tools to use when.

Safety plan for intense sadness

The safety plan for intense sadness is designed to explore strategies that can be used at the top of the thermometer, when sadness is at its most intense. The clinicians can explain the concept of a ‘**depression attack**’ and the participants can discuss if they have ever experienced such intense emotions that may have occurred in response to a specific event, with a very rapid onset, and a feeling of catastrophic despair that often ends as quickly as it began. As described in the introduction to this manual, these events are often reported by adolescents with Asperger’s syndrome who are prone to depression. The authors of this programme have created a list of potential strategies that can be used by a parent, teacher or friend during a ‘depression attack’. The participants can choose which of the strategies in the list could be effective for them as individuals when feeling intense despair, and record these in their manual.

The group can then create a plan using combined wisdom to manage and minimize the intensity and effects of a ‘depression attack’. The recommendations can be collated by the clinicians and distributed to participants at the next session, the last in the programme.

Acknowledging strengths

The programme has focussed on individual strengths with participants becoming more aware of their qualities in abilities and personality. This is an activity to **exchange compliments** between group members, and can be very constructive and enjoyable. Adolescents with Asperger’s syndrome experience few compliments from peers, and a compliment from a fellow group member can have great value and be a very powerful antidote to low self-esteem. The clinicians can also give group members specific compliments.

Project

Self-monitoring and planning sheets

This aspect of the project is now more prescriptive, with participants scheduling two pleasurable activities, two relaxation activities, three physical exercise sessions, a daily self-awareness exercise and at least one social activity.

Sharing the safety plan with parents and friends

It is extremely important that family members or close friends know of the safety plan for a 'depression attack', so participants are encouraged to make time during the following week to share their safety plan with people who are close to them.

Identify an area of life where you would like to be successful.

Each participant chooses an area of their current life where they would like to be more successful, and thinks about how their strengths can help achieve that success. This component of the project will be discussed by the group at the next session.

Session 10: Your Future

Start with a quick review of the key points from Session 9 on a safety plan.

Distribute any notes from the previous session.

Quiz

Ask the participants to consider the following questions:

- What is your safety plan for when you feel very low?
- Which emotion repair tools could you use?
- What compliments did you receive from other group members last session?

Feedback from Session 9 project

Self-awareness, physical, social, pleasurable and relaxation activities

This is an opportunity to review the tools and their effectiveness at home and at school. The participants write their answers to the questions in their manual. This is followed by discussion, which will also include sharing of parents' and friends' thoughts regarding the safety plan, and areas of life in which each participant would like to achieve greater success.

Self-awareness activity

The last opportunity to practise this activity with the group until the booster session.

Objectives of Session 10

Refer to the visual schedule of the plan for the session:

- To imagine the sort of life you want.
- To plan how to get there, using your self-awareness, strengths and tools.
- To review the group.

Time Machine – imagine the life you want

The participants probably know about Dr Who – indeed, he may be a hero or special interest of many adolescents and adults who have Asperger's syndrome. Relaxation and **imagery** are used to enable each participant to imagine a personal celebration in ten years' time. The scene is made more vivid by describing where the person would be living, what work or study they would be doing and who would be important in their life. Participants write in their manual, and then the scene for the celebration is shared with the group.

Planning how to get there

This activity explores how that situation could be realized with a **plan for the future**. Participants can determine which of their abilities and personal qualities would be used for the plan to be successful. The clinicians and group members can encourage each participant to develop the plan, which can be modified by experience over the intervening years to become a possible future. The clinicians may disclose how their personal dreams have been fulfilled.

Your personal choice for tools to alleviate feeling sad or depressed

This is very much a matter of personal choice, but participants rate the personal **value or strength** of each of the various types of emotion repair tools explored during the programme. They explore which tools could have worked but were not considered or practised during the programme, and determine any barriers to trying them, discussing whether or not they can be added to the tool box.

Group discussion on the programme

This is an open and free discussion of the programme, with information sought by the clinicians on what was the most helpful activity or project, what was least helpful, confusing or boring, and how the programme could be improved.

