



COPYRIGHT AND USE OF THIS THESIS

This thesis must be used in accordance with the provisions of the Copyright Act 1968.

Reproduction of material protected by copyright may be an infringement of copyright and copyright owners may be entitled to take legal action against persons who infringe their copyright.

Section 51 (2) of the Copyright Act permits an authorized officer of a university library or archives to provide a copy (by communication or otherwise) of an unpublished thesis kept in the library or archives, to a person who satisfies the authorized officer that he or she requires the reproduction for the purposes of research or study.

The Copyright Act grants the creator of a work a number of moral rights, specifically the right of attribution, the right against false attribution and the right of integrity.

You may infringe the author's moral rights if you:

- fail to acknowledge the author of this thesis if you quote sections from the work
- attribute this thesis to another author
- subject this thesis to derogatory treatment which may prejudice the author's reputation

For further information contact the University's Director of Copyright Services

sydney.edu.au/copyright

The Role of Attachment and Intolerance of Uncertainty in the Relationship between Worry
and Interpersonal Problems

Dilan Perera

A thesis submitted in fulfilment of the requirements

for the Degree of Master of Science

The Faculty of Science

University of Sydney

2014

ACKNOWLEDGEMENTS

I would like to express my deepest appreciation to multiple members of staff who have helped me in the completion of this thesis, in particular my primary supervisor Dr. Marianna Szabo and my secondary supervisor Associate Professor Caroline Hunt. Additionally, I would like to thank Dr Carolyn MacCann who was invaluable in assisting me with my statistical analysis, and Professor Sally Andrews whose support towards the final stages of my thesis completion was greatly appreciated.

Contents

List of Tables	v
List of Figures	v
List of Appendices	v
ABSTRACT.....	vii
1. INTRODUCTION:	1
1.1. Generalised Anxiety Disorder.	1
1.2. Excessive and Uncontrollable Worry and Interpersonal Difficulties.	1
1.2.4. The Effect of Interpersonal Problems on Excessive and Uncontrollable Worry.....	3
1.2.1. Treatments Targeting Interpersonal Problems in Excessive and Uncontrollable Worry.	5
1.2.5. Interpersonal Problem Subtypes.....	7
1.2.2. Inconsistencies in the Finding of Interpersonal Problems in Excessive and Uncontrollable Worry.	11
1.3. Models of Excessive and Uncontrollable Worry.	15
1.4. The Intolerance of Uncertainty Model of Excessive and Uncontrollable Worry.	18
1.4.1. Intolerance of Uncertainty and Interpersonal Functioning.....	21
1.5. Attachment, Intolerance of Uncertainty, and Excessive and Uncontrollable Worry....	23
1.6. Study Aims.	27
Figure 1: Overall Model:	29
2. METHOD	30
2.1. Participants.	30
2.2. Procedure.	30
2.3. Materials (Provided in Appendix B).....	32
2.3.1. Intolerance of Uncertainty Scale (IUS; Freeston, Rheume, Letarte, Dugas, & Ladouceur, 1994).	32
2.3.2. Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998).....	33
2.3.3. Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990).	33

2.3.4. Depression Anxiety Stress Scales 21 item version (DASS- 21; S. Lovibond & P. Lovibond, 1995).	34
2.3.5. Inventory of Interpersonal Problems – 32 item (IIP-32; Horowitz, Alden, Wiggins & Pincus, 2000).	35
2.3.6. Perceptions of Adult Attachment Questionnaire (PAAQ; Lichtenstein & Cassidy, 1991).	38
2.4. Statistical Analysis.	39
2.4.1. Path Analysis Model.	39
2.5. Indices of Fit.	41
2.6. Mediation Analyses.	43
2.7. Bootstrapping.	43
3. RESULTS.	45
3.1. Data Preparation.	45
3.1.1. Missing values.	45
3.1.2. Multivariate Outliers.	45
3.1.3. Tests of Normality.	45
3.2. Descriptive Statistics.	46
3.2.1. Strategy for Primary Data Analysis.	46
3.2.2. Time Taken to Complete Study.	46
3.2.3. Means, Standard Deviations and Ranges.	48
3.2.4. Gender Comparisons for Subscales.	49
3.2.5. Age Correlations.	50
3.3. Model Testing.	50
3.3.1. Correlations.	50
3.3.1.1. Attachment, intolerance of uncertainty, and worry.	50
Table 1: Table of Select Correlations Between Participants who Completed the Study in Under 15 Minutes and Participants who Completed the Study in 15 Minutes and Over	48
Table 2: Means, Standard Deviations, and Ranges of Measures for Total Sample, and Compared by Gender.....	52
Table 3. Correlations Table.	53

3.3.1.2. Interpersonal problems, intolerance of uncertainty and worry.	54
3.3.2. Indices of Fit Statistics for Path Analysis.	54
Table 4: Model Fit Statistics.....	55
3.3.3. Residual Matrix.	55
3.3.4. Path Analyses Estimates.....	55
3.3.4.1. Hypotheses 1 – 3: The mediation of intolerance of uncertainty in the relationship between attachment and worry.....	56
3.3.4.2. Hypotheses 4 – 6: The mediation of worry in the relationship between intolerance of uncertainty and interpersonal problems.	56
Figure 2: Significant Standardised Direct Effects.	57
Table 5: Significant Standardised Indirect Effects.	57
3.3.4.3. Exploratory indirect path from attachment to interpersonal problems.	58
4. DISCUSSION.....	59
4.1. Hypotheses.....	59
4.1.1. Attachment, Worry, and Intolerance of Uncertainty.	59
4.1.2. Intolerance of Uncertainty, Worry, and Interpersonal Problems.....	60
4.1.3. Exploratory Indirect effect of Attachment on Interpersonal Problems.	61
4.2. Explanations for Specific Paths.	61
4.2.1. The Association between Rejection and Intolerance of Uncertainty.	61
4.2.2. The Association between Intolerance of Uncertainty and Worry.	62
4.2.3. The Association between Rejection and Worry Mediated by Intolerance of Uncertainty.	62
4.2.4. The Association between Intolerance of Uncertainty and Interpersonal Problems.	63
4.2.5. The Association between Worry and Interpersonal Problems.	66
4.2.6. The Association between Intolerance of Uncertainty and Interpersonal Problems Mediated by Worry.	69
4.2.7. A Path from Attachment to Interpersonal Problems in Those with Intolerance of Uncertainty and Worry.....	70
4.2.8. The Influence of Social Anxiety in the Relationship between Worry and Interpersonal Problems.....	72

4.3. Therapeutic Implications.....	73
4.4. Strengths and Limitations.....	75
4.5. Future Research.....	77
4.6. Conclusion.....	78
5. REFERENCES.....	80
6. APPENDICES.....	94
Appendix A: Advertisement for Participation in Study as Seen by Students.....	95
Appendix B: Questionnaires.....	96
Appendix C: Full Structural Model Including Control Variables.....	115
Appendix D: Kolmogorov-Smirnov Statistics for all Variables.....	116
Appendix E: Scatter plots of Select Correlations for Participants who Completed the Study in Under 15 Minutes.....	117
Appendix G: Means and Standard Deviations in Other Studies Using Non Clinical Populations for Variables Used in the Present Study.....	120
Appendix H: Average Score for the PAAQ Subscales in the Present Study, and Average Scores for the PAAQ Subscales for a Control and GAD Clinical Group in Cassidy et al. (2009).....	121
Appendix I: Residual Matrix for Variables Used in Structural Model.....	122
Appendix J: Standardised Direct and Indirect Effects, Upper and Lower bounds of the Bias Corrected 90% Confidence Interval, and Significance for Variables Used in Structural Model.....	123
Appendix K: Ethics Approval Document.....	127

List of Tables

Table 1: Table of Select Correlations Between Participants who Completed the Study in Under 15 Minutes and Participants who Completed the Study in 15 Minutes and Over	49
Table 2: Means, Standard Deviations, and Ranges of Measures for Total Sample, and Compared by Gender	52
Table 3: Correlations Table	53
Table 4: Model Fit Statistics	55
Table 5: Significant Indirect Effects	57

List of Figures

Figure 1: Overall Model	29
Figure 2: Significant Standardised Direct Effects	57

List of Appendices

Appendix A: Advertisement for Participation in Study as Seen by Students	93
Appendix B: Questionnaires	94
Appendix C: Full Structural Model Including Control Variables	113
Appendix D: Kolmogorov-Smirnov Statistics for all Variables	114
Appendix E: Scatterplots of Select Correlations for Participants who Completed the Study in Under 15 Minutes	115
Appendix G: Means and Standard Deviations in Other Studies Using Non Clinical Populations for Variables Used in the Present Study	118

Appendix H: Average Score for the PAAQ Subscales in the Present Study, and Average Scores for the PAAQ Subscales for a Control and GAD Clinical Group in Cassidy et al. (2009)	119
Appendix I: Residual Matrix for Variables Used in Structural Model	120
Appendix J: Standardised Direct and Indirect Effects, Upper and Lower bounds of the Bias Corrected 90% Confidence Interval, and Significance for Variables Used in Structural Model	121
Appendix K: Ethics Approval Documentl	125

ABSTRACT

The current study assessed a developmental model exploring pathways from attachment problems to interpersonal problems in people with intolerance of uncertainty and excessive and uncontrollable worry. While interpersonal problems in those with clinical levels of worry is still an emerging area of interest, the link between intolerance of uncertainty and excessive worry, as well as problems between attachment and worry have already been demonstrated in multiple studies. The current study utilised Structural Equation Modeling to test a series of paths, including the mediation of intolerance of uncertainty on the relationship between attachment and worry, as well as the mediation of worry on the relationship between intolerance of uncertainty and interpersonal problems.

Results found that, of the attachment subscales of Loved, Role-Reversal/ Enmeshment, and Rejection, only Rejection had a relationship with both excessive worry and intolerance of uncertainty. This suggests that people with higher levels of rejection during childhood are more likely to have developed an increased intolerance of uncertainty, and through this, excessive worry. Those who reported higher levels of intolerance of uncertainty were likely to have increased difficulty with being cold, distant, vindictive, self-centered, self-sacrificing, controlling and dominating than those lower on intolerance of uncertainty. However, those who experienced excessive and uncontrollable worry were likely to have fewer problems with being cold, distant, vindictive and self-centered than those who worried less. Additionally, and most interestingly, it was found that those who reported higher levels of intolerance of uncertainty also reported lower levels of being cold, distant, vindictive and self-centered when they also experienced higher levels of worry. Thus, non-clinical levels of excessive and uncontrollable worry were a protective factor for those high in intolerance of uncertainty for interpersonal problems. The findings of the current study suggest that excessive worry may be less associated with interpersonal problems than intolerance of uncertainty, one of the most researched explanatory variables for clinical levels of worry.

1. INTRODUCTION:

1.1. Generalised Anxiety Disorder.

Generalised Anxiety Disorder (GAD) is a mental health disorder characterised by excessive and uncontrollable worry in multiple domains (American Psychiatric Association, 2000). It is associated with symptoms including feeling restless, fatigued, irritable, experiencing muscle tension, ongoing sleep disturbances, and having difficulty concentrating. The lifetime prevalence rate for GAD is approximately 3%, is mostly chronic, and symptoms can be aggravated during times of stress (APA, 2000). Co-morbidity is high, with over 60% of people identified as currently having GAD being diagnosed with a co-morbid disorder (Wittchen, Zhao, Kessler, & Eaton, 1994). Additionally, of those with a lifetime history of GAD, 90% have suffered from a co-morbid disorder (Wittchen, et al., 1994). Apart from the obvious personal distress associated with GAD, there is also a wider impact on society through health care. As much as 66% of people with GAD reported needing professional help, and 44% required medication (Wittchen et al., 1994). It is therefore a debilitating disorder that requires continued research on causes and treatment.

1.2. Excessive and Uncontrollable Worry and Interpersonal Difficulties.

One area of concern in those with excessive and uncontrollable worry which has seen increased research attention is interpersonal difficulties, with emerging research illustrating an association between worry and problematic interpersonal functioning. Stein and Heimberg (2004) analysed data from the Mental Health Supplemental to the Ontario Health Survey which reported on 8116 people living in the community. They found that people with GAD were more likely to be dissatisfied with their family life than those with or without other disorders. Similar reports of increased experiences of concern over interpersonal problems for those with GAD compared to other disorders have also been seen in other studies (Breitholtz, Johansson, & Ost, 1999; Whisman, Sheldon, & Goering, 2000; Ben-Noun, 1998; Hunt, Issakidis, & Andrews, 2002; Wittchen, Zhao, Kessler, & Eaton, 1994). Breitholtz et al. (1999)

utilised a self-report diary over a two week period comparing the types of cognitions which brought on anxiety or worry in a group of Panic Disorder (PD), and GAD patients. They found that the GAD group had significantly more cognitions about interpersonal conflict, interpersonal competence and acceptance, as well as concern about others, than did the PD group, highlighting a specificity of interpersonal worry to those with GAD. The GAD group was then divided into GAD alone, GAD with social phobia, and GAD with other co-morbid disorders. However, there were no significant differences in the types of worry between these three groups. This suggests that interpersonal worry is likely to be persistent over a continuum of GAD pathology, with different co-morbidities and subgroups of GAD likely to experience the same types of interpersonal concerns.

Additionally, Whisman et al. (2000) assessed marital dissatisfaction in the general population with the question “During the past 6 months, how well have you gotten along with your spouse”. They found that people with GAD were significantly more negative in their rating than people with other anxiety disorders, mood disorders, or alcohol dependence as diagnosed by the DSM-III-R. However, an obvious problem in measuring interpersonal difficulties with a single question is that it leaves room for interpretation from the participant, and patients may interpret a general term like “how well have you gotten along” in multiple ways. This approach also does not account for other factors which may be externally affecting, or mediating this effect, such as work. Therefore, while the use of a single question is a very basic assessment of interpersonal difficulties, it does serve to show the increased prevalence of interpersonal problems in GAD as opposed to other anxiety and mood disorders.

Nevertheless, the validity of these findings have been supported by other surveys which have found that those with clinical levels of worry have significantly higher rates of being separated or divorced than people with other anxiety, mood or substance abuse symptoms (Hunt et al., 2002; Wittchen et al., 1994).

While these studies have found higher interpersonal problems within intimate partner relationships for those with excessive worry, additional research has found that interpersonal

problems within the wider family can also suffer relative to those without excessive worry. Ben-Noun (1998) assessed family functioning in couples with a child at a family medical clinic. The patient's perception of their family relationship was elicited using the Smilkstein's Family Adaptation Partnership Growth Affection and Resolve (APGAR; Smilkstein, 1984) assessment tool. The authors found a significantly greater amount of perceived family dysfunction within the family in the GAD disorder group (43.8%) than in the non GAD control group (6.8%), supporting a presence of increased interpersonal problems within GAD pathology. This study serves to highlight how negative effects of GAD symptomology are associated, not just with dyadic partner relationships, but with family units as a whole.

1.2.4. The Effect of Interpersonal Problems on Excessive and Uncontrollable Worry.

Moreover, additional studies have further highlighted this relationship in finding that interpersonal factors have a reciprocal effect on GAD pathology itself. Zinbarg, Lee, and Yoon (2007) compared the effect of non-hostile critical communication (disapproval or disagreement without negative tones or gestures), with hostile critical communication (disapproval or disagreement with devaluation of the partner, e.g. insults and accusation), on treatment outcome within a group of treatment seeking GAD patients and their spouses. The participants and their spouses were engaged in a discussion on what may be coming up in the future that made the GAD patients anxious, and how they would cope, including the role the partner would play in this. They were then grouped according to their use of non-hostile critical communication versus hostile communication according to the Devaluation of the Partner subcategory of the Criticism Code from the KPI (Hahlweg & Conrad, 1983), a coding system to understand verbal and non-verbal behaviours within a couples' communication. Participants were then allocated randomly to either a CBT treatment group (involving cognitive restructuring, relaxation techniques and imaginal exposure), or a waitlist group. T-tests found that the treatment group showed significantly lower levels of anxiety, depression, and worry following treatment than the waitlist group. The waitlist group was then also

offered treatment after a 4 month delay, and treatment gains were analysed for the total sample. The results found that together, hostile, and non-hostile criticism accounted for 41% of variance in end state functioning following treatment, with non-hostile criticism predicting better treatment outcomes than hostile critical communication styles. Interpersonal interactions, specifically within intimate relationships, were therefore a significant predictor of GAD pathology maintenance. Thus, targeting interpersonal problems is an essential part of treatment for those with clinical levels of worry.