Assessment

The assessment sheet is distributed. Participants are reminded that this is designed to measure their progress since the start of the programme.

Keeping it up

There will be a booster session in four weeks to review emotional experiences, and application of the strategies learned in the programme in daily life. Four new self-monitoring sheets can be used over the next month. It will be important that the clinicians stress that it would be wise to frequently, perhaps weekly, **re-read the content** and advice in the manual so that the strategies are refreshed in their memory and easy to recall when needed. The manual is there throughout the person's lifetime, and can be used should circumstances conspire to create feelings of depression in the future.

The clinicians can compliment the participants on their commitment and contribution to the success of the programme

Appendix E

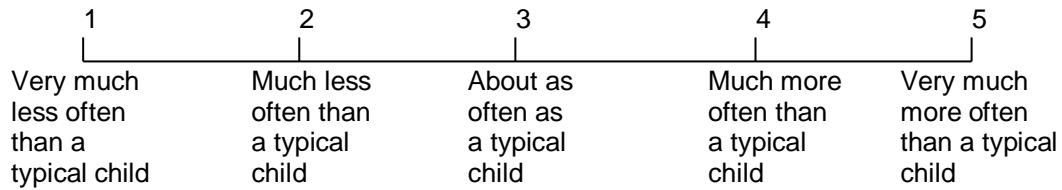
Interview Guide for Study Three

Booster Session Questions

1. How participants have been?
2. On reflection, what do they think about the program since they have stopped attending sessions?
3. Are they using any of the strategies? If so, which ones, in what contexts, how successful?
4. What did they find most useful about the program?
5. What was the least helpful?
6. Are there any changes they would suggest if we are going to continue to run the program?
7. Would they recommend it to other young people who might be depressed?
8. Are there any elements of the program that they are unclear on (either rationale for the element or how to use it) and would like a quick refresher on?

Appendix F

Baseline and Outcome Measures for Study Three not used in Study Two,
and Booster Session Discussion Questions



ASASC

NAME _____

DATE _____ AGE _____ DOB _____ MALE/FEMALE _____

DIAGNOSIS (IF APPLICABLE) _____

WHO DIAGNOSED AUTISM / AS / HFA / PDDNOS (IF APPLICABLE) _____

QUESTIONNAIRE COMPLETED BY _____

The following questionnaire is designed to identify behaviours and abilities in children who are aged between 5 and 19 years. Each question or statement has a rating scale from “1” to “5”. Rate each item using the scale to indicate the frequency with which the child you are rating shows the behaviour described. The scale is shown below.

While completing the questionnaire please compare the child you are rating with typically developing children you know who are the same age and gender.

SECTION A

- | | | | | | |
|---|---|---|---|---|---|
| (1) Does the child have difficulty 'reading' the signs of someone being embarrassed? | 1 | 2 | 3 | 4 | 5 |
| (2) Does the child have difficulty 'reading' the signs of someone's facial expression? | 1 | 2 | 3 | 4 | 5 |
| (3) Does the child have difficulty 'reading' the signs of someone being bored? | 1 | 2 | 3 | 4 | 5 |
| (4) Does the child have difficulty 'reading' the emotion in someone's eyes? | 1 | 2 | 3 | 4 | 5 |
| (5) Does the child have difficulty 'reading' the signs of someone being annoyed? | 1 | 2 | 3 | 4 | 5 |
| (6) Does the child lack subtlety or maturity in his or her expression of affection? | 1 | 2 | 3 | 4 | 5 |
| (7) Does the child lack subtlety or maturity in his or her expression of anger? | 1 | 2 | 3 | 4 | 5 |
| (8) Does the child lack subtlety or maturity in his or her expression of sadness? | 1 | 2 | 3 | 4 | 5 |
| (9) Does the child have difficulty understanding the emotional messages in someone's body language? | 1 | 2 | 3 | 4 | 5 |