Similarly, Yonkers, Dyck, Warshaw, and Norton (2000) conducted a naturalistic longitudinal study of patients with DSM –III-R defined GAD and found that interpersonal difficulties affect long term progression of GAD. Patients from psychiatric clinics and anxiety clinics were assessed after treatment at six monthly intervals for two years, then annually over the next five years. The authors found that, after five years, only 38% of patients had attained full remission, while less than 50% had attained partial remission. Taking into account variables such as mood and anxiety disorders, the factors which best predicted the likelihood of not reaching full or partial remission were overall satisfaction with life, poorer quality of relationship with their spouse, and worse quality of relationship with relatives. This study shows that interpersonal problems within relationships, including intimate relationships, are prominent risk factors to consider when discussing prognosis of those with GAD. It is also supported by a similar study which attempted to find risk factors for GAD diagnosis. Durham, Allan, and Hackett (1997) found that an increase in marital tension, as measured by the marital tension subscale of the Social Adjustment Scale (SAS; Weissman & Paykel, 1974), significantly decreased the probability of improvement from treatment regardless of treatment type (cognitive therapy, analytic psychotherapy, or anxiety management training). This study demonstrated an ability to predict GAD remission/maintenance using interpersonal factors. Treatment is therefore an important consideration in future studies in this area, and current studies which have implemented components of interpersonal therapy into research on

traditional treatment for excessive and uncontrollable worry have found some promising results.

1.2.1. Treatments Targeting Interpersonal Problems in Excessive and Uncontrollable Worry.

Crits-Christoph, Connolly, Azarian, Crits-Christoph, and Shappell (1996) attempted to target interpersonal aspects of clinical levels of worry by using an interpersonally as well as intrapersonally focused form of Supportive-Expressive Psychodynamic Psychotherapy to treat patients with a diagnosis of pathological worry. The interpersonal focus of the therapy sought to identify and analyse the patient's interactions with others in terms of their interpersonal needs, and specific instances of interactions and conflicts. The outcome variable of interpersonal problems was assessed using a commonly utilised tool for measuring interpersonal difficulties, the Inventory of Interpersonal Problems – Circumplex (IIP-C; Alden, Wiggins, & Pincus, 1990). The IIP-C categorises participants into interpersonal traits depending on where they rate themselves along two intersecting dimensional qualities of Dominance and Nurturance, with a higher score indicating more problems in interpersonal interactions. After a 16 week treatment program, significant reductions were found in depression, anxiety, excessive worry, and interpersonal problems. These results suggest that concentrating on interpersonal aspects during therapy can improve multiple facets of GAD pathology. A problem arises in interpreting these results when a lack of any control group is considered. Therefore, while this study highlights the problems of interpersonal difficulties in those with GAD, and suggests benefits in symptomology when incorporating aspects of interpersonal treatment in therapy, the effectiveness of this interpersonal treatment beyond traditional therapy cannot be commented on. However, this inability to compare treatments has been addressed in other studies.

Newman et al (2011) compared the effects of CBT with Integrated Emotional Processing Therapy and Interpersonal Therapy (EIT), with CBT plus supportive listening (SL) on a sample of clinically diagnosed GAD patients. In order to control for interpersonal therapy

being inadvertently administered during CBT in the SL group, this treatment was limited to intrapersonal targets. Therefore, when treatment turned to interpersonal difficulties, the patient's own cognitions were analysed, not interpersonal behaviours. The authors found that patients in both groups improved in both GAD symptomology and interpersonal measures, with no difference across treatment groups at follow up. This study, therefore, does not seem to support interpersonal therapy being useful above CBT as usual for GAD. However, the authors note that, while not statistically significant, the CBT group with integrated interpersonal therapy appeared to be approaching superior end state functioning in all variables except one, and that in a larger sample size these tendencies towards better outcomes for interpersonal treatment may have been statistically significant. These results then are still somewhat supportive of an advantage in including specific interpersonal therapy into treatment. This support has been further found in another study which added aspects of interpersonal therapy into CBT.

Resvan, Baghban, Bahrami and Abedi (2008) compared the effects of CBT, CBT with interpersonal therapy (IT) and a no intervention control group on a group of female undergraduate students who met criteria for GAD. Within this study, interpersonal therapy involved analysing interpersonal problems experienced by the participants, and identifying attachment styles which may relate to these. Additionally, patients engaged in assertiveness training, were taught supportive listening skills, and learned to recognize and change maladaptive communication patterns. Therapy continued for eight, one hour session per week, with follow up one year after the end of therapy. Both treatment groups had significant reductions in worry as well as increases in happiness compared to the control group in both post treatment and follow up. Results found that, while CBT +IT was not significantly different from the CBT-only group directly following treatment, follow up assessments a year later found significant reductions in worry, and gains in happiness, in the CBT+IT group compared to the CBT only group. Therefore, the long term effects of treatment seem to be better when aspects of interpersonal therapy are included.

1.2.5. Interpersonal Problem Subtypes.

In summary, there is a growing body of research identifying problems in interpersonal relationships for people with excessive and uncontrollable worry. However, further research needs to be completed to discover the different factors involved in interpersonal interaction which may cause or maintain these problems, and which can be targeted during treatment. In an attempt to further understand the relationships between interpersonal problems and worry, a number of researchers have sought to identify the role of interpersonal subtypes in this area. Przeworski et al. (2011) built on antecedent research identifying interpersonal problems in people with GAD by describing how differences in interpersonal subtypes within GAD could better identify these difficulties. The authors explain that people suffering from GAD may react to their worries or concerns in varied ways depending on differences in interpersonal dispositions. One commonly used assessment tool for measuring interpersonal subtypes is the IIP-C (Alden et al., 1990) introduced previously. While the IIP-C can assess a total score for interpersonal problems, it can also indicate difficulties in specific areas. The IIP-C describes interpersonal problems along two intersecting dimensional qualities of Dominance and Nurturance. The 4 quadrants which stem from these two intersecting dimensions have been further sectioned into 8 descriptive subcategories labeled as Domineering, Vindictive, Cold, Socially Avoidant, Nonassertive, Exploitable, Overly Nurturant, and Intrusive. According to Przeworski et al, (2011), depending on where a person identifies themselves along these scales, they may react to the same interpersonal situation in a different manner to someone else who rates themselves differently on the same scales. For example, the authors describe someone diagnosed with GAD who scores high on the Intrusive/Overly-Nurturant subgroup of the IIP-C making excessive use of expressions of concern or reassurance when attempting to alleviate worry about the safety of a loved one. While another person with GAD, scoring highly on the Cold/Intrusive subgroup of the IIP-C may use criticism when responding to the same worry. People with different interpersonal subtypes may therefore have different interpersonal manifestations of the same worry. Extending from this, these different ways of behaving may elicit differing responses from intimate others, resulting in differing

interpersonal systems. This explanation could be especially important when evidence suggests that partner responses, such as being non-hostile/critical versus hostile/critical, may affect treatment outcome (Zinbarg et al, 2007). In this instance, a partner of someone diagnosed with GAD may choose non-hostile criticism over hostile criticism in response to a specific behaviour driven by a specific interpersonal subtype of the person with GAD. Therefore, certain interpersonal subtypes may invite behaviours more likely to maintain pathological worry than other interpersonal subtypes.

In the first of two studies, Przeworski et al. (2011) sought to confirm subtypes described in the IIP-C for a clinical GAD group by comparing these IIP-C subtypes to independently derived interpersonal clusters for GAD patients who were participating as part of a treatment outcome assessment. The authors found four distinct IIP-C clusters described as non-assertive, cold, exploitable, and intrusive. These independently discovered clusters were described by distinct interpersonal problems reflective of the IIP-C subtypes, in effect, confirming that the interpersonal subtypes described in the IIP-C accurately describe GAD patient clusters. While identifying their broad cluster, the participant's level of GAD severity, attachment styles, and co-morbidity were also compared in order to gain more descriptive information. The different clusters were not significantly different from each other on these other variables, suggesting that the identified clusters of interpersonal problems were created by distinct interpersonal styles, rather than from other associated causes. However, in study two, participants with co-morbid depression and panic disorder were also included, resulting in significant differences in other disorder symptoms between IIP-C clusters. The authors found the incidence of Social Phobia was significantly higher in the non-assertive cluster than other clusters, and also found that the avoidant cluster showed significantly higher levels of Avoidant Personality Disorder than the other clusters. This suggests that different clusters within the GAD population may also differ on co-morbid disorders, proposing other causes for distinct interpersonal problems, rather than just distinct interpersonal styles. However, as directions of causality cannot be extracted from this, these potential differences in co-

morbidities may be caused by these distinct interpersonal styles themselves, consistent with the idea of differences in interpersonal styles driving differing interpersonal problems.

Nevertheless, it may be important to control for aspects such as social anxiety and mood, as Przeworski et al. (2011) were able to do for future research into interpersonal problems.

Other studies have also found specific interpersonal subtypes in those with GAD. Eng and Heimberg (2006) found that a clinical worry group differed from a non-anxious control group in reporting higher levels of being non-assertive, overly accommodating, self-sacrificing, and intrusive. Thus, not only were distinct clusters of interpersonal problems found within a clinical worry group, but these differed from interpersonal problem clusters found in a non-anxious control group. The results of these studies have implications for therapy considering different treatment strategies may be necessary for different clusters of interpersonal styles in people with clinical worry as seen in the following studies.

Salzer, Pincus, Winkelbach, Leichsenring and Leibing (2011) identified distinct subtypes of interpersonal problems in a clinical worry group; however, they additionally found that these subtypes were differently responsive to treatment. Salzer et al, (2011) investigated the results of two forms of therapy, CBT and Short Term Psychodynamic Psychotherapy, on patient outcome. As treatment outcomes did not differ significantly between treatment groups, the two treatment groups were combined. They also grouped the participants into interpersonal subtypes which they formed using the IIP-C. They found four interpersonal subtypes within their population which they described as modestly nurturant, nonassertive, socially avoidant, and overly avoidant. They found no significant difference in mean level, or overall level, of interpersonal distress across subtypes. However, they found that all subtypes showed significantly less interpersonal distress after treatment compared to pretreatment, except for the socially avoidant cluster. This suggests that not all interpersonal styles respond to therapy to the same extent. The implications being that some interpersonal subtypes may be resistant to some treatments, or that certain treatments may not address specific problems inherent to specific subtypes. Therefore, these findings highlight the need to be aware of interpersonal

subtypes when researching treatments, and also raise awareness for the importance of adjusting treatments based on interpersonal characteristics.

Similarly, Crits-Christoph, Gibbons, Narducci, Schamberger, and Gallop (2005) analysed differences in interpersonal subtypes with a GAD patient population, and compared the effects of two different treatments. One group received Supportive-Expressive Psychodynamic Psychotherapy (SE) which emphasized interpersonal aspects such as analyzing the patients' needs and responses within interactions. The other group received non-directive supportive therapy (ST) which aimed to create an accepting, non-judgmental, and empathic environment directed at patients' emotions. In a comparison of the two therapies, changes in anxiety, depression and worry from pretreatment to post-treatment 16 weeks later were not significantly different between groups. The authors then conducted additional analyses for the SE group using the IIP-C subscales. Comparisons of IIP-C scores between pre and post treatment found significant reductions in all subscales except on the Dominance, Vindictiveness, and Cold subscales, suggesting that interpersonal therapy may not be as effective for these interpersonal traits. Additionally, the authors compared changes in IIP subscales with changes in worry, anxiety, and depression. They found that improvements in the IIP subscales of Socially Avoidant, Overly Nurturant and Intrusive were positively correlated with improvement in worry, while improvements in the Cold, Socially Avoidant, Nonassertive, Exploitable and Intrusive subscales were significantly related to improvements in anxiety. Furthermore, improvements in depression were positively correlated with positive changes in the Cold, Non-assertive, Exploitable, and Intrusive subscales. Moreover, improvements in the Vindictiveness subscale was associated with a decrease in worry at follow up 6 months later, a decrease in the Cold subscale was associated with a decrease in depression at follow up, and a decrease in the Intrusive subscale was associated with a decrease in anxiety at follow up. Therefore, within a treatment which incorporated interpersonal therapy, certain interpersonal styles were associated with

improvements in specific symptoms, highlighting the importance of continuing research into the role of interpersonal subtypes on treatment.

Borkovec, Newman, Pincus and Lytle (2002) also found that certain interpersonal subtypes may be resistant to therapy. Borkovec et al. (2002) attempted to uncover the aspects of CBT which facilitated improvements in GAD, as well as determine whether characteristics of interpersonal functioning would predict end state functioning. They compared treatment outcomes in a CBT group, with two other groups which used specific parts of the CBT treatment separately, a cognitive therapy (CT) only group, and an applied relaxation training combined with self-control desensitization group (SCD). They found that outcomes for CT and SCD treatments were not significantly different from the CBT group, suggesting that neither CT, nor SCD separately were any different from CBT as a whole in treatment efficacy. The authors then grouped participants according to the 8 subscales of the IIP-C and compared groups on end state functioning. They found that greater interpersonal problems reported before treatment predicted poorer treatment outcome for the Domineering/Controlling, Intrusive/Needy, and Vindictive/Self-centered subtypes, and suggest that intrapersonal directed treatment such as CBT may not sufficiently address interpersonal factors for these groups. They also found differences in treatment when comparing subtypes on improvement, with significant improvements in the CT condition for people higher on the cold/distant characteristics relative to other scales, and significant improvements in the SCD condition for people higher on nonassertive behaviours relative to other scales. Therefore, specific interpersonal subtypes may gain greater treatment effects from different treatment types. It is thus an area of study related to pathological worry which needs continued research.

1.2.2. Inconsistencies in the Finding of Interpersonal Problems in Excessive and Uncontrollable Worry.

However, while the necessity of a greater understanding of interpersonal problems in pathological worry has been demonstrated in extant research, there are still some

inconsistencies on the specific role interpersonal problems play within worry. Eng and Heimberg (2006) failed to find differences in perceptions of interpersonal functioning between friends of participants with pathological worry and friends of a non-anxious control group using an altered version of the Inventory of Interpersonal Problems 64 item version (IIP-64; Horowitz, Alden, Wiggins, & Pincus, 2000), and the Friendship Quality Measure (Berry, Willingham & Thayer, 2000). Not only were there no significant differences in friend's reports of interpersonal problems between a pathological worry group and a non-anxious control group, but there were also no significant differences in friendship quality between friends of pathological worry analogues, and friends of controls. However, the pathological worry participants themselves endorsed a greater amount of interpersonal problems than the control group, identifying a discrepancy in perceptions between how people with pathological worry view their interpersonal relationships, and how their friends view their relationship. This suggests a negative perception of general interpersonal functioning in people with pathological worry. This bias is important when interpreting self-report studies comparing interpersonal problems in those with pathological worry with another population. While interpersonal problems in those with pathological worry may be less problematic when measured through reports of others compared to self-report, the extent of these cognitive distortions contained within self-reports of interpersonal problems is still an important problem to be analysed. The effect these negative perceptions may have on a person's mood, as well as on a person's behaviour may be very problematic in itself, again highlighting the importance of a focus on interpersonal problems in people with pathological worry. One positive note may be that, in failing to find that friends of people with pathological worry saw their relationship negatively, these results suggest that people with high worry do not lack social skills in general, but rather, lack confidence in their interpersonal efficacy. This is supportive of a study by Ladouceur, Blais, Freeston, and Dugas (1998) which found that problem solving skills did not differ according to level of worry.

However, while the study of Eng and Heimberg (2006) suggests people with pathological worry are likely to be just as close to friends as are non-anxious controls, research on intimate and family relationships suggest differently as people with GAD are more likely to be separated or divorced than those with or without other anxiety or mood disorders (Hunt et al., 2002; Wittchen et al., 1994), showing that even objective measures of interpersonal relations show a significant problem in those with GAD. One explanation for this difference in results may be that, greater vulnerability in intimate relationships, and an increased length of time in intimate relationships, can produce more encounters with stressors, which may exaggerate GAD symptoms. Eng and Heimberg (2006) also did not take into account the type of relationship between the participant and the friend; therefore, friends may have been chosen by the participants based on a lack of history of interpersonal conflicts. The authors attempt to explain this discrepancy between self and friends rating of interpersonal functioning by suggesting that one's behaviour in an interpersonal relationship may in itself attract a certain, reciprocal interpersonal style. Therefore, if a person with GAD is insecure, and submissive, they may attract a more dominant friend, thereby maintaining a higher quality of friendship as seen in this study. Although, if this were true, there is no reason to assume that this would not happen in intimate relationships.