SECTION B

(10) Is the child primarily interested in facts?	1	2	3	4	5
(11) Is the child interested in cataloguing information?	1	2	3	4	5
(12) Is the child interested in statistics?	1	2	3	4	5
(13) Is the child an expert on a specific topic?	1	2	3	4	5
(14) Does the child avidly read books, primarily for information about their special interest?	1	2	3	4	5
(15) Does the child's speech give more information or technical detail than you need?	1	2	3	4	5
(16) Is the child's speech overly formal or polite such that they talk like an adult?	1	2	3	4	5
(17) Does the child have an exceptional long-term memory for events or facts that he or she finds interesting?	1	2	3	4	5
(18) Does the child tend to over focus on details?	1	2	3	4	5

SECTION C

(19) Does the child show distress due to noises of a specific pitch, e.g. the sound of a vacuum cleaner?	1	2	3	4	5
(20) Does the child show distress due to noises of a specific volume?	1	2	3	4	5
(21) Does the child show distress due to sudden noises?	1	2	3	4	5
(22) Does the child show distress due to noises in crowded social situations?	1	2	3	4	5
(23) Does the child show distress due to bright lights?	1	2	3	4	5
(24) Does the child notice sounds that are not heard by others?	1	2	3	4	5
(25) Does the child startle easily, e.g. when touched from behind, or when hearing sudden noise?	1	2	3	4	5
(26) Does the child show distress due to certain aromas or odors?	1	2	3	4	5
(27) Does the child show distress due to light touch on his or her skin?	1	2	3	4	5

(28) Does the child show distress due to certain textures e.g. food? 1 2 3 4 5

SECTION D

(29) Does the child ask socially embarrassing questions? 1 2 3 4 5

(30) Does the child speak his or her mind irrespective of the social context? 1 2 3 4 5

(31) Does the child make up his or her own rules to a game and then insist that everyone follow those rules? 1 2 3 4 5

(32) Does the child point out other people's mistakes? 1 2 3 4 5

(33) Does the child make inappropriate but true comments? 1 2 3 4 5

(34) Does the child expect others to see things only from his or her point of view? 1 2 3 4 5

(35) Does the child enforce social rules to other children, i.e. is a social policeman? 1 2 3 4 5

(36) Does the child often interrupt a conversation? 1 2 3 4 5

(37) Does the child expect you to know what happened at school, even if you were not there to see? 1 2 3 4 5

(38) In social situations is the child likely to intrude on the conversation of others in a clumsy way? 1 2 3 4 5

SECTION E

(39) Do minor changes in routine or expectation cause the child distress? 1 2 3 4 5

(40) Does the child have to be forewarned of minor changes in the daily routine of home or the classroom? 1 2 3 4 5

(41) Do major changes upset the child e.g. moving house or a new teacher? 1 2 3 4 5

(42) Does the child have to do some things a certain way or in a certain order, e.g. before going to bed? 1 2 3 4 5

(43) Does the child need an excessive amount of reassurance regarding change? 1 2 3 4 5

(44) Is the child distressed by trivial changes in the environment, e.g. rearranged furniture or new cutlery? 1 2 3 4 5

(45) Does the child insist on a limited range of clothing? 1 2 3 4 5

(46) Do the child's clothes have to be made of a specific fabric? 1 2 3 4 5

SECTION F

(47) Does the child fail to modify his or her behaviour according to the social status of the person (peer compared to School Principal)? 1 2 3 4 5

(48) Does the child have difficulty understanding the thoughts of other people? 1 2 3 4 5

(49) Does the child have difficulty understanding the emotional messages in someone's tone of voice? 1 2 3 4 5

(50) When you talk to the child does he or she appear uninterested in your side of the conversation? 1 2 3 4 5

(51) Does the child have difficulty explaining his or her thinking in words? 1 2 3 4 5

(52) Does the child have problems with flexible thinking, e.g. appears to have a one-track mind? 1 2 3 4 5

(53) Does the child often switch topics in a conversation so that others get confused? 1 2 3 4 5

Appendix

The Asperger Syndrome Diagnostic Interview (ASDI)

Name of individual rated:

Date of birth:

Age at examination:

Name of informant and relation to individual rated:

Rater:

Date of interview:

This interview is intended for clinicians well acquainted with Asperger syndrome and other disorders in the autism spectrum, even though there is no requirement for 'expertise'. The interview is investigator-based, i.e. the rater is expected to score each item only after determining that he/she has elicited sufficient information for a qualified rating to be made. This means that all the 20 areas listed need to be probed in some detail. Examples of behaviours should be provided by the informant before a rating is assigned. The questions should, if at all possible, be read to the informant as they are written, but may occasionally be slightly reworded in order to assure that the relevant area of functioning has been adequately covered.

Scores: 0 = does not apply, 1 = applies to some degree or very much

Area 1: severe impairments in reciprocal social interaction (extreme egocentricity)

- | | | |
|--|---|---|
| 1 Does he/she exhibit considerable difficulties interacting with peers?
If so, in what way? | 0 | 1 |
| 2 Does he/she exhibit a low degree of concern or a seeming lack of interest in making friends or interacting with peers?
If so, please specify: | 0 | 1 |
| 3 Does he/she have problems appreciating social cues, i.e. does he/she fail to note changes in the social conversation/interaction or to take account of such changes in his/her ongoing interaction with other people?
If so, please describe: | 0 | 1 |
| 4 Does he/she exhibit socially or emotionally inappropriate behaviours?
If so, in what way(s)? | 0 | 1 |

(Two or more scores of 1 = criterion met)

Area 2: all absorbing narrow interest pattern(s)

- | | | |
|--|---|---|
| 5 Is there a pattern of interest or a specific interest which takes up so much of his/her time that time for other activities is clearly restricted?
If there is, please comment: | 0 | 1 |
| 6 Is there a repetitive quality to his/her interest patterns or specific interest?
If so, please specify: | 0 | 1 |
| 7 Are his/her interest patterns based more on rote memory than on true meaning? | 0 | 1 |

(One or more scores of 1 = criterion met)

Area 3: imposition of routines, rituals and interests

- 8 Does he/she try to introduce and impose routines, rituals or interests on himself/herself in such a way as to produce problems for himself? 0 1
If so, in what way?
- 9 Does he/she try to introduce and impose routines, rituals or interests on himself/herself in such a way as to produce problems for others? 0 1
If so, please describe:
(One or more scores of 1 = criterion met)

Area 4: speech and language peculiarities

- 10 Was his/her language development delayed? 0 1
If so, please comment:
- 11 Is his/her language 'superficially perfect' regardless of whether or not there are comprehension problems or other speech and language problems? 0 1
If so, please comment:
- 12 Is his/her language formal, pedantic or 'overly adult'? 0 1
If so, please describe:
- 13 Is there any characteristic about his/her voice (pitch, volume, quality, intonation, word stress, 'prosody' etc.) which you find peculiar or unusual? 0 1
If so, in what way?
- 14 Are there any comprehension problems (including misinterpretations of literal/implied meanings)? 0 1
If so, what kind of problems?
(Three or more scores of 1 = criterion met)

Area 5: non-verbal communication problems

- 15 Does he/she make limited use of gestures? 0 1
If so, please comment:
- 16 Is his/her body language awkward, gauche, clumsy, strange or unusual? 0 1
If so, please comment:
- 17 Are his/her facial expressions limited to a rather small repertoire? 0 1
If so, please describe:
- 18 Is his/her general expression (including facial) sometimes inappropriate? 0 1
If so, please describe:
- 19 Is his/her gaze stiff, strange, peculiar, abnormal or odd? 0 1
If so, please characterize:
(One or more scores of 1 = criterion met)

Area 6: motor clumsiness

- 20 Has he/she been noted to perform poorly on neurodevelopmental examinations either in the past or in connection with the present interview? 0 1
If so, please comment:
(Score of 1 = criterion met)

The Adolescent Autism Spectrum Quotient (AQ)

Ages 12-15 years

SPECIMEN, FOR RESEARCH USE ONLY.