The finding of inconsistencies in research on interpersonal problems in GAD compared to other groups was similarly discovered by Uhmann, Beesdo-Baum, Becker, and Hoyer (2010). Uhmann et al. (2010) found that interpersonal problems were not greater in a GAD group when compared to an other- disordered group, or a non-anxious control group. Uhmann et al. (2010) used the Inventory of Interpersonal Problems (IIP; Horowitz, Alden, Wiggins, & Pincus, 2000), which was formed using the IIP-C, to investigate whether interpersonal problems were increased in a treatment seeking GAD group compared to a group with other anxiety disorders and depression (AD), as well as a non-disordered control group. They found that the GAD group's interpersonal problem profiles based on the IIP were not significantly different from those in the AD groups. In fact interpersonal problems in the GAD group were

not shown to be significantly different from the non-disordered group. Although, a problem with the interpretation of results in this study arises when considering that the authors grouped anxiety disorders other than GAD into one group, not allowing for the potentially heterogeneous interpersonal difficulties of different anxiety disorders. For example, social phobia may have a different interpersonal problem profile to other anxiety disorders such as those with specific phobias. It may be difficult then to interpret the interpersonal problem profile of this group, or to compare it with other groups. Nevertheless, these two studies show some inconsistency in evidence for a specific and increased problem of interpersonal problems in people with GAD compared to other disorders.

However, multiple studies show a prominent role for interpersonal problems in GAD when compared to control populations, and other disordered groups. Additionally, studies exploring interpersonal subtypes in those suffering from clinical levels of excessive and uncontrollable worry demonstrate the important role their identification can play in treatment outcome.

Therefore, the current study will incorporate interpersonal subtypes in a continued study of interpersonal problems in those with excessive and uncontrollable worry. While the studies presented have used samples with either self-report diagnosed, or clinician diagnosed, GAD, it has been suggested that in fact, pathological worry is best conceptualized along a continuum, with clinical levels of worry versus low levels of worry at different ends (Ruscio et al., 2001; Olatunji et al., 2010). Ruscio et al. (2001) also suggest that it may be more beneficial to consider causal and maintaining factors for differing levels of worry, rather than causes and maintenance of the presence or absence of pathological worry itself. Therefore, the present study will extend on present findings by utilising a continuum approach in measuring worry, with the potential for clinical populations to be used in subsequent studies.. Additionally, considering the potential for variables such as social anxiety to dictate differing types of interpersonal problems within a GAD sample (Przeworski et al., 2011), control variables such as social anxiety and mood will also be considered in the present study. The present study will therefore utilise an expanded conceptualisation of worry, while

incorporating important control variables, in assessing the relationship between excessive worry and interpersonal problems.

1.3. Models of Excessive and Uncontrollable Worry.

While there is emerging research identifying interpersonal difficulties in people with pathological worry, there are still gaps in our understanding of their causes. Specifically, more research is needed to understand where these interpersonal difficulties stem from, including the factors which may cause the proposed association between pathological worry and interpersonal difficulties. In order to accomplish this, knowledge of mechanisms which contribute to the development and maintenance of pathological worry itself are needed. There are multiple models attempting to explain pathological worry. Some of the most researched include the Avoidance Model of Worry (Borkovec, Alcaine, & Behar, 2004) with the competing Contrast Avoidance Model of Worry (Newman, & Llera, 2011), the Meta-cognitive Model (Wells, 2005), the Emotion Dysregulation Model (Menin, Heimberg, Turk, & Fresco, 2005), and the Intolerance of Uncertainty Model (Dugas & Robichaud, 2007).

The Meta-cognitive Model centers on worry, the main feature of GAD, and proposes two types (Wells, 2005). The first type is known as type one worry, and is focused on non-cognitive stimuli such as external situations. Type one worry is used in an attempt to problem solve distressing situations, and so encompasses positive beliefs about worry. Type two worry on the other hand is a fear that centers on the uncontrollable nature of type one worry. During type two worry the person attempts to engage in some sort of (usually unhelpful) strategy in an attempt to alleviate the negative feelings associated with type one worry, such as reassurance seeking, or checking (Wells, 2005). The fear of worry may be reinforced by a lack of confidence developed through a failure of their unhelpful strategies to reduce their worry. Evidence for this is mixed, with support both for the specificity of type one and two worries to pathological worry (Davis & Valentiner, 2000), but also a lack of difference in type two worry between pathological worry and Panic Disorder (PD) patients (Wells & Carter,

2001). Also, positive beliefs about worry have failed to distinguish between anxious but non-worried groups, and pathological worry groups (Davis & Valentiner, 2000).

Another explanation for the use of worry is described in the Avoidance Model of Worry. This model states that people may engage in a verbal linguistic worry process in order to inhibit normal, imagery-based, somatic and emotional processing of experiences (Borkovec et al., 2004). The negative consequence of this worry is a lack of exposure to, and subsequent extinction of, event-distress associations, which would reduce anxiety over time (Foa & Kozak, 1986). As potentially fearful imagery and emotions are avoided via verbal-linguistic worry, this practice is negatively reinforced as aversive/negative emotions are escaped. A positive view of worry, that worry will help prevent negative things happening, is also reinforced when a feared negative event does not transpire. Therefore, worrying is reinforced via the avoidance of aversive emotional and somatic experiences, as well as a view that negative events were prevented through the process of the worry. The use of verbal linguistic worry over imagery is supported by evidence that people with pathological worry are just as likely to engage in thought based mental content as image based content during a relaxation task, when compared to a non anxious control group, which had significantly more image based content than thought content (Borkovec & Inz, 1990). Additionally avoidance of fearful imagery and emotions is supported by a study which found that an undergraduate sample meeting criteria for pathological worry identified “distraction from more emotional topics” as a positive reason for worrying significantly more than a non anxious control group, and a group who met criteria for pathological worry except for cognitive symptoms (Borkovec & Roemer, 1995). This suggests that avoidance of emotional reactions to events as described in the Avoidance Model is often a maladaptive strategy used by people with pathological worry. However, there is another contrasting view of the role of worry. While the Cognitive Avoidance Model of worry posits that worry acts to avoid negative emotional states by concentrating on less distressing verbal linguistic experiences, the Contrast Avoidance model states that in fact, worry is a way to maintain a steady state of negative affect as a defense

against sharp increases in negative affect (Newman & Llera, 2011). A surge in negative affect from a state of positive affect may be more concerning to those with clinical levels of worry than maintaining a constant negative affect which is controllable. Additionally, Newman et al. (2013) argue that previous evidence supporting a Cognitive Avoidance Model of worry may be inaccurately interpreted. Borkovec and Hu (1990) found that worry reduces negative affectivity during a stressor task more than relaxation in a pathological worry group, which has been shown as evidence that worry is used as a tool to avoid negative affect. However, this was only found when comparing negative affect between a stressor period and a preceding worry period, not to a baseline period. In fact Llera and Newman (2010) found that absolute levels of negative affect during a stressor task were no different between groups who preceded the stressor period with either worry, relaxation or a neutral task. If worry is seen as a negative experience in itself, then a smaller increase in negative reactivity from a worry period to a stressor period, when compared to a relaxation period to a stressor period, is understandable within an Affect Contrast theoretical framework. Additionally, evidence has shown that, not only does worry not reduce negative affectivity, but it can prolong negative affectivity as measured by cortisol (Zoccolo et al, 2011, Schlotz et al, 2004). Therefore, there are multiple models attempting to explain the role of worry in dealing with negative affect.

Related to this, the Emotion Dysregulation Model, attempts to explain why these emotions cause so much distress in people with pathological worry, leading to maladaptive strategies as coping mechanisms. The Emotion Dysregulation Model proposes that people with pathological worry have difficulty coping with distressing emotional stimuli due to systematic problems in the experience, expression, and understanding of emotions (Menin et al., 2005). People with pathological worry experience an increased intensity of negative emotions (Mennin et al., 2005; Mennin, Holaway, Fresco, Moore, & Heimberg, 2007), increased fear of negative emotions (Turk, Heimberg, Luterek, Mennin, & Fresco, 2005; Mennin et al, 2005), and a poorer understanding of their emotions than those without pathological worry, including a reduced ability to identify, describe, and gain useful information from emotions (Mennin et

al., 2005; Mennin et al., 2007). People with pathological worry view negative emotions as more threatening, and engage in unhelpful emotion regulation strategies that can make their emotional state worse, such as excessive worry (Mennin, et al., 2005; Mennin et al, 2007). Negative emotions are therefore harder to cope with when compared to those without an emotion regulation problem, potentially leading to an attempt to avoid, rather than engage with both the stimuli which has produced that negative feeling, as well as the negative feeling.

1.4. The Intolerance of Uncertainty Model of Excessive and Uncontrollable Worry.

While the Meta-cognitive model, Emotion Regulation model, Avoidance model, and Contrast Avoidance Model of pathological worry are helpful in understanding different mechanisms that could be causing and maintaining excessive worry, these explanations tend to center more on intrapersonal mechanisms, rather than the individuals interpersonal response. As this study is investigating interpersonal problems in people with excessive worry, it is more helpful to look at theories which are better able to explain difficulties in interpersonal scenarios. One theory which seeks to explain why someone with pathological worry may respond negatively to external situations, such as interpersonal interactions, is the Intolerance of Uncertainty model which tends to concentrate more on distress over external situations themselves.

The Intolerance of Uncertainty model proposes that people with pathological worry have difficulty tolerating uncertain situations or events, leading to higher levels of distress than people who have a better tolerance for uncertainty (Dugas & Robichaud, 2007). The other previously described models of excessive worry are also compatible with an intolerance of uncertainty based understanding of excessive worry. The Emotion Dysregulation Model explains that those with clinical levels of worry may have heightened and unmanageable experiences of negative affect. This problem with emotion regulation may be a contributing factor to a fear of uncertainty, leading to the use of worry to ameliorate this distressing experience. The Meta-Cognitive Model of worry explains that those with excessive and uncontrollable worry are actually worrying about concerning thoughts of problematic situations, rather than the problematic situations themselves (Wells, 2005). In those high on

intolerance of uncertainty, meta-cognitive worry may concentrate on the person's distress associated cognitions concerning their intolerance of ambiguous situations rather than the situation itself. Additionally, while the Cognitive Avoidance Model would suggest that worry is used to avoid the negative affect created by an intolerance for uncertainty in the face of an uncertain situation, the Affect Contrast Model would suggest that worrying acts to maintain a negative affect in order to prevent a drop from a positive state to a negative one, which is even more distressing. Therefore, multiple explanatory theories on pathological worry can all be used to explain how someone with intolerance of uncertainty may use excessive and uncontrollable worry to alleviate distress.

People with a high intolerance of uncertainty view any potentially ambiguous events or situations as difficult to overcome (Buhr & Dugas, 2006). This intolerance can lead to the creation of a large amount of "what if...?" questions, which may heighten distress at the presence of uncertainty (Dugas & Robichaud, 2007; Dugas, Gagnon, Ladouceur, & Freeston, 1998), prompting the use of excessive worry to alleviate the distress (Dugas et al., 2005). Supporting this, Koener and Dugas (2008) found that, within an undergraduate university sample, participants in a high intolerance of uncertainty group appraised an ambiguous situation more negatively than a low intolerance of uncertainty group. Moreover, they found that differences in the amount of intolerance of uncertainty predicted differences in their interpretation of ambiguous events, but not in their interpretation of positive or negative events. In fact the authors found that intolerance of uncertainty was a better predictor of differences in interpretation of ambiguous events than GAD symptoms. They also found that intolerance of uncertainty was the only significant predictor of how ambiguous situations were appraised in a multiple regression analysis that included both depression and worry as predictors. These results highlight the fact that intolerance of uncertainty is an important part of how a person views ambiguous situations specifically. Therefore, as intolerance of uncertainty has been shown to be an important factor in distinguishing GAD patients from non clinical participants (Dugas et al., 1998), and predicts GAD symptoms in a non-clinical

population (Tan, Moulding, Nedeljkovic, & Kyrios, 2010), further theory on how intolerance of uncertainty affects pathology in those with clinical worry is necessary. One way high levels of intolerance of uncertainty may affect those with pathological worry is that, when confronted with an uncertain situation, they respond to the distress associated with the uncertainty, rather than the situation itself. Intolerance of uncertainty itself may lead to maladaptive approaches to distress resolution, such as excessive worry, aimed at reducing related distress, rather than producing a problem specific solution (Freeston, Rheume, Letarte, Dugas, & Ladouceur, 1994).

Highlighting this link between intolerance of uncertainty and worry, intolerance of uncertainty has been shown to be more related to worry, a central characteristic of GAD, than symptoms of other anxiety disorders (Sexton, Norton, Walker, & Norton, 2003). Sexton et al. (2003) used a path analysis to assess the role of intolerance of uncertainty in the anxiety related symptoms of panic, health anxiety, obsessions/compulsions, and worry, and found that intolerance of uncertainty had a larger effect on worry over other anxiety symptoms. Similarly, Laugesen, Dugas, and Bukowski, (2003) found intolerance of uncertainty to be more related to worry than beliefs about worry, avoidance (measured through thought suppression), and negative problem orientation. They also found that intolerance of uncertainty predicted variance in worry above that predicted by worry beliefs, thought suppression, negative problem orientation, and GAD related worry themes. Additionally, they found that intolerance of uncertainty was better able to discriminate between a moderate and high worry group (according to scores on the Penn State Worry Questionnaire; Meyer, Miller, Metzger, & Borkovec, 1990), than thought suppression, positive beliefs about worry, and negative problem orientation. Intolerance of uncertainty is thus seen as one of the most influential factors in a person's tendency to worry.

Further extending this relationship, Ladouceur, Gosseling and Dugas (2000) engaged participants in a roulette game, with winnings benefitting charity, to show that changes in amount of uncertainty can affect changes in worry. The authors manipulated intolerance of

uncertainty by controlling the amount of uncertainty the participants felt about the charity receiving money. The low intolerance of uncertainty group was told that they had a good chance of winning, and it was acceptable if they lost as the charity would eventually get their money anyway. While the high intolerance of uncertainty group was told that their chances were low, so the charity would probably not get as much money as they did last year. They found that levels of uncertainty were increased as expected in the high intolerance of uncertainty group compared to the low intolerance of uncertainty group. Importantly, they also found that levels of worry were also increased in the high intolerance of uncertainty group, highlighting the relationship between worry and intolerance of uncertainty, and demonstrating the causal effect of an increase in uncertainty causing an increase in worry.

However, not all studies have supported a specific link between intolerance of uncertainty and GAD associated worry, as compared to other disorders. Holoway, Heimberg, and Coles (2006) found that, while a group with co-morbid GAD and OCD group had higher levels of intolerance of uncertainty than an OCD only group, comparisons between GAD only and OCD only groups found no significant differences in levels of intolerance of uncertainty. Therefore, intolerance of uncertainty may not be a factor which differentiates GAD from OCD, and potentially, based on these results, should be understood in the context of anxiety disorders in general. However, as detailed above, the majority of research findings support the important individual role of intolerance of uncertainty on pathological worry, and continued research is needed concerning the role of intolerance of uncertainty specifically in pathological worry. Therefore, the current study will be seeking to extend on previous research on interpersonal problems in pathological worry by incorporating the relationship between excessive and uncontrollable worry, and intolerance of uncertainty, into a study of interpersonal problems at an interpersonal subtype level.

1.4.1. Intolerance of Uncertainty and Interpersonal Functioning.

Extending on this relationship between intolerance of uncertainty and worry, extant research also suggests a role for intolerance of uncertainty in interpersonal functioning. Butzer and

Kuiper (2006) employed an undergraduate student population to assess the effect of intolerance of uncertainty, anxiety, and depression on social comparison, with social comparisons being measured by how much a person compares themselves to others they consider to be superior or inferior to them in different aspects (accomplishments, ability, etc.). A path analysis found that intolerance of uncertainty mediated the relationship between anxiety and increased social comparison. These results suggest intolerance of uncertainty may lead to general and upward social comparisons, but not downward social comparisons in people with anxiety. While this study does not address interpersonal functioning specifically, it suggests that social interactions, such as social comparisons, are affected by intolerance of uncertainty.

Carleton, Collimore, and Asmundson (2010) more directly assessed the role of intolerance of uncertainty in negative interpersonal interactions. Carleton et al. (2010) measured intolerance of uncertainty as well as symptoms of anxiety disorders including social phobia (SP), and GAD in a community sample. They found that intolerance of uncertainty was significantly related to GAD symptoms, as well as Social Anxiety. They also found that the inhibitory anxiety subscale of the Intolerance of Uncertainty Scale 12 item version (IUS-12; Carleton, Norton, & Asmundson, 2007) which measures how much anxiety stops a person from doing things was found to account for more than half the variance in social interactions and performance anxiety symptoms in this sample. The authors also found that people with symptoms of both social anxiety and GAD were higher on intolerance of uncertainty than those with symptoms of either GAD, or social anxiety alone. While this may be more suggestive of a role for intolerance of uncertainty in social anxiety, it highlights the role of intolerance of uncertainty in social problems in people with anxiety. Therefore, while the importance of identifying and controlling for social anxiety in future studies is further highlighted through these results, the findings are consistent with the potential role of intolerance of uncertainty in interpersonal problems.

Based on these studies showing a relationship between intolerance of uncertainty and interpersonal factors, and since interpersonal interactions as social situations are also generally uncertain (Dugas, Freeston, & Ladouceur, 1997), intolerance of uncertainty may play a part in how people with excessive and uncontrollable worry react in interpersonal situations. Therefore, the present study proposes that, for people with high intolerance of uncertainty, worry may be used as a maladaptive coping strategy in interpersonal situations. Specifically, extending the noted relationships between worry and interpersonal functioning, and intolerance of uncertainty and worry, and taking into account the suggestion of a relationship between intolerance of uncertainty and interpersonal functioning, the current study will be predicting that worry may act as a mediating variable between intolerance of uncertainty and interpersonal functioning. The current study will be able to identify relationships, not just between excessive and uncontrollable worry and interpersonal problems, but also between intolerance of uncertainty and interpersonal problems itself. The present study is thus addressing an important gap in research between intolerance of uncertainty and interpersonal problems. The importance of including control variables such as social anxiety into a study of such is also highlighted given the noted potential confounding effect of social anxiety in the relationship between intolerance of uncertainty and interpersonal problems.

1.5. Attachment, Intolerance of Uncertainty, and Excessive and Uncontrollable Worry.

Expanding on the noted path between worry and intolerance of uncertainty, a logical progression in understanding clinical worry is exploring causes of initial development. From a developmental perspective, Bowlby's (1973) theory of attachment has been proposed as an explanation of pathological worry (Cassidy, Lichtenstein-Phelps, Sibrava, Thomas, & Borkovec, 2009; Viana, & Rabian, 2008), and can potentially explain the origins of the intolerance of uncertainty that leads to subsequent interpersonal problems.

Bowlby (1973) suggests that an infant is biologically driven to seek proximity to its parents in order to survive. This need is heightened during times of stress. While attempting to gain

comfort from parents in stressful situations, a child's confidence in their parents' availability and their own security may either increase or decrease depending on the amount and type of attention they receive. In situations where appropriate comfort from the parent is lacking or inconsistent, the child may grow increasingly anxious, and fail to gain confidence in their ability to approach and deal with the outside world. Without this confidence, the child subsequently views the world as a frightening place and themselves as incompetent in rectifying problems. The development of this view of the world has been suggested as the basis for trait anxiety, and GAD more specifically, into adulthood (Cassidy et al., 2009). Cassidy et al. (2009) suggest that childhood attachment assumes a dominant role in a person's tendency to experience worry. They propose that this early developmental relationship dictates how a person will think about, and respond in times of stress. Therefore, stemming from an inconsistent or inadequate attachment, a child may view problems as frightening and themselves as inadequate in alleviating these stressful situations, leading to an intolerance of uncertainty and the development of worry in order to deal with this. In support of this, the association between attachment problems and excessive worry has already been demonstrated empirically in multiple studies.

Hale, Engels, and Meeus, (2006) assessed the role of multiple attachment variables including; parental over control, parental rejection, alienation, trust and communication in a sample of adolescents. All variables except communication were significantly related to pathological worry scores, and in a regression analysis, perceived parental rejection and alienation were found to be the best predictors of adolescent GAD symptoms. Similarly, Muris, Meesters, Merckelbach, and Hulsenbeck (2000) found a relationship between attachment and worry in children between the ages of nine and 13. They also assessed for attachment type, worry and specific parental rearing factors of emotional warmth, rejection, control and anxious rearing. Insecure attachment, as well as perceived rejection and anxious rearing were found to significantly predict worry in participants. Together, these results suggest that certain

parental styles during development may thus be important in shaping anxious behavior, specifically around excessive worry symptoms associated with GAD.

Additionally, Viana and Rabian (2008) also found that perceived parental alienation was significantly related to worry in a sample of undergraduate students, supporting the proposed link between attachment and worry. However, they also found that this relationship was not significant when controlling for anxiety sensitivity, described as the fear of anxiety related sensations, highlighting a role for different factors in the development of worry in those with problems in attachment related areas. The path from parental style to worry may thus not be a direct one. Some children may be more sensitive to the anxious effects of a rejecting or inconsistent parental relationship, thus developing a fear, or lack of confidence in themselves at a lower threshold, or faster rate, than someone who was not as vulnerable. Additionally, parent modeling also plays a significant role in the development of anxiety and worry. Parents who display anxious behaviours may pass on these behaviours to their children. For example, Muris, Meesters, Schouten, and Hoge (2004) showed that anxious rearing and overprotection from parents were significantly related to higher levels of anxiety in a sample of pre-adolescent children. The path from attachment to anxiety is therefore a complicated one. Nevertheless, the relationship between attachment problems and worry has been suggested in multiple studies. Theoretically, this experience with rejecting, inconsistent, or anxious rearing may cause an intolerance of uncertainty, leading to the development of worry as a coping strategy.

Providing support for this, a study by Zlomke and Young (2009) found evidence for the mediating role of intolerance of uncertainty in the relationship between attachment and worry. Zlomke and Young (2009) assessed the results of self-report questionnaires on university students and found that worry was related to perceived parental anxious rearing and parental overprotection/ control. However, they also found that the relationship between perceived anxious rearing, and worry was mediated by intolerance of uncertainty. Parents who are anxious rearers may teach their children that problems and experiences can be dangerous and

unsolvable, increasing the likelihood of intolerance of uncertainty, whilst also limiting their child's attempts to develop coping strategies of their own, potentially leading to worry as a maladaptive coping strategy. These results are consistent with the contention of Cassidy et al. (2009), which states that development of a lack of confidence in dealing with problems in childhood can stem from attachment. Expanding on this, this lack of confidence can create an intolerance of uncertain situations, leading to the development of worry as a way to deal with this.

However, some seemingly contradictory findings have also been seen. Tan et al., (2010) used the role reversal/enmeshment subscale of the Perception of Adult Attachment Questionnaire Short Form (PAAQRR-60; Cassidy et al., 2009) to assess the relationship of parentification (also called role-reversal, where the child performs the role of the parents within the family system) to pathological worry in non-clinical parents. While parentification was significantly related to pathological worry, this relationship became non-significant when controlling for depressive symptoms. Therefore, role reversal may be important to the development of depressive symptoms (or vice-versa) which are commonly co-morbid with pathological worry, rather than the development of pathological worry itself. However, these results do not rule out the role of attachment as such in the development of pathological worry, rather they highlight one potential attachment style which may be more related to depression than to pathological worry.

Therefore, there is a growing amount of research demonstrating the relationship between difficulties in the attachment process and the development of worry, which our study will attempt to further identify. Consequently, taking into account evidence supporting the mediating role of intolerance of uncertainty in the relationship between attachment and excessive and uncontrollable worry, this study will aim to conduct a path analysis explaining that interpersonal problems in those with excessive worry may stem from a development of intolerance of uncertainty associated with attachment problems. The current study is the first to assess the relationships between different subscales of attachment, excessive and

uncontrollable worry, intolerance of uncertainty, as well as different groups of interpersonal problems, while controlling for important variables of social anxiety and mood.

1.6. Study Aims.

The aim of this study is to explore a path from attachment processes to interpersonal problems in people with excessive worry (See Figure 1). Studies have found that there is a clear pattern of interpersonal difficulties in people with pathological worry. Those with excessive and uncontrollable worry are more likely to have problems with their family life compared to other disorders (Stein & Heimberg, 2004), rate their marital relationship more negatively than those with other mental health disorders (Whisman et al., 2000), and perceive their families as more dysfunctional than those without excessive worry (Ben-Noun, 1998). Further, treatment studies have found that partner interactions (Zinbarg et al., 2007), and quality of marital relationships (Yonkers et al., 2000), affect end state functioning in those with pathological worry. Research has also shown that an expanded understanding of interpersonal problems is needed for problem identification in those with excessive and uncontrollable worry, with interpersonal subtypes classification being an important factor in treatment efficacy (Borkovec et al., 2002; Eng & Heimberg, 2006; Przeworski et al., 2011; Salzer et al., 2011; Crits-Christoph et al., 2005). In attempting to develop a theory investigating this pattern of interpersonal difficulties, intolerance of uncertainty, and its potential for explaining problems within social interactions (Butzer & Kuiper, 2006; Carleton et al., 2010), stands out amongst existing intrapersonally focused explanatory mechanisms of worry. Intolerance of uncertainty describes a person's inability to cope with uncertain situations, and has been found to be a significant problem in people with excessive and uncontrollable worry (Tan et al., 2010; Sexton et al., 2003). Expanding on this causal path, theory also offers a developmental explanation for high intolerance of uncertainty and worry. Cassidy et al. (2009) suggests that a parent's attachment behaviours towards a child during developmental years can cause an inability to deal with uncertainty, causing an increase in anxiety at uncertain situations, potentially leading to a tendency to worry. Worry has already been shown to be related to

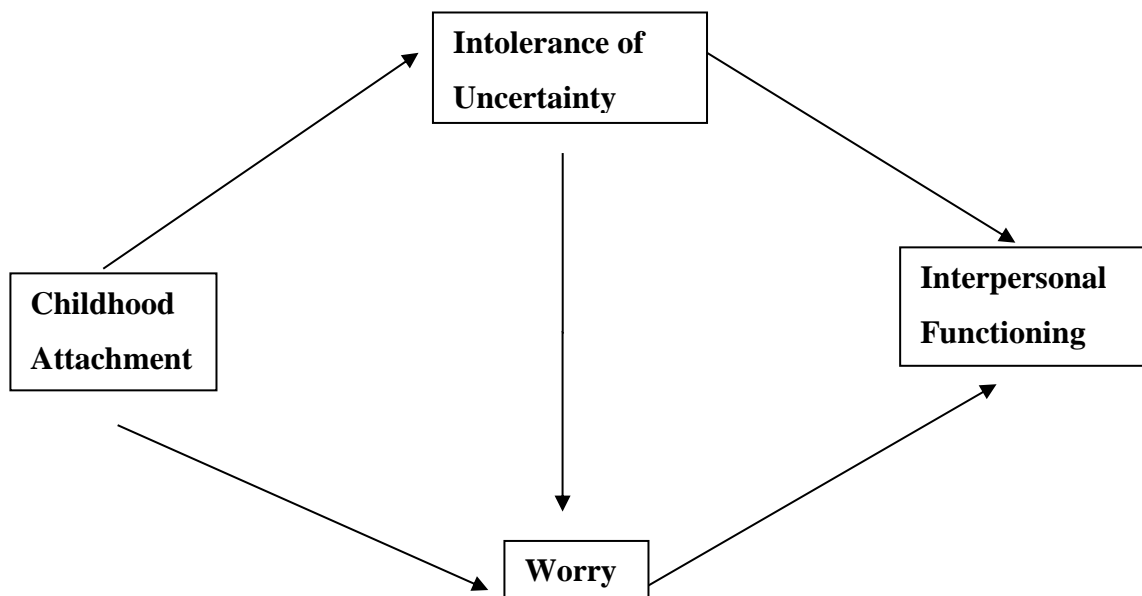
problems in the attachment process, with insecure attachment, perceived rejection, parental alienation and anxious rearing shown to predict worry (Muris et al., 2000; Viana & Rabian, 2008; Hale et al., 2006; Muris et al., 2004). It is thus proposed that negative parent-child relationships may result in an intolerance of uncertainty. People with high levels of intolerance of uncertainty may develop increased levels of worry, and find ambiguous situations, such as interpersonal interactions, as particularly stressful, affecting interpersonal interactions. This may result in the increase in difficulties in interpersonal functioning found in people with pathological worry. The present study will consequently be assessing excessive and uncontrollable worry as the main feature of GAD (APA, 2000). Excessive worry has been seen as the best core indicator of GAD (Andrews et al., 2010). Additionally, studies which have analysed whether pathological worry was better represented by discrete categories, or by a single continuum, have found that a dimensional measure is the best indicator of worry, with normal and pathological worry at either end (Ruscio et al., 2001; Olatunji et al., 2010). Therefore, the current study will assess excessive and uncontrollable worry as a measure of clinical levels of worry, rather than differentiating between clinically diagnosed GAD versus a non anxious control group. An undergraduate population will thus be used as it is expected that this will represent both ends of the spectrum.

It is therefore hypothesized that

- 1) Participants who report higher levels of negative experiences of childhood attachment will also report higher levels of intolerance of uncertainty and worry than those who report lower levels of negative experiences of childhood attachment.
- 2) Participants who report higher levels of intolerance of uncertainty will also report higher levels of worry than people who report lower levels of intolerance of uncertainty
- 3) Intolerance of uncertainty will act as a mediator between self-reported attachment problems and worry.

- 4) Participants who report higher levels of intolerance of uncertainty will report higher levels of interpersonal difficulty than those who report lower levels of intolerance of uncertainty.
- 5) Participants who report higher levels of worry will report higher levels of interpersonal difficulties than people who report lower levels of worry.
- 6) Worry will act as a mediator between intolerance of uncertainty and interpersonal difficulties.
- 7) Exploratory Path: There will be an indirect effect from attachment to interpersonal problems.

Figure 1: Overall Model:



2. METHOD

2.1. Participants.

Three hundred and seventy seven undergraduate psychology students were recruited for this study. There were 267 (71%) females, and 110 (29%) males. Seventeen participants did not correctly input their date of birth, and were left out of the subsequent age analysis.

Participants had a mean age of 19.16 (SD = 2.95) ranging from 15 – 49, which did not differ significantly between genders ($t(358) = 0.21$; Male mean age = 19.21, SD = 1.96, and female mean age = 19.14, SD = 3.27). The only inclusion criterion was competency in English.

Regarding appropriate sample size, Bentler and Chou (1987) recommends a goal ratio of sample size to the number of free parameters as five to one. Additionally, Kenny (Feb, 2014) comments that, while a sample size of 200 is a goal for SEM research, lower sample sizes can be used for models with no latent variables. The current study had an approximate ratio of sample size to free parameters of 4:1, therefore, the current sample was seen to be of appropriate size.

2.2. Procedure.

The study and online procedure were approved by the university internal ethics review board (Appendix K). Participants entered into the study using an online data collection system which they logged into using their university ID and password. They agreed to participate online after reading an advertisement provided in Appendix A, and provided consent by choosing to continue answering the questionnaires after viewing the details of the study. Participants received credit towards a first year psychology course upon completion. The study was able to be accessed from any internet access point and could be discontinued at any time; however, discontinuation resulted in not being accredited with completion. After consenting, participants subsequently entered their date of birth and gender, then completed, in order, the Depression Anxiety Stress Scales 21 item version (DASS 21; S. Lovibond & P.

Lovibond, 1995), Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998), Inventory of Interpersonal Problems – 32 item (IIP-32; Horowitz, Alden, Wiggins & Pincus, 2000), Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990), Intolerance of Uncertainty Scale (IUS; Freeston, Rheume, Letarte, Dugas, & Ladouceur, 1994), and then the Perceptions of Adult Attachment Questionnaire (PAAQ; Lichtenstein & Cassidy, 1991), with 178 questions overall. The DASS and SIAS were administered first as they were most vulnerable to influence by other questionnaires as they are a measure of mood state and emotion. The IUS was completed after the PSWQ as the present study has theorised that IUS leads to worry. Therefore, it was thought that participant reflection on uncertainty may raise self-reported levels of worry. The PAAQ was completed last in order to prevent any emotions which may be activated by thinking about childhood relationships with a primary caregiver influencing answers on subsequent questionnaires. Upon completing the questionnaires, participants were emailed a debrief form which told them about the aims of the study.

As the study was completed online, and could be done so from any internet access point, there was a lack of environmental control. Specifically, factors such as distractions, and attention spent on the study were potential confounding factors. Therefore, the time taken to complete the study was recorded as a way to measure and control for differences in attentiveness in the statistical analysis. A time of 15 minutes, derived from a minimum of five seconds per question (with 178 questions overall) was used as a conservative threshold for a participant completing the questionnaires with adequate attention, after careful consideration of the possible range of reading and processing speeds.