For full details, please see:

S. Baron-Cohen, R. Hoekstra, R. Knickmeyer, S. Wheelwright, (2006)

The Autism Spectrum Quotient (AQ) – Adolescent Version

Journal of Autism and Developmental Disorders.

Name:..... Sex:.....

Date of birth:..... Today's Date:.....

How to fill out the questionnaire

Below is a list of statements about your child. Please read each statement very carefully and rate how strongly you agree or disagree by selecting the appropriate option opposite each question.

DO NOT MISS ANY STATEMENT OUT.

Examples

E1. S/he is willing to take risks.	definitely agree	slightly agree	slightly disagree	definitely disagree
E2. S/he likes playing board games.	definitely agree	slightly agree	slightly disagree	definitely disagree
E3. S/he finds learning to play musical instruments easy.	definitely agree	slightly agree	slightly disagree	definitely disagree
E4. S/he is fascinated by other cultures.	definitely agree	slightly agree	slightly disagree	definitely disagree

	Definitely Agree	Slightly Agree	Slightly Disagree	Definitely Disagree
1. S/he prefers to do things with others rather than on her/his own.				
2. S/he prefers to do things the same way over and over again.				
3. If s/he tries to imagine something, s/he finds it very easy to create a picture in her/his mind.				
4. S/he frequently gets so strongly absorbed in one thing that s/he loses sight of other things.				
5. S/he often notices small sounds when others do not.				
6. S/he usually notices car number plates or similar strings of information.				
7. Other people frequently tell her/him that what s/he has said is impolite, even though s/he thinks it is polite.				
8. When s/he is reading a story, s/he can easily imagine what the characters might look like.				
9. S/he is fascinated by dates.				
10. In a social group, s/he can easily keep track of several different people's conversations.				
11. S/he finds social situations easy.				
12. S/he tends to notice details that others do not.				
13. S/he would rather go to a library than a party.				
14. S/he finds making up stories easy.				
15. S/he finds her/himself drawn more strongly to people than to things.				
16. S/he tends to have very strong interests, which s/he gets upset about if s/he can't pursue.				
17. S/he enjoys social chit-chat.				

	Definitely Agree	Slightly Agree	Slightly Disagree	Definitely Disagree
18. When s/he talks, it isn't always easy for others to get a word in edgeways.				
19. S/he is fascinated by numbers.				
20. When s/he is reading a story, s/he finds it difficult to work out the characters' intentions.				
21. S/he doesn't particularly enjoy reading fiction.				
22. S/he finds it hard to make new friends.				
23. S/he notices patterns in things all the time.				
24. S/he would rather go to the theatre than a museum.				
25. It does not upset him/her if his/her daily routine is disturbed.				
26. S/he frequently finds that s/he doesn't know how to keep a conversation going.				
27. S/he finds it easy to "read between the lines" when someone is talking to her/him.				
28. S/he usually concentrates more on the whole picture, rather than the small details.				
29. S/he is not very good at remembering phone numbers.				
30. S/he doesn't usually notice small changes in a situation, or a person's appearance.				
31. S/he knows how to tell if someone listening to him/her is getting bored.				
32. S/he finds it easy to do more than one thing at once.				
33. When s/he talks on the phone, s/he is not sure when it's her/his turn to speak.				
34. S/he enjoys doing things spontaneously.				