Participants were not screened for clinical disorders, and therefore, this was unable to be controlled for. However, the current study aimed to gain a sample which was diverse, and represented the range which would be found in an undergraduate population. Thus, it was expected that there would be the same amounts of clinical disorders in the present sample as in an undergraduate population. Additionally, the study included a measure of current mood

(DASS-21), and measure of social anxiety (SIAS), allowing the experimenters to control for participant's mood state and social anxiety. The DASS has been shown to correlate with both the IUS, and the PSWQ (Tan et al., 2010; Zlomke, 2009). Attachment has also been shown to be correlated with depression (Tan, et al., 2010). Additionally, measurements of mood and anxiety have been shown to be correlated with the IIP (Horowitz ., 2000), with social phobia found to be especially relevant to interpersonal problems (Przeworski et al., 2011); Horowitz., 2000). Studies have also shown a relationship between social phobia and participants scores on the PSWQ (McEvoy, & Mahoney, 2012), IUS (Boelen, & Reijntjes, 2009), and IIP (Cain, Pincus, & Holforth, 2010). Thus, the inclusion of measures of these control variables will allow their effects on other variables to be separated.

2.3. Materials (Provided in Appendix B).

2.3.1. Intolerance of Uncertainty Scale (IUS; Freeston, Rheume, Letarte, Dugas, & Ladouceur, 1994).

The IUS measures emotional and behavioral reactions to ambiguous situations in everyday life. It was developed to assess different aspects of a person's intolerance of uncertainty including the emotional and behavioural consequences of being uncertain, how uncertainty reflects on a person's character, expectations of a predictable future, frustration at an unpredictable future, attempts to control the future, and all or nothing responses to uncertain situation. It is a 27 item self-report questionnaire rated by participants on a fivepoint Likert-type scale from "1-not at all typical of me", to "5-very typical of me".

Freeston et al. (1994) found that the IUS was able to discriminate a GAD group ($M = 63.3$, $SD = 18.3$), based on DSM-III-R criteria, from a non anxious control group ($M = 44.3$, $SD = 10.5$), and a group who met the somatic criteria only for GAD ($M = 54.6$, $SD = 11.5$).

Additionally, convergent validity was found in an undergraduate population, with the IUS found to be moderately correlated with the Scale of Tolerance-Intolerance of Ambiguity (TIA; Budner, 1962), which assesses tolerance of ambiguity ($r = 0.42$; Buhr & Dugas, 2006).

The test-retest reliability of 0.78 over five weeks is good (Dugas, Freeston, & Ladouceur,

1997). The internal consistency of this instrument is excellent, Cronbach's $\alpha = 0.91$ (Freeston et al., 1994), and was similarly excellent at 0.96 for the present study.

2.3.2. Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998).

The SIAS is a 20 item measure assessing cognitive, affective, and behavioral reactions to interpersonal situations, for example, speaking to someone in authority or mixing with other people. It utilises a fivepoint response scale with answers ranging from "0-Not at all characteristic of me", to "4-Extremely characteristic of me".

The SIAS was partially developed from modified items of extant anxiety questionnaires, and partially from interviews with socially anxious individuals. Mattick and Clarke (1998) found that a social phobia group scored significantly higher on the SIAS ($M = 34.6$, $SD = 16.4$), than an agoraphobic group ($M = 26.0$, $SD = 13.6$), a community group ($M = 18.8$, $SD = 11.8$), and a group of undergraduate students ($M = 19.0$, $SD = 10.1$).

Convergent validity for the SIAS has also been found to be moderate to high, correlating significantly with the Fear of Negative Evaluation Scale (FNES; Watson & Friend, 1969; $r = 0.66$), the Social Avoidance and Distress Scale (SADS; Watson & Friend, 1969; $r = 0.74$), Fear Questionnaire (FQ; Marks & Mathews, 1979; $r = 0.66$), State Trait Anxiety Inventory - State (STAI-S; Spielberger et al, 1970; $r = 0.45$), and the State Trait Anxiety Inventory -Trait (STAI-T; Spielberger et al, 1970; $r = 0.58$). The SIAS also showed high internal consistency (Cronbach's $\alpha = 0.94$), and high test-retest correlations ($r = 0.92$) over a four week period. Cronbach's α obtained in the present study was similarly high at 0.92.

2.3.3. Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990).

The PSWQ is a 16 item questionnaire which assesses a person's tendency to engage in excessive, uncontrollable and generalized worry, using a five point likert scale ranging from "1-not at all typical of me" to "5-very typical of me". The items for the PSWQ were generated from theoretical views of worry, as well as clinical and research experience, and diaries of GAD clients completed during a therapy outcome study (Meyer et al., 1990).

The PSWQ correlated highly with the STAI-Trait ($r = 0.64$), and the STAI-State ($r = 0.49$), as well as the Cognitive Somatic Anxiety Questionnaire total (CSAQ; Schwartz et al., 1978; $r = 0.69$). Scores on the PSWQ were also significantly related to the percentage of the day spent worrying ($r = 0.64$; Meyer et al., 1990). Those who met criteria for GAD score significantly higher on the PSWQ ($M = 64.1$, $SD = 8.6$) than those who met criteria for PTSD ($M = 57.4$, $SD = 7.3$). When comparisons were made between participants who met all criteria for GAD, some criteria, and none of the criteria, those who met all criteria were significantly higher on the PSWQ than those who met some ($M = 52.3$, $SD = 12.2$), and those who met none ($M = 40.1$, $SD = 11.8$; Meyer et al., 1990). Test-retest reliability over an 8 – 10 week period was high ($r = 0.92$), and internal consistency was high ($\alpha = 0.94$; Meyer et al., 1990). Internal consistency in the present study was $\alpha = 0.92$ which is also excellent.

2.3.4. Depression Anxiety Stress Scales 21 item version (DASS- 21; S. Lovibond & P. Lovibond, 1995).

The DASS-42 is a questionnaire designed to assess the negative emotional states of depression, anxiety, and stress. The depression scale measures dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The Anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experiences of anxious affect, while the Stress scale assesses levels of chronic non-specific arousal. There are 14 items per scale, and a four point severity scale is used which ranges from “0 – did not apply to me” to “3 – applied to me very much” to indicate the extent to which specified symptoms were problematic for the participants over the past week.

Convergent validity has been established with the DASS-42 anxiety scale highly correlated with the Beck Anxiety Inventory (BAI; Beck & Steer, 1990; $r = 0.81$), and the DASS-42 depression scale highly correlated with the Beck Depression Inventory (BDI; Beck, & Steer, 1988; $r = 0.74$; S. Lovibond & P. Lovibond, 1995). Crawford and Henry (2003) assessed validity on a sample of the general adult population and found that the DASS-42 depression subscale correlated highly with the depression subscales of the Personal Disturbance Scale

(sAD), a 14 item measure assessing anxiety and depression derived from the Delusions-Symptoms States inventory (DSSI; Bedford & Foulds, 1978; $r = 0.78$), and the depression subscale of the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983; $r = 0.66$). They also found that the anxiety subscale of the DASS correlated highly with sAD anxiety scale ($r = 0.72$), and HADS anxiety subscale ($r = 0.62$). The internal consistencies (Cronbach's α s) of the DASS-42 depression, anxiety, and stress scales were excellent (.91, .84, and .90 respectively; S. Lovibond & P. Lovibond, 1995).

The DASS-21 is a shortened version of the DASS-42. The items included were chosen so as to best represent all subscales. The DASS-21 may be directly compared to the DASS-42 version by multiplying the scores by two (S. Lovibond and P. Lovibond, 1995). An exploratory factor analysis found excellent factor structure for the DASS-21 (Antony, Birling, Enns, & Swinson, 1998). Antony et al. (1998) assessed the validity of the DASS-21 on a clinical population and found that the DASS-21 Depression subscale was highly correlated with the BDI ($r = 0.79$), the Anxiety subscale was correlated with the BAI ($r = 0.85$), and the Stress subscale was correlated with the State Trait Anxiety Inventory-Trait (STAIT-T; Spielberger, 1983) which can assess a person's tendency to see stressful situations as threatening ($r = 0.68$).

The internal consistencies (Cronbach's α s) of the DASS-21 Depression, Anxiety and Stress scales were excellent (0.81, 0.73, 0.81 respectively; P. Lovibond & S. Lovibond, 1995). In the present study Cronbach's α s obtained were $\alpha = 0.88$ for the depression subscale, $\alpha = 0.80$ for the anxiety subscale, $\alpha = 0.85$ for the stress subscale, and $\alpha = 0.92$ for the DASS-21 total.

2.3.5. Inventory of Interpersonal Problems – 32 item (IIP-32; Horowitz, Alden, Wiggins & Pincus, 2000).

The IIP 64 item version was developed by taking note of interpersonal difficulties described by a sample of patients at the Stanford University Medical Center. These problems were studied and used to form an inventory of interpersonal problems. This inventory, while created from interviews with patients, also related to the ideas derived from Harry Stack

Sullivan (1953). In questionnaire form, the IIP's items are phrased as, inhibitions or skill deficits beginning with statements like "it is hard for me to...." or "I can't....", or as excesses or compulsions phrased as "I can't stop...." or "I ... too much". The questions are formed along two principal dimensions, Affiliation/Nurturance that ranges from hostile to friendly behaviours, and Control/Dominance that ranges from yielding to controlling behaviours as described in the IIP-C (Alden et al., 1990). These dimensions were demonstrated in two studies which used multidimensional scaling (Horowitz, 1979), and confirmatory factor analysis (Horowitz, L., Rosenberg, S., Baer, B., Ureno, G., & Villasenor, V., 1988). The two dimensions can be graphed along the x and y axis, with a circle formed. A principal components analysis was used, with each dimension used as a factor, to find each items load onto each factor. The circle was then divided into eight sectors, and the 8 items which best represented that sector were identified to create the eight subscales. Different domains of interpersonal problems can be defined in terms of these subscales which are a combination of the two original dimensions. Factor loadings of the eight subscales onto the two underlying dimensions when placed in the circumplex space indicate that the factors are orthogonal. Each scale contained 8 items, with the entire inventory made up of 64 questions (Horowitz et al., 1988).

The eight subscales were described as Domineering/Controlling, Vindictive/Self-Centered, Cold/Distant, Socially Inhibited, Nonassertive, Overly Accommodating, Self-Sacrificing, and Intrusive/Needy. The IIP-64 items are answered through a five point likert scale ranging from 0-"not at all", to 4- "extremely" with no reverse scored items, therefore, scores for each scale range from 0 - 32. High scores on the Domineering/Controlling subscale describe someone who may be controlling or manipulative, with difficulty relaxing control. On the Vindictive/Self-Centered subscale, high scores indicate problems of hostile dominance and readily experiencing and expressing anger and irritability, while on the Cold/Distant subscale high scores suggest minimal feelings of affection for, and little connection with, other people. Elevated ratings on the Socially Inhibited subscale indicate feelings of anxiety, timidity or

embarrassment in the presence of other people, whereas on the Nonassertive subscale higher scores may point to a severe lack of self-confidence and self-esteem. High scores on the Overly Accommodating subscale may suggest an excess of friendly submissiveness in order to please other people, while high scores on the Self-Sacrificing subscale suggest someone who is excessively affiliative, easily connects with others, but who has difficulties establishing and maintaining boundaries with others. High scores on the Intrusive/Needy subscale may indicate someone who is a friendly, outgoing, and sociable, however, needs to feel engaged with people and imposes their presence on others attention (Horowitz et al., 2000).

The IIP-32 is a shorter version of the original 64 item version which preserves the four items of each scale with the highest item total correlation, and is answered on a five point likert scale from “0- not at all”, to “4-extremely”. Pearson’s correlations on the IIP-64 with the IIP-32 were high, with total scores showing a correlation of 0.98, and subscales ranging from 0.88 to 0.95. Validity was tested by assessing correlations between the IIP and scores on a measure of mental health functioning commonly used with psychiatric patients, the Behavior and Symptom Identification Scale (BASIS-32; Eisen, Dill, & Grob, 1994). The BASIS-32 total score was highly correlated with the IIP-32 total score ($r = 0.66$). The IIP-32 total score also correlated with the relation to self/others subscale ($r = 0.62$), and Daily living/Role Functioning subscale (0.50) of the BASIS-32. The IIP-64 was also mildly to moderately correlated with a measure of an individual’s level of satisfaction with their social situation, the Social Adjustment Scale-Self Report (SAS-SR; Weissman & Bothwell, 1976) The IIP-64 was highly correlated with the Social and Leisure subscale ($r = 0.48$), and the Family Unit subscale of the SAS-SR ($r = 0.43$), and mildly correlated with the Primary Relationship subscale of the SAS-SR ($r = 0.29$; Horowitz et al., 2000).

Test-retest reliability in a community sample over a 7 day period was 0.78. Internal consistency for the IIP-32 is good, with subscale Cronbach’s α s ranging from 0.68 – 0.93 (Horowitz et al., 2000). In the current study Cronbach’s α s were also good with $\alpha = 0.90$ for

the IIP total, $\alpha = 0.74$ for the Domineering subscale, $\alpha = 0.85$ for the Vindictive/Self Centered subscale, $\alpha = 0.78$ for the Cold/Distant subscale, $\alpha = 0.82$ for the Socially Inhibited subscale, $\alpha = 0.83$ for the Nonassertive subscale, $\alpha = 0.75$ for the Overly Accommodating subscale, $\alpha = 0.80$ for the Self-Sacrifice subscale, and $\alpha = 0.75$ for the Intrusive/Needy subscale.

2.3.6. Perceptions of Adult Attachment Questionnaire (PAAQ; Lichtenstein & Cassidy, 1991).

The PAAQ is a 60 item measure which assesses the respondent's relationship with their main caregiver. It asks questions which access perceptions of early childhood experiences, as well as current attitudes towards a caregiver. It incorporates a five point likert scale ranging from "1-strongly disagree" to "5-strongly agree" with no items reverse scored. There are eight subscales included within this measure assessing perceptions of attachment with a caregiver during childhood, as well as the participant's current state of mind with respect to their primary caregiver.

Three subscales for the perceptions of childhood attachment are Rejection (11 items), Role Reversal/Enmeshment (10 items), and Loved (six items), while the five subscales tapping the participant's current state of mind include Vulnerable (five items), Balancing/Forgiving (seven items), Angry (five items), Dismissing/ Derogating (four items), and Reporting No Memory (four items).

The PAAQ showed good convergent validity with the Adult Attachment Interview subscales (AAI; George et al., 1984, 1985) with rs ranging from 0.46 – 0.63, except for the Role Reversal/Enmeshment subscale ($r = 0.1$) and the Dismissing/ Derogating subscale ($r = 0.13$; Lichtenstein & Cassidy, 1991) which had low convergent validity. Lichtenstein and Cassidy (1991) found good internal consistency for the PAAQ, using a college sample, for the subscales range from Cronbach's $\alpha = 0.62$ -0.90. Additionally, they found test-retest correlations over a 3 week period for subscales ranging from $r = 0.64$ – 0.86. Cronbach's α s in the present study were $\alpha = 0.86$ for the Rejection subscale, 0.84 for the Loved subscale, 0.74 for the Role Reversal/Enmeshment, 0.68 for the Vulnerable subscale, 0.68 for the

Balancing/Forgiving subscale, 0.74 for the Angry subscale, 0.60 for the Dismissing/Derogating subscale, and 0.87 for the Reporting No Memory subscale.

2.4. Statistical Analysis.

2.4.1. Path Analysis Model.

This study used AMOS (Analysis of Movement Structure) to test a model which depicted a hypothetical causal path from attachment to worry, mediated by intolerance of uncertainty, and a causal path from intolerance of uncertainty to interpersonal problems, mediated by worry (depicted in Figure 1). The paths specified were based on relationships described and empirically supported in current literature, or theorised by drawing conclusions about paths suggested by current theory.

Three exogenous variables were used to measure how an individual perceives their childhood attachment to their caregiver. These were three subscales of the PAAQ which were Role Reversal, Loved, and Rejected. In order to assess intolerance of uncertainty, the total score of the IUS was used as an endogenous variable, while the total score of the PSWQ was used as an endogenous variable to assess excessive and uncontrollable worry. Error terms were created to measure the variance in the IUS and the PSWQ not accounted for in the present model. The endogenous variables assessing interpersonal problems were the subscales of the IIP. The subscales were used instead of the total score as present literature suggests that subscales are more informative than the total score in describing interpersonal difficulties in those with GAD (Borkovec et al., 2002; Eng & Heimberg, 2006; Przeworski et al., 2011; Salzer et al., 2011; Crits-Christoph et al., 2005). Variance in participant's interpersonal problems not directly measured by the proposed model was represented by error terms. However, while these subscales measure different types of interpersonal problems, based on the fact that these subscales were created to represent a larger construct of interpersonal problems, there would be predominantly significant correlation between them (demonstrated in the correlation matrix in Appendix E). Therefore, the error terms for the IIP subscales were also allowed to co-vary to account for shared variance. While the consequences of correlating

error variance in confirmatory factor analyses have been described as a “loss of meaning and substantive conclusions which can be drawn from the model” (Gerbing & Anderson, 1984), correlated error variances are meaningful in their addition to the present path analyses. As a larger construct was broken up into its constituent subscales, correlating error variances is theoretically relevant, making conclusions on parameter estimates entirely meaningful. In fact, Bollen (2000) states that not allowing for error variance amongst factors where error variance may be correlated due to similar question wording or overlapping content is a concern. This directly relates to the IIP which measures the same content (self-identified interpersonal problems), and half the questions are phrased as “i...too much”, while the other half are “it’s hard for me to...”. As a measurement model was not assessed, the probable latent factor/s which encompasses the shared error variance of the IIP was not pursued. The variance relevant to the paths theorized and modeled in the present study was seen as most relevant to the author’s current aims. However, this does leave room for a subsequent analysis of the correlated IIP error variance as a latent factor in itself, highlighting a measurement structure which divides the IIP into at least two latent factors, one measuring interpersonal problems in those with excessive worry and intolerance of uncertainty, along with additional latent factor/s.

To investigate mediation 1, a direct path was drawn from the three PAAQ subscales to both the PSWQ, and the IUS, and another direct path was drawn from the IUS to the PSWQ. This means that the mediation of the IUS on the relationship between the PAAQ subscales and the PSWQ would be calculated. In order to assess mediation 2, direct paths were drawn from the PSWQ to the IIP subscales, and other direct paths drawn from the IUS to the IIP subscales. Therefore, the mediation of worry on the relationship between intolerance of uncertainty and interpersonal problems could be assessed.

The DASS and SIAS were used as control variables because of their known correlations with the variables of interest. Therefore, current mood and social anxiety were controlled for by including a direct path from the DASS and SIAS to the PAAQ subscales, the IUS, the PSWQ,

and the IIP subscales. The exogenous variables of the DASS subscales, the SIAS, and the PAAQ subscales were allowed to co-vary in order to account for shared variance, while not assuming any causal relationships amongst them. The full model is depicted in Appendix C.

2.5. Indices of Fit.

The indices of fit are measurements indicating whether the model that has been specified is a good representation of the data. Thus a fit index provides the user with a measure of the discrepancy between the implied matrix of variances and covariances based on a model they have proposed, and the sample variance and covariances based on the actual data they have collected. The aim is to have an implied matrix which is as close to the sample matrix as possible, yielding a small discrepancy function value. Kline (2005) recommends reporting the model Chi-square, Root Mean Square Error of Approximation (RMSEA) with the provided 90% confidence interval, the Comparative Fit Index (CFI), and the Standardised Root Mean-square Residual (SRMR) as a minimal description of the fit of an implied model.

The Chi square statistic is one index of fit that assesses the difference between the model being tested, and a just identified model (which would perfectly explain the data). The null hypothesis in this instance is that there is a difference between models, rather than testing for a lack of difference. Therefore, a large Chi-square, and subsequent small p value of less than 0.05 indicates that we are not confident that this Chi-square difference between models is due to chance, and as such, represents a probable difference between models. Thus, a small Chi-square, and subsequent large p value suggests that the tested null hypothesis of a difference between the sample and implied model is likely due to chance, suggesting that there is no difference between the two models. However, as the chi-square statistic is a test of whether the model fits the data exactly, large sample sizes tend to leave large chi-square statistics and subsequent low p scores, meaning the statistic is sensitive to sample size. Therefore a normed chi-square, calculated by $\text{chi-square}/\text{df}$, can be used to give a measure of chi-square per degree of freedom, which is thought to reduce this sensitivity (Byrne, 2010; Kline, 2005). A normed chi-square of zero indicates that the model perfectly fits the data, with the fit slowly

becoming worse as the number increases. Acceptable levels lie between one and two, with anything less than three demonstrating reasonable fit. Like the Chi-square statistic, a probability statistic of greater than 0.05 indicates that that we are confident that the null hypothesis of a difference between the sample and proposed model is incorrect.

The CFI compares the chi-square fit of the tested model, with that of an independence model which assumes all variables are unrelated to each other. This assumed model would have a large chi square, and therefore, the tested model should have significantly lower chi-square than the independence model. A larger CFI statistic between the tested and assumed models therefore indicates a greater discrepancy between a model with good fit, and a model with no fit. Kline (2005) suggests that a value greater than 0.90 indicates reasonably good fit.

The RMSEA is a fit index that approximates the difference between the tested model and the just-identified model, which is a model that perfectly represents the sample. The RMSEA takes into account approximation error in the population, and therefore the estimate, by providing a 90% confidence interval (Byrne, 2010; Kline, 2005). It also adjusts for sample size as it a measure of discrepancy per degree of freedom. RMSEA statistic values less than 0.05 indicate a good fit, however, values smaller than 0.08 still indicate reasonable fit (Browne & Cudeck, 1993). A probability statistic is also assessed, with a value greater than 0.05 suggesting a finding of a difference between models is likely due to chance, indicating good fit for the proposed model.

Another fit index, the Root Mean –square Residual (RMR) measures the difference between variances and covariances of the sample and implied model as residuals. However, as the range of values used in the computation of the residuals depends on the range of the scales of the observed variables, this can be hard to interpret. A standardised form, called the Standardised RMR (SRMR) compensates for this and uses standardised residuals instead, the value of which lies between 0 – 1, with a well fitting model giving a SRMR of 0.05 or less (Byrne, 2010; Kline, 2005).

2.6. Mediation Analyses.

According to the causal steps approach of Baron and Kenny (1986), in order to identify a mediation effect, specific regression steps should be taken. The mediator variable should be regressed onto the independent variable. The dependent variable should then be regressed onto the dependent variable. Finally, the dependent variable should be regressed onto both the independent and mediator variable. In order to establish that mediation has in fact occurred, the independent variable should be significantly related to the mediator variable in the first instance. Subsequent to this, the independent variable should be significantly related to the dependent variable. Lastly, the mediator should be significantly related to the dependent variable, resulting in a reduction in the relationship between the independent variable on the dependent variable. However this method has been criticised on multiple grounds (Hayes, 2009). There may be difficulties in demonstrating a mediation effect through low power. Also, the finding of a mediation effect is completed through the logic of three hypothesis steps, rather than on actually directly measuring an indirect effect. Additionally, an indirect effect can still be found even though one of the prerequisite hypothesised paths was not actually significant (Hayes, 2009). Hayes (2009) recommends the use of bootstrapping to measure a mediation effect in which the test of mediation is based on the indirect effect itself. The current mediation analysis used the bootstrapping approach with a bias-corrected confidence interval. The bias-corrected bootstrap estimate corrects for bias in the central tendency of an estimate, and is one of the most accurate tests of the indirect effect (MacKinnon, Lockwood, & Williams, 2004).

2.7. Bootstrapping.

Bootstrapping is a statistical procedure wherein multiple samples are drawn from the collected sample by drawing out observations with replacement. Parameter estimates and indices of fit are then calculated from these additional sample sets. As mediated effects tend to non-normal distributions, bootstrapping is helpful as it creates its own test distributions rather than relying on assumptions of normal distributions (Williams & MacKinnon, 2008).

Bootstrapping has been noted to be one of the most powerful and reasonable methods of obtaining confidence intervals for indirect effects (Williams & MacKinnon, 2008), and is also very useful for small to medium sample sizes (Yook, Kim, Suh & Lee, 2010).

3. RESULTS.

3.1. Data Preparation.

3.1.1. Missing values.

One participant did not answer any questions on the SIAS, and was deleted listwise. Another six participants also had missing data; with one declining to answer three questions, another missing two data points, while the other four did not answer one question each. Maximum Likelihood Estimation Procedure in SPSS was used to replace these missing data points.

3.1.2. Multivariate Outliers.

Outliers can have the effect of reducing the seen fit of a model, as well as violating the assumptions of normality. As this study was interested in the relationships between multiple variables, multivariate outliers were assessed. Squared Mahalanobis distance (D^2) is a suggested measurement of multivariate outliers which compares a participant's mean on multiple variables to a centroid, which is the mean of all participants on those multiple variables. In order to calculate a significant distance from the centroid, a chi-square table can be used. A minimum distance is found in this table by using the number of variables in the model as the degrees of freedom, and a probability statistic of $p < 0.001$. A D^2 over this number indicates outliers on multiple variables compared to other participants (Byrne, 2010; Hoyle, 1995; Kline, 2005). For the present model, there are 16 variables, with six exogenous variables (including the three control variables of the DASS, SIAS, and Age) and 10 endogenous variables, resulting in a D^2 cut-off of 39.252 as a measure of significant multivariate outliers. Four participants were found to be in excess of this cut-off, and their scores were subsequently deleted listwise from the study.

3.1.3. Tests of Normality.

Tests of normality found that most variables were significantly different from a normal distribution with Kolmogorov-Smirnov statistics ranging from 0.05 to 0.19 (see appendix D). However, Byrne, (2010) notes that most data in practice tends to break assumptions of

normality, and bootstrapping can be useful in managing the presence of non-normal data. Bootstrapping was used to compute direct and indirect effects in the current study as described by Byrne (2010).

3.2. Descriptive Statistics.

3.2.1. Strategy for Primary Data Analysis.

The initial tests of normality, multivariate outlier analysis, correlation table calculation, as well as compiling of descriptive information were completed using SPSS version 21.

Structural Equation Modeling was used to test the path analysis and was completed using AMOS version 20.

3.2.2. Time Taken to Complete Study.

As one weakness of an online self-report survey is that participants may complete the study without sufficient attention, including randomly choosing answers, survey responses were analysed based on the amount of time taken to complete the study. The mean time taken to complete the study was 20.58 minutes ($SD = 13.73$), with a range of 4 – 180 minutes. There were 96 participants who took under 15 minutes to complete the study. They had a mean of 11.46 minutes ($SD = 2.59$), with a range of 4 – 14 minutes. There were 281 participants who took 15 minutes or greater to complete the study, with a mean of 23.69 ($SD = 14.58$), and a range between 15 and 181 minutes.

In the present study, two approaches were taken to test for the influence of potential careless responding. Scatter-plots of relationships between variables were looked at for the under 15 minute group for outliers, and comparisons of correlations between the under 15 minute group, and 15 minute and over group were also undertaken. For the analysis of scatter plots, a participant would be assumed to have answered questions randomly if deviations from the rest of the group on multiple correlations were found, indicating that scores on individual measures did not relate to other measures as would be expected in a normal population.

However, in comparing an individual to the rest of the under 15 minute group, an additional assessment comparing the under 15 minute group to those who took a greater amount of time

is necessary to assess whether the under 15 minute group differed systematically from a population who spent more time answering questions. For these two assessments, specific correlations between variables were chosen because of findings of significant correlations for non-clinical populations in previous research. Past research has shown a large correlation between the PSWQ and IUS (Buhr & Dugas, 2002; Zlomke & Young, 2009), as well as between the DASS-42 total and PSWQ. Though the DASS-21 was used in this study, the relationships between subscores, and other factors should be similar as it is directly comparable to the 42 item version (S. Lovibond & P. Lovibond, 1995). A small to medium correlation has been found between retrospective reports of rejection during childhood and the IUS, and a moderate to large relationship was found between rejection and anxiety subscales of the DASS (Zlomke & Young, 2009). Significant medium correlations have also been found between the IIP-32 and the depression subscale of the DASS (Wei, 2005).

Scatterplots of these specified correlations for the under 15 minute group were critically viewed, and are shown in Appendix E. While there were participants who appeared to have high scores on one or more scales relative to others, when relationships between multiple variables were considered, no systematic deviation from the expected relationships was seen by any participant. An additional comparison of correlations between those who completed the study in under 15 minutes, and those in 15 minutes and over was undertaken as shown in Table 1. Medium to large correlations were found between the IIP and DASS - Depression, DASS total and PSWQ, and PSWQ and IUS for both groups, while small to medium correlations were found for the relationship between Rejection and the US, and Rejection and the DASS - Anxiety for both groups. Therefore, it can be assumed that participants who completed the study in less than 15 minutes did not complete questions at random, nor did they use insufficient attention when compared to those who completed the study in over 15 minutes. Therefore, all participants in the under 15 minute duration were included in the rest of the results analysis. However, caution must be taken when considering the minimum time taken to complete the study was four minutes, meaning that approximately 1.5 seconds was

given to each question. This suggests an insufficient amount of time given to answering questions. While additional analyses were taken to attempt to assess for any influence brief response times such as these may have on overall results, future studies may be completed which include a cut-off for participant with a minimum time for each question.

Table 1: Table of Select Correlations Between Participants who Completed the Study in Under 15 Minutes and Participants who Completed the Study in 15 Minutes and Over

Correlation	Under 15 minute group	15 minute and over group
IIP and DASS- Depression	0.578**	0.480**
PAAQ Rejection and IUS	0.367**	0.361**
PAAQ Rejection and DASS A	0.332	0.222**
PSWQ and IUS	0.561**	0.623**
DASS total and PSWQ	0.626**	0.543**

Note: ** $p < 0.01$, IIP = Inventory of Interpersonal Problems, PAAQ = Perception of Adult Attachment Questionnaire, DASS = Depression Anxiety Stress Scales, IUS = Intolerance of Uncertainty Scale, SIAS = Social Interaction Anxiety Scale, PSWQ = Penn State Worry Questionnaire.

3.2.3. Means, Standard Deviations and Ranges.

Means, standard deviations and ranges for the questionnaires are presented in Table 2.

In order to further verify the validity of the online sample obtained for this study, the means found in the present study were compared to other studies, with means and standard deviations found in Appendix G. Averages for the IIP-32 item total and subscale scores were similar to a student sample used by Hopwood, Pincus, DeMoor and Koonce (2008). Both the IUS and PSWQ were compared to a study by Buhr and Dugas (2002) which found similar

results. The SIAS was also compared to an undergraduate sample in a study by Mattick and Clarke (1998), with similar findings. Scores on the DASS subscales were slightly below that obtained by P. Lovibond and S. Lovibond (1995) in an undergraduate sample. Due to a lack of studies with adequately similar samples of PAAQ scores to compare to the student sample used in the current study, comparisons were made to a study by Cassidy et al. (2009). However, the samples used by Cassidy et al. (2009) were a clinical GAD sample, and a non-anxious control sample screened against the inclusion of participants with other clinical diagnoses. As the sample used in the current study would be a more generalised sample of a university population, it is expected that there would be groups of people who would meet criteria for a mental disorder, as well as non-disordered participants. Therefore, it would also be expected that the scores obtained in the current study would lie between the two samples used in the Cassidy et al. (2009) study. However, this was not the case for the majority of the PAAQ subscales. While the mean score for the Rejection subscale in the current study was higher than the non-anxious control sample, and lower than the clinical sample, the Loved, and Role reversal/enmeshment subscales were higher than the clinical GAD and non-anxious control samples in Cassidy et al. (2009). Comparisons for PAAQ means can be seen in Appendix H. However, as specified earlier, an adequately comparative sample could not be found to properly compare descriptive statistics, therefore, comparisons used for the PAAQ are speculative at best.

3.2.4. Gender Comparisons for Subscales.

The gender of participants was recorded to assess for differences in gender across variables. In order to guard against type 1 error, a Bonferroni adjustment was used. The experiment-wise p value was set to 0.05, therefore, the individual comparisons were compared to a significance level of $0.05/15 = 0.003$.

Means and Standard Deviations (SD) for each variable according to gender are given in table 2. Significant differences were found for the PSWQ, with females ($M = 52.69$, $SD = 14.15$) higher than males ($M=45.34$, $SD = 12.54$) on worry, $t(375) = 4.73$, $p = 0.002$. Additionally,

for the Vindictive/Self Centered subscale of the IIP, males ($M = 3.88$, $SD = 4.01$) were higher than females ($M = 2.67$, $SD = 3.14$), $t(375) = -3.13$, $p < 0.003$, and females ($M = 6.76$, $SD = 3.81$) were higher than males ($M = 5.46$, $SD = 3.64$) $t(375) = 3.05$, $p < 0.003$ on the Nonassertive subscale of the IIP. Similar differences between gender have been found in related research both for the differences in the IIP subscales (Horowitz et al., 2000), and in the PSWQ (Robichaud, Dugas, & Conway, 2003), therefore, the data was not analysed separately by gender.

3.2.5. Age Correlations.

Age was assessed in this study in order to control for its effects on the variables of interest. Age was not correlated with any variable except the role reversal subscale of the PAAQ, with a negative correlation of $-.12$ ($p < 0.05$) indicating that as participant age increased experiences of role reversal in childhood reduced. However, as this relationship was small, and only one variable was found to significantly correlate with age, age was removed from further analysis.