	Definitely Agree	Slightly Agree	Slightly Disagree	Definitely Disagree
35. S/he is often the last to understand the point of a joke.				
36. S/he finds it easy to work out what someone is thinking or feeling just by looking at their face.				
37. If there is an interruption, s/he can switch back to what s/he was doing very quickly.				
38. S/he is good at social chit-chat.				
39. People often tell her/him that s/he keeps going on and on about the same thing.				
40. When s/he was younger, s/he used to enjoy playing games involving pretending with other children.				
41. S/he likes to collect information about categories of things (e.g. types of car, types of bird, types of train, types of plant, etc.).				
42. S/he finds it difficult to imagine what it would be like to be someone else.				
43. S/he likes to plan any activities s/he participates in carefully.				
44. S/he enjoys social occasions.				
45. S/he finds it difficult to work out people's intentions.				
46. New situations make him/her anxious.				
47. S/he enjoys meeting new people.				
48. S/he is a good diplomat.				
49. S/he is not very good at remembering people's date of birth.				
50. S/he finds it very to easy to play games with children that involve pretending.				



Date: _____

Name: _____ Marital Status: _____ Age: _____ Sex: _____

Occupation: _____ Education: _____

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today**. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness

- 0 I do not feel sad.
- 1 I feel sad much of the time.
- 2 I am sad all the time.
- 3 I am so sad or unhappy that I can't stand it.

2. Pessimism

- 0 I am not discouraged about my future.
- 1 I feel more discouraged about my future than I used to be.
- 2 I do not expect things to work out for me.
- 3 I feel my future is hopeless and will only get worse.

3. Past Failure

- 0 I do not feel like a failure.
- 1 I have failed more than I should have.
- 2 As I look back, I see a lot of failures.
- 3 I feel I am a total failure as a person.

4. Loss of Pleasure

- 0 I get as much pleasure as I ever did from the things I enjoy.
- 1 I don't enjoy things as much as I used to.
- 2 I get very little pleasure from the things I used to enjoy.
- 3 I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings

- 0 I don't feel particularly guilty.
- 1 I feel guilty over many things I have done or should have done.
- 2 I feel quite guilty most of the time.
- 3 I feel guilty all of the time.

6. Punishment Feelings

- 0 I don't feel I am being punished.
- 1 I feel I may be punished.
- 2 I expect to be punished.
- 3 I feel I am being punished.

7. Self-Dislike

- 0 I feel the same about myself as ever.
- 1 I have lost confidence in myself.
- 2 I am disappointed in myself.
- 3 I dislike myself.

8. Self-Criticalness

- 0 I don't criticize or blame myself more than usual.
- 1 I am more critical of myself than I used to be.
- 2 I criticize myself for all of my faults.
- 3 I blame myself for everything bad that happens.

9. Suicidal Thoughts or Wishes

- 0 I don't have any thoughts of killing myself.
- 1 I have thoughts of killing myself, but I would not carry them out.
- 2 I would like to kill myself.
- 3 I would kill myself if I had the chance.

10. Crying

- 0 I don't cry any more than I used to.
- 1 I cry more than I used to.
- 2 I cry over every little thing.
- 3 I feel like crying, but I can't.

Subtotal Page 1

Continued on Back

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11. Agitation

- 0 I am no more restless or wound up than usual.
- 1 I feel more restless or wound up than usual.
- 2 I am so restless or agitated that it's hard to stay still.
- 3 I am so restless or agitated that I have to keep moving or doing something.

12. Loss of Interest

- 0 I have not lost interest in other people or activities.
- 1 I am less interested in other people or things than before.
- 2 I have lost most of my interest in other people or things.
- 3 It's hard to get interested in anything.

13. Indecisiveness

- 0 I make decisions about as well as ever.
- 1 I find it more difficult to make decisions than usual.
- 2 I have much greater difficulty in making decisions than I used to.
- 3 I have trouble making any decisions.

14. Worthlessness

- 0 I do not feel I am worthless.
- 1 I don't consider myself as worthwhile and useful as I used to.
- 2 I feel more worthless as compared to other people.
- 3 I feel utterly worthless.

15. Loss of Energy

- 0 I have as much energy as ever.
- 1 I have less energy than I used to have.
- 2 I don't have enough energy to do very much.
- 3 I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

- 0 I have not experienced any change in my sleeping pattern.

- 1a I sleep somewhat more than usual.
- 1b I sleep somewhat less than usual.

- 2a I sleep a lot more than usual.
- 2b I sleep a lot less than usual.

- 3a I sleep most of the day.
- 3b I wake up 1-2 hours early and can't get back to sleep.

17. Irritability

- 0 I am no more irritable than usual.
- 1 I am more irritable than usual.
- 2 I am much more irritable than usual.
- 3 I am irritable all the time.

18. Changes in Appetite

- 0 I have not experienced any change in my appetite.

- 1a My appetite is somewhat less than usual.
- 1b My appetite is somewhat greater than usual.

- 2a My appetite is much less than before.
- 2b My appetite is much greater than usual.

- 3a I have no appetite at all.
- 3b I crave food all the time.

19. Concentration Difficulty

- 0 I can concentrate as well as ever.
- 1 I can't concentrate as well as usual.
- 2 It's hard to keep my mind on anything for very long.
- 3 I find I can't concentrate on anything.

20. Tiredness or Fatigue

- 0 I am no more tired or fatigued than usual.
- 1 I get more tired or fatigued more easily than usual.
- 2 I am too tired or fatigued to do a lot of the things I used to do.
- 3 I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex

- 0 I have not noticed any recent change in my interest in sex.
- 1 I am less interested in sex than I used to be.
- 2 I am much less interested in sex now.
- 3 I have lost interest in sex completely.

Subtotal Page 2

Subtotal Page 1

Total Score

Reading the Mind in the Eyes Test

For each set of eyes, choose which word best describes what the person in the picture is thinking or feeling. You may feel that more than one word is applicable but please just choose one word, the word which you consider to be most suitable. Before making a choice, make sure you have read all four words. You should try to do the task as quickly as possible but you will not be timed.

Timing



- playful
- comforting
- irritated
- bored



- terrified
- upset
- arrogant
- annoyed



- joking
- flustered
- desire
- convince



- joking
- insisting
- amused
- relaxed



- irritated
- sarcastic
- worried
- friendly



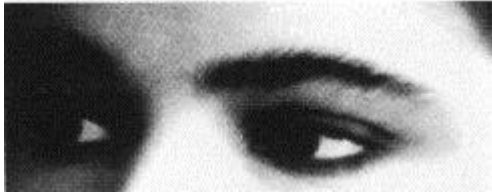
- aghast
- fantasising
- impatient
- alarmed



- apologetic
- friendly
- uneasy
- dispirited



- despondent
- relieved
- shy
- excited



- annoyed
- hostile
- horrified
- preoccupied



- cautious
- insisting
- bored
- aghast



- terrified
- amused
- regretful
- flirtatious



- indifferent
- embarrassed
- sceptical
- dispirited



- decisive
- anticipating
- threatening
- shy



- irritated
- disappointed
- depressed
- accusing



- contemplative
- flustered
- encouraging
- amused



- irritated
- thoughtful
- encouraging
- sympathetic



- doubtful
- affectionate
- playful
- aghast



- decisive
- amused
- aghast
- bored



- arrogant
- grateful
- sarcastic
- tentative



- dominant
- friendly
- guilty
- horrified



- embarrassed
- fantasising
- confused
- panicked



- preoccupied
- grateful
- insisting
- imploring



- contented
- apologetic
- defiant
- curious



- pensive
- irritated
- excited
- hostile



- panicked
- incredulous
- despondent
- interested



- alarmed
- shy
- hostile
- anxious



- joking
- cautious
- arrogant
- reassuring



- interested
- joking
- affectionate
- contented



- impatient
- aghast
- irritated
- reflective



- grateful
- flirtatious
- hostile
- dissapointed



- ashamed
- confident
- joking
- dispirited



- serious
- ashamed
- bewildered
- alarmed



- embarrassed
- guilty
- fantasising
- concerned



- aghast
- baffled
- distrustful
- terrified



- puzzled
- nervous
- insisting
- contemplative



- ashamed
- nervous
- suspicious
- indecisive