3.3. Model Testing.

3.3.1. Correlations.

The first step in testing our model was to explore the bivariate associations between the variables of interest, with all correlations shown in Table 3.

3.3.1.1. Attachment, intolerance of uncertainty, and worry.

Concerning the first hypothesis, the current study explored the correlation between attachment as measured by the PAAQ, and both intolerance of uncertainty as measured by the IUS, and worry as measured by the PSWQ. The second hypothesis was explored through the correlation between worry and intolerance of uncertainty. The PAAQ subscales of Rejected, Loved and Role-Reversal showed a significant small to medium correlation with the IUS similar to related studies (Zlomke & Young, 2009), with higher levels of being rejected and experiences of role reversal, and lower levels of being loved, related to higher levels of intolerance of uncertainty. The PAAQ subscales of Rejected and Role-Reversal showed a

small but significant correlation with the PSWQ supporting other research finding significant relationships between worry and attachment (Hale, Engels, & Meeus, 2006; Viana, & Rabian, 2008; Muris, Meesters, Schouten, and Hoge, 2004), while the subscale of Loved was not significantly correlated with the PSWQ. Therefore, those with greater amount of being rejected, and experiences of role reversal had increased levels of worry. The IUS showed a large correlation with the PSWQ replicating findings in previous research (Koener & Dugas, 2008; Sexton, Norton, Walker, & Norton 2003; Laugesen, Dugas, & Bukowski, 2003; Ladouceur, Gosseling & Dugas, 2000), demonstrating that those high in intolerance of uncertainty reported greater amount of worry than those lower in intolerance of uncertainty.

Table 2: Means, Standard Deviations, and Ranges of Measures for Total Sample, and Compared by Gender

	Total Sample		Females		Males		t score**
	Mean(SD)	Range	Mean (SD)	Range	Mean(SD)	Range	
IIP Total	37.79(17.97)	1-96	37.74(16.65)	1-85	37.92(20.91)	1-96	-.09
IIP-Domineering	2.93(2.93)	0-14	2.69(2.64)	0-12	3.50(3.48)	0-14	-2.44
IIP-Vindictive/Self-Centered	3.02(3.46)	0-16	2.67(3.14)	0-16	3.88(4.02)	0-16	-3.13*
IIP-Cold/Distant	3.78(3.55)	0-16	3.61(3.47)	0-16	4.18(3.73)	0-14	-1.42
IIP-Socially Inhibited	5.11(3.73)	0-16	5.21(3.76)	0-16	4.86(3.66)	0-14	0.82
IIP-Nonassertive	6.38(3.81)	0-16	6.76(3.81)	0-16	5.46(3.64)	0-15	3.05*
IIP-Overly Accommodating	6.32(3.60)	0-16	6.67(3.65)	0-16	5.49(3.35)	0-13	2.92
IIP-Self-Sacrificing	6.23(3.70)	0-16	6.29(3.73)	0-16	6.10(3.64)	0-14	0.47
IIP-Intrusive/Needy	4.01(3.29)	0-15	3.84(3.15)	0-13	4.45(3.60)	0-15	-1.64
PAAQ- Rejection	21.97(8.15)	11-51	21.49(8.08)	11-51	23.15(8.24)	11-45	-1.80
PAAQ-Loved	24.14(4.75)	6-30	24.54(4.79)	6-30	23.16(4.55)	9-30	2.57
PAAQ- Role-reversal/Enmeshment	28.56(6.17)	13-45	28.54(6.19)	13-45	28.61(6.15)	13-45	-.09
DASS Depression	5.15(4.42)	0-20	5.28(4.46)	0-20	4.81(4.34)	0-20	0.95
DASS Anxiety	4.08(3.72)	0-20	4.20(3.66)	0-20	3.79(3.86)	0-18	0.98
DASS Stress	6.82(4.29)	0-20	7.16(4.27)	0-20	6.02(4.26)	0-18	2.36
DASS Total	16.05(10.89)	0-60	16.64(10.66)	0-60	14.62(11.37)	0-54	1.65
IUS Total	58.79(21.57)	27-127	59.74(22.11)	27-127	56.49(20.11)	28-125	1.33
SIAS Total	27.18(14.11)	0-64	27.78(13.95)	0-64	25.72(14.44)	1-61	1.29
PSWQ total	50.55(14.09)	22-80	52.69(14.15)	22-80	45.35(12.54)	22-72	-4.73*

Note: * = $p < 0.003$ (Bonferonni adjusted); IIP = Inventory of Interpersonal Problems, PAAQ = Perception of Adult Attachment Questionnaire, DASS = Depression Anxiety Stress Scale, IUS = Intolerance of Uncertainty Scale, SIAS = Social Interaction Anxiety Scale, PSWQ = Penn-state Worry Questionnaire. ** DF = 375.

Table 3. Correlations Table.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1: IIP Total	1															
2: IIP Domineering/ Controlling	.497**	1														
3: IIP Vindictive/ Self-Centered	.586**	.396**	1													
4: IIP Cold/Distant	.693**	.295**	.593**	1												
5: IIP Socially Inhibited	.696**	.212**	.381**	.586**	1											
6: IIP Nonassertive	.717**	.036	.245**	.372**	.487**	1										
7: IIP Overly Accommodating	.741**	.099	.155**	.357**	.449**	.751**	1									
8: IIP Self- Sacrificing	.619**	.215**	.025	.222**	.258**	.408**	.582**	1								
9: IIP Intrusive/ Needy	.528**	.454**	.243**	.080	.099	.235**	.284**	.395**	1							
10: PAAQ Rejected	.283**	.178**	.291**	.253**	.169**	.153**	.128*	.096	.192**	1						
11: PAAQ Loved	-.250**	-.167**	-.275**	-.272**	-.222**	-.123*	-.102*	.012	.139**	.685**	1					
12: PAAQ Role Reversal	.139**	.077	.088	.114*	.052	.039	.062	.213**	.063	.105*	.190**	1				
13: PSWQ	.443**	.219**	.139**	.221**	.414**	.367**	.385**	.337**	.145**	.108*	-.054	.121*	1			
14: DASS Total	.609**	.384**	.314**	.378**	.449**	.385**	.416**	.412**	.372**	.243**	.173**	.135**	.561**	1		
15: IUS	.639**	.366**	.395**	.461**	.519**	.426**	.437**	.393**	.247**	.371**	.246**	.186**	.596**	.646**	1	
16: SIAS	.736**	.303**	.364**	.580**	.832**	.571**	.537**	.332**	.174**	.206**	.223**	.089	.487**	.520**	.591**	1

Note: ** $p < 0.01$, * $p < 0.05$; IIP = Inventory of Interpersonal Problems, PAAQ = Perception of Adult Attachment Questionnaire, DASS = Depression Anxiety Stress Scale, IUS = Intolerance of Uncertainty Scale, SIAS = Social Interaction Anxiety Scale, PSWQ = Penn-state Worry Questionnaire.

3.3.1.2. Interpersonal problems, intolerance of uncertainty and worry.

The fourth and fifth hypotheses were explored through assessing the correlations between both intolerance of uncertainty and worry with interpersonal problems as measured by the IIP. The IUS was significantly positively correlated with all subscales of the IIP, with correlations ranging from small to medium. Therefore, higher levels of intolerance of uncertainty were associated with higher levels of interpersonal problems. The PSWQ was also significantly positively correlated with all subscales of the IIP, with correlations tending to be small to medium, except for the Intrusive/Needy subscale which was not significantly related to the PSWQ scores. Therefore, while people with high levels of worry tended to have high levels of interpersonal problems, supporting previous research of a relationship between interpersonal problems and excessive worry (Stein & Heimberg, 2004; Whisman, Sheldon, & Goering, 2000; Ben-Noun, 1998), they do not have associated problems with being intrusive and needy.

3.3.2. Indices of Fit Statistics for Path Analysis.

Once the model as described in Figure 1 was tested in AMOS, the fit statistics were analysed in order to assess whether the model proposed was a good fit with the sample data. The model contained 120 distinct sample moments, with 96 left free to be estimated. Chi – square (24) was 44.373 with the probability level at 0.007. This means that we reject the null hypothesis of no difference between the sample and proposed model, which suggests a bad fit. However, the use of the chi-square statistic is known to be unreliable, and especially sensitive to sample size (Byrne, 2010), therefore, other indices of fit were also taken into consideration when establishing the fit of the proposed model. The Chi-square/df, which takes sample size into account was 1.849, suggesting good fit per degree of freedom. The CFI statistic was 0.993, indicating a large difference between the proposed model and an independence model proposing no relation between variables, thereby showing good fit for the proposed model. The RMSEA was 0.048, with lower bound of 0.025, and upper bound of 0.069. Although, the upper bound is above the recommended 0.05, it is still below the 0.08 indicating reasonable fit

(Browne & Cudeck, 1993), therefore, we are 90% confident that the estimate of fit is in a reasonable range. The P-Close statistic for the RMSEA was 0.545 indicating that the close fit between the proposed model and sample is not due to chance, while the SRMR was 0.293, again indicating low standardised residuals, and therefore a good fit. Due to good indices of fit (shown in Table 4), the modification indices were not used to modify the model.

Table 4: Model Fit Statistics

Chi-square	D	Chi-square/df	CFI	RMSEA(95% CI)	SRMR
44.373	24	1.849	0.993	0.048(0.025 – 0.069)	0.293

3.3.3. Residual Matrix.

The residual matrix calculates the difference between the sample variance and covariance and the model variance and covariance. When residuals are small or close to zero, the model can be seen as a good representation of the sample. The residuals were zero for variances and co-variances for all variables except between the PAAQ scales and IIP scales, which were not estimated. These standardised residuals varied from 0.148 to 3.409 (see Appendix I). This would indicate that the co-variances between the PAAQ, and IIP were not well represented in the proposed model. However, as the direct effect of attachment on interpersonal problems was not assessed here due to this not being the direct relationship under investigation, and a lack of theoretical underpinnings, these paths were not left free to be estimated (set to zero).

3.3.4. Path Analyses Estimates.

Standardised direct and indirect estimates were calculated based on the structural model described previously. The specified direct and indirect effects were calculated after accounting for the variance explained by current mood (depression, anxiety, stress), and social anxiety as measured by the DASS, and SIAS. All standardised direct and indirect effects, upper and lower bounds of the bias corrected 90% confidence interval, and significance statistics are found in Appendix J.

3.3.4.1. Hypotheses 1 – 3: The mediation of intolerance of uncertainty in the relationship between attachment and worry.

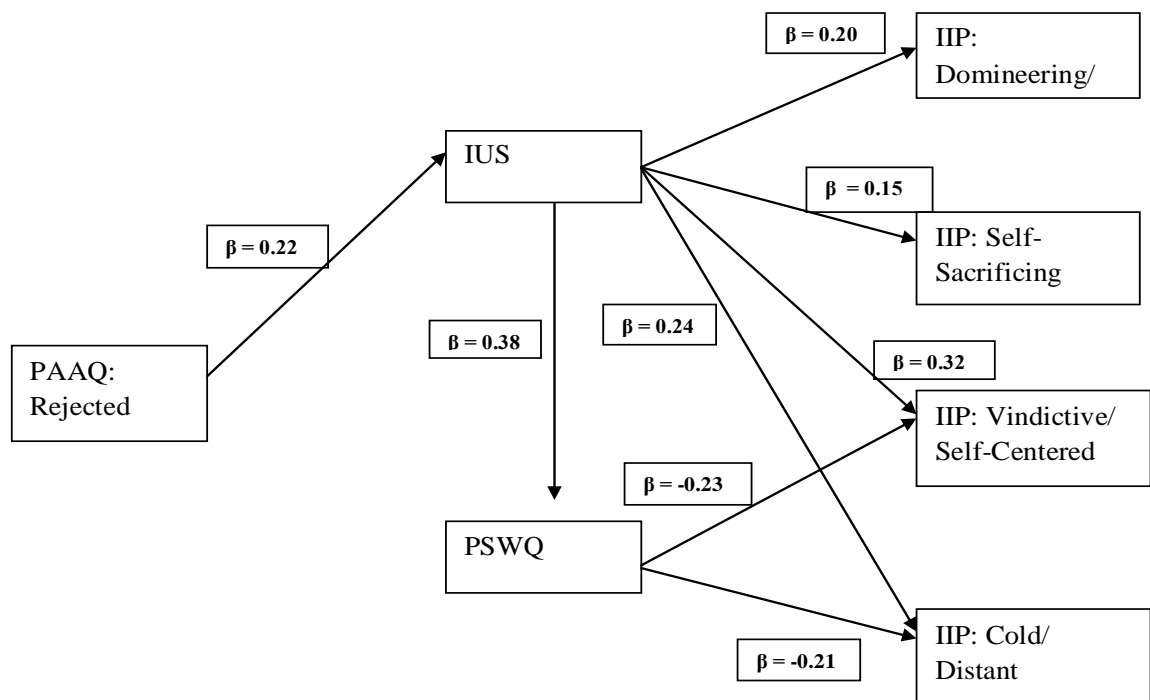
The standardised direct effects of the PAAQ subscales on the PSWQ were not significant. Additionally, while the direct effect of the Rejection subscale of the PAAQ was significantly related to the IUS, with $\beta = 0.22$ (90% bias corrected CI = 0.11 – 0.33, $p < 0.001$), the Role-Reversal, and Loved subscales were not. The direct effect of the IUS on the PSWQ was significant ($\beta = 0.38$, 90% bias corrected CI = 0.26 – 0.49, $p < 0.001$). The indirect effect of the IUS on the relationship between the Rejection subscale of the PAAQ and the PSWQ was significant ($\beta = 0.08$, 90% bias corrected CI = 0.04 – 0.14, $p < 0.001$). Therefore, while those who experienced parental rejection were more likely to experience intolerance of uncertainty, intolerance of uncertainty mediated an unseen relationship between parental rejection and worry. In other words, those who were high in experiences of parental rejection tended to have higher levels of intolerance of uncertainty which caused higher levels of worry.

3.3.4.2. Hypotheses 4 – 6: The mediation of worry in the relationship between intolerance of uncertainty and interpersonal problems.

The direct effect of the IUS on the PSWQ was presented above. The direct effect of the IUS on the IIP subscales were significant for the Cold/Distant subscale ($\beta = 0.24$, 90% bias corrected CI = 0.11 – 0.37, $p < 0.001$), Self-Sacrificing subscale ($\beta = 0.15$, 90% bias corrected CI = 0.01 – 0.28, $p < 0.05$), Vindictive/Self-Centered subscale ($\beta = 0.32$, 90% bias corrected CI = 0.17 – 0.47, $p < 0.001$), and Domineering/Controlling subscale ($\beta = 0.20$, 90% bias corrected CI = 0.04 – 0.34, $p < 0.05$). The direct effect of the PSWQ on the IIP subscales was significant for the Cold/Distant subscale ($\beta = 0.24$, 90% bias corrected CI = 0.11 – 0.37, $p < 0.001$), and the Vindictive/Self-Centered subscale ($\beta = -0.32$, 90% bias corrected CI = -0.17 – -0.35, $p < 0.01$). The indirect effect of the PSWQ on the relationship between the IUS and the IIP subscales were significant for the Cold/Distant subscale ($\beta = -0.08$, 90% bias corrected CI = -0.13 – -0.04, $p < 0.001$), and the Vindictive/Self-Centered subscale ($\beta = -0.09$, 90% bias corrected CI = -0.14 – -0.04, $p < 0.001$). Therefore, the relationship between

intolerance of uncertainty and specific interpersonal problems of being dominant and cold, and being vindictive and self-centered were mediated by worry. As these effects were negative, being higher in intolerance of uncertainty caused an increase in worry, which caused a decrease in these interpersonal problems.

Figure 2: Significant Standardised Direct Effects.



Note: Solid line = direct effects, broken line = indirect effects.

Table 5: Significant Standardised Indirect Effects.

	Domineering/Controlling	Vindictive/ Self-Centered	Cold/ Distant
PAAQ Rejected	0.04	0.07	0.05
IUS		-0.09	-0.08

3.3.4.3. Exploratory indirect path from attachment to interpersonal problems.

Significant indirect effects were found from the rejected subscale of the PAAQ to the IIP subscales of Cold/Distant ($\beta = 0.05$, 90% bias corrected CI = 0.021 – 0.1, $p < 0.01$), Vindictive/Self-Centered ($\beta = 0.07$, 90% bias corrected CI = 0.03 - 0.13, $p < 0.001$), and Domineering/Controlling ($\beta = 0.04$, 90% bias corrected CI = 0.01 - 0.09, $p < 0.01$). Thus, participants who experienced higher levels of parental rejection reported higher levels of problems with being cold and dominant, vindictive and self-centered, and being domineering and controlling which were mediated by intolerance of uncertainty, worry, or both.

4. DISCUSSION.

The current study assessed a proposed developmental model of interpersonal problems in people with excessive and uncontrollable worry. It tested a series of paths, from perceptions of problems in attachment during childhood, to intolerance of uncertainty, to excessive worry, leading to interpersonal problems. Mediation paths were able to be tested within this model, including the mediation of intolerance of uncertainty on the relationship between attachment and worry, as well as the mediation of worry on the relationship between intolerance of uncertainty and interpersonal problems.

4.1. Hypotheses.

4.1.1. Attachment, Worry, and Intolerance of Uncertainty.

Hypothesis one stated that participants who reported higher levels of attachment related rejection, role-reversal and enmeshment, and lower experiences of being loved, would also report higher levels of intolerance of uncertainty, as well as higher levels of worry. This hypothesis was partially supported. While the present study found no significant direct effect of any attachment subscales on worry, experiences of attachment related rejection had a significant direct effect on intolerance of uncertainty. Experiences of role reversal, enmeshment and being loved showed no direct effect on intolerance of uncertainty.

Hypothesis two stated that people who reported higher levels of intolerance of uncertainty would also report higher levels of worry than those lower on intolerance of uncertainty. This hypothesis was supported. Hypothesis three, which proposed an indirect effect of attachment on the relationship between the intolerance of uncertainty and worry, was supported only for attachment related rejection.

Therefore, those who reported higher experiences of rejection also reported higher intolerance of uncertainty, and through this, higher worry. However, attachment related role-reversal, enmeshment and love showed no direct or indirect effects with either worry or intolerance of uncertainty. Therefore, the effect of attachment on the relationship between intolerance of

uncertainty and worry, while controlling for social anxiety and mood, was found to be isolated to experiences of rejection. In fact, the indirect effect of intolerance of uncertainty on the relationship between rejection and worry was found in the absence of a direct effect of rejection on worry, suggesting that rejection is only related to worry via intolerance of uncertainty.

4.1.2. Intolerance of Uncertainty, Worry, and Interpersonal Problems.

The fourth hypothesis stated that participants higher on intolerance of uncertainty would report higher levels of interpersonal problems than participants lower on intolerance of uncertainty. This hypothesis was partially supported. Direct effects were shown for the interpersonal subscales describing domineering, controlling, vindictive, self-centered, cold, distant, and self-sacrificing behaviours. However, the fifth hypothesis that higher levels of worry would lead to higher levels of interpersonal problems was not supported. While the interpersonal subscales describing vindictive, self-centered, cold and distant behaviours showed direct effects with worry, these relationships were negative. This suggests that higher worry lead to lower interpersonal problems in these areas. The sixth hypothesis that an indirect effect would be seen from intolerance of uncertainty to interpersonal problems through worry was partially supported. The direct effect of intolerance of uncertainty on vindictive, self-centered, cold and distant behaviours was mediated by worry. However, as with the direct effects between worry and interpersonal problems, they were of a negative relationship. This meant that higher levels of intolerance of uncertainty as well as worry lead to lower levels of specific interpersonal problems of being vindictive, self-centered, cold and distant.

Therefore, those who used excessive worry as a response to intolerance of uncertainty may be less vulnerable to certain interpersonal problems than those who developed intolerance of uncertainty without worry. Or else, interpersonal problems as a result of intolerance of uncertainty, not tempered by worry, may be more detrimental than intolerance of uncertainty followed by worry. Thus, this study is the first to show a direct link between intolerance of

uncertainty, and specific interpersonal problems, separated from worry, as well as mediated by worry. It was also able to do so while assessing separately, the direct effect of excessive and uncontrollable worry on interpersonal problems.

4.1.3. Exploratory Indirect effect of Attachment on Interpersonal Problems.

Significant positive indirect effects were also shown from attachment related rejection, to specific interpersonal problems of being domineering, controlling, vindictive, self-centered, cold and distant. Therefore, an accumulative effect of intolerance of uncertainty as well as worry mediated the relationship between rejection and these interpersonal difficulties. There were no other significant indirect effects from attachment to interpersonal problems. This suggests that experiences of higher levels of rejection during childhood lead to an increase in interpersonal problems; however, this relationship was mediated by the effects of either intolerance of uncertainty, worry, or both.

4.2. Explanations for Specific Paths.

4.2.1. The Association between Rejection and Intolerance of Uncertainty.

Our results suggest that those who experience higher levels of rejection during childhood are more likely to develop intolerance of uncertainty as a result, consistent with the results of Zlomke and Young (2009). Those who report higher levels of rejection may feel that they were low on the priority list of their primary caregiver, were not listened to when communicating, may not have felt secure in a belief that they would be loved and taken care of, and may have even felt that they were not wanted by their parent (Lichstein & Cassidy, 1991). According to Cassidy et al. (2009), people who experienced attachment based difficulties as children may not become confident in their own ability to endure and overcome stressful situations. Someone who did not feel loved, listened to, or even wanted in times of stress may thus find stressful events even more stressful, and be less able to deal with future times of uncertainty. These results then suggest that intolerance of uncertainty can develop from specific styles of parenting during childhood. However, the results of this study go

further, describing that this can then translate into an increase in excessive and uncontrollable worry.

4.2.2. The Association between Intolerance of Uncertainty and Worry.

The significant direct effect of intolerance of uncertainty on excessive and uncontrollable worry replicates other studies which have shown a significant relationship between the two variables (Koerner & Dugas, 2008; Dugas et al., 1998; Tan et al., 2010; Sexton et al., 2003; Laugensen et al., 2003; Ladouceur, 2000). The Intolerance of Uncertainty Model of excessive worry proposes that those with high intolerance of uncertainty view any potentially ambiguous events or situations as difficult to overcome (Buhr & Dugas, 2006). This can lead to the creation of a large amount of “what if...?” questions, which may heighten distress at the presence of uncertainty (Dugas & Robichaud, 2007; Dugas, et al. 1998). Those with excessive worry have many positive beliefs about the benefits of worry, for instance that it can aid problem solving, and help avoid catastrophes (Borkovec & Roemer, 1995; Freeston et al., 1994). Excessive worry is thus proposed to be a maladaptive tool used to alleviate the distress caused by an intolerance of uncertainty (Dugas & Robichaud, 2007; Dugas et al., 2005).

4.2.3. The Association between Rejection and Worry Mediated by Intolerance of Uncertainty.

The present study did not find that attachment based problems of rejection, role-reversal and enmeshment, or being loved, directly explained variance in excessive worry. However, an indirect effect was found from rejection to worry, mediated by intolerance of uncertainty. Thus, there is a separation of rejection from worry, as attachment related rejection may only affect excessive and uncontrollable levels of worry via the development of intolerance of uncertainty. Those who have experiences of rejection may have learned that uncertain situations are scary and view themselves as incapable in overcoming these scary situations. Thus worry may be a cognitive tool used to overcome this negative effect. These results are consistent with the results of Zlomke and Young (2009) which found that intolerance of

uncertainty mediated the relationship between attachment and worry. However, these results are also inconsistent with multiple studies which have found a significant direct relationship between excessive worry, and attachment problems (Hale et al., 2006; Muris et al., 2000; Muris et al., 2004). However, none of these latter studies assessed intolerance of uncertainty. Thus, these studies are unable to separate the effects of attachment related problems on intolerance of uncertainty with the effects of attachment related problems on excessive and uncontrollable worry. Consequently, relationships between worry and attachment may be confounded by the unidentified effects of intolerance of uncertainty to this relationship, as found in the current study's results, and by Zlomke and Young (2009). Similarly Tan et al. (2010) found that the relationship between role-reversal and worry was fully mediated by symptoms of depression. While our study controlled for current mood, the specified paths did not assess the mediation of mood on the relationship between attachment and worry. Nevertheless, measures of mood as well as intolerance of uncertainty were highlighted as necessary control variables. Therefore, future research attempting to measure the effects of attachment on worry may need to consider these control variables in order to separate the effects of attachment on intolerance of uncertainty, or mood, versus the effects of attachment on worry itself.

4.2.4. The Association between Intolerance of Uncertainty and Interpersonal Problems.

The current study found that people who were higher on intolerance of uncertainty reported higher levels of domineering, controlling, self-sacrificing, vindictive, self-centered, cold, and distant behaviours compared to those lower on intolerance of uncertainty. With regards to previous research, there has been a lack of studies directly investigating interpersonal problems in those with intolerance of uncertainty; however, a relationship has been suggested more indirectly. For instance, Butzer and Kuiper (2006) found that intolerance of uncertainty may lead to certain social comparisons, and Carleton et al. (2010) found that the inhibitory anxiety subscale of the Intolerance of Uncertainty Scale accounted for half the variance in

social interactions. The danger with these studies is the potential confounding of the effects of social anxiety on the relationship between interpersonal difficulties and intolerance of uncertainty. The present study was able to control for the effects of social anxiety, and found support for a direct relationship between intolerance of uncertainty and interpersonal problems. In order to interpret this fully, a better understanding of the characteristics of each subscale and its relationship with intolerance of uncertainty is needed.

Those who obtain higher scores on domineering and controlling behaviours may find it difficult to hand control over to someone else. They tend to think of themselves as someone who attempts to seek control in interpersonal situations, though not in a hostile manner (Horowitz et al., 2000). Therefore, there is an attempt to control the environment because of a fear of what may happen if control is not theirs. As someone with an intolerance of uncertainty, one way to manage the negative affect associated with uncertainty would be to ensure that nothing negative can happen by pursuing and holding onto a sense of control within an interaction. Therefore, if a person with high intolerance of uncertainty thought they had sufficient control in an interpersonal interaction, they could ensure no anticipated negative situations could arise, alleviating distress.

People who rate themselves highly on items related to self-sacrificing would describe themselves as very likable and kind people. They would exhibit very warm, nurturant, and generous characteristics. They would be sociable, with an ability to connect emotionally with people. However, in rating themselves higher in a problematic manner, they may recognize that they exhibit these characteristics too much and in a more maladaptive way. They may put others before themselves, and think of themselves as being too helpful and too generous to others (Horowitz et al., 2000). When related to those high on intolerance of uncertainty, another potential strategy in preventing anticipated negative interactions from arising is to leave no room for another person to view anything confrontational, or unkind in that person. Thus, in showing oneself as an extremely kind and generous person, there is no room for a

negative perception of that person to form in another person's mind. Thus uncertainty is avoided, reducing associated distress.

Therefore, being higher on behaviours such as domineering, controlling and self-sacrificing can be seen as alternate ways to prevent uncertain interpersonal situations from having negative effects. However, while both subscales described here are seen to be problematic during interactions by the participant, neither describes a necessarily hostile or antagonistic approach, but rather, are attempts to have positive interactions. Contrary to this, the other two subscales which were found to be significantly related to those high on intolerance of uncertainty seem to be more hostile and antagonistic in attitude.

Those who report higher levels of vindictive and self-centered behaviours in interpersonal relationships may describe themselves as more hostile and dominant. They may be more ready to experience and express anger. Additionally, these people can be overly suspicious of another person's actions, and hold onto perceived slights. They would be much less caring and empathic than those high on being self-sacrificing, and concern themselves less with the welfare of others (Horowitz et al., 2000). Therefore, it seems that in this case, those who are uncertain of ambiguous interpersonal situations are more likely to attempt to prevent negative interactions by assuming they will happen, and acting in a defensive manner. Interpersonal interactions would naturally follow in a negative light, and would be much more likely to be hostile, possibly leading to confirmation of their assumptions of negative interactions.

Similar to this, those who report higher levels of cold and distant behaviours also feel little to no connection with others. They may find it difficult to build and maintain friendships, and prefer their own company over another person's company (Horowitz et al., 2000). This may be seen as a similar attempt to avert negative interpersonal interactions by acting as if this negative interaction will happen. It seems that those high on these characteristics are unwilling to attempt to negate any potentially negative interactions in hoping for a positive one, but simply act towards the world as they see others would probably act towards them. Thus, for those high in being vindictive and self-centered, or being cold and distant, negative

affect associated with intolerance of uncertainty is dealt with by taking away the uncertainty in an uncertain interpersonal situation by creating an expected negative event.

Therefore, while an intolerance of uncertainty may cause self-identified problems in interpersonal situations, there seem to be two main methods used by those with high intolerance of uncertainty to deal with this. The first approach is to attempt to negate potential negative interactions through being controlling, or overly affiliative. While the second approach is to assume something negative may happen and to act first in a negative manner to prevent an even more unpleasant situation through being cold, distant, vindictive and self-centered. The categorisation of people high in intolerance of uncertainty into those who pursue a more hostile attitude, and those who react in a more positive, if somewhat controlling manner, may also be important to continued research into treatment, as intolerance of uncertainty has been found to be relevant to many disorders (Holoway et al., 2006; McEvoy & Mahoney, 2012). Thus, identifying, and then appropriately reacting to these different styles of behaving may make treatments more effective with regards to interpersonal situations, and the effects of negative interactions.

4.2.5. The Association between Worry and Interpersonal Problems.

The present study's results suggest that higher levels of excessive and uncontrollable worry do not directly predict higher levels of interpersonal difficulties. This is consistent with the findings of Uhmman et al. (2010), who found that those with clinical levels of worry did not have greater levels of interpersonal problems than an other-disordered group, or a non anxious control group. However, these results do contradict other studies identifying higher levels of interpersonal problems in those with excessive worry compared to other groups. For instance, studies have found that those with excessive worry as compared to symptoms of other disorders were more likely to be dissatisfied with their marriage (Stein & Heimberg, 2004; Whisman et al, 2000). Additionally, those with clinical levels of worry tend to see their family as more dysfunctional than did a non-clinical control group (Ben Noun, 1998). One potential explanation for the disparity in results is that there is a fundamental difference between

assessing interpersonal difficulties, which would assumedly address multiple types of relationships, and studies of specific relationships, such as intimate relationships, or immediate family. More intimate relationships may be more vulnerable to potential negative effects of interpersonal problems than more general relationships. Another explanation is that measures of worry alone in studies showing interpersonal problems in those with excessive worry may have been confounded by the strong relationship between intolerance of uncertainty and worry (Koerner & Dugas, 2008; Dugas et al., 1998; Tan et al., 2010; Sexton et al., 2003; Laugensen et al., 2003; Ladouceur, 2000). This may mean that these measures of interpersonal problems may be associated with higher intolerance of uncertainty rather than higher levels of pathological worry, as was found in the present study.

Additionally, distinct interpersonal problem styles have been seen in those with clinical levels of worry (Przeworski et al, 2011; Eng & Heimberg, 2006), suggesting that those with clinical levels of worry may experience specific interpersonal difficulties. However, the present study's results suggest that, far from experiencing specific interpersonal problems, those with more excessive worry experience lower levels of interpersonal problems in specific areas.

Though, as the aims of Przeworski et al. (2011) were attempting to identify clusters of interpersonal problems in those with excessive worry, a comparison to other groups, including those with low levels of worry, was not carried out. Therefore, while the present study found that the variance in excessive worry only explained a variance in a lack of (rather than increase in) interpersonal problems, differences in interpersonal problems were not related to differences in worry in the Przeworski et al. (2011) study. Thus, comparisons are difficult, as our study which assessed how interpersonal problems vary according to differences in worry had different aims from Przeworski et al.'s (2011) study which identified groups of interpersonal problems in those with clinical levels of worry. In addition, the study by Eng and Heimberg (2006) did not control for social anxiety, nor did they control for intolerance of uncertainty, leaving room open for these variables to account for finding. Thus, different clusters of interpersonal problems in those with excessive worry, compared to a low worry

group, may be explained by differences in levels of either intolerance of uncertainty, or social anxiety, rather than worry.

In the present study, people with higher levels of worry reported fewer problems with being cold, distant, vindictive and self-centered than those lower on excessive worry. Therefore, those high on worry tend to have fewer concerns with feeling close to, and connected with others, and find it less difficult to build or maintain close relationships. They are also less likely to think of themselves as loners, rather, they enjoy their role in social groups and activities. Additionally, those with high levels of excessive and uncontrollable worry found themselves less likely to have difficulties with being hostile and dominant in interpersonal situations, characterising themselves as someone who does not easily become angered, and finds it easy to trust. Therefore, while most indicators of interpersonal difficulty, as measured by the IIP, did not tend to vary according to self-reported levels of excessive and uncontrollable worry, indicators of more hostile and distant interpersonal behaviours were less likely to be present in those who worry more. Non-clinical levels of excessive and uncontrollable worry may thus be seen as a protective factor compared to an intolerance of uncertainty when considering levels of hostile interpersonal behaviours. Considering the potential for clinical and non-clinical levels of worry affecting interpersonal interactions differently, care needs to be taken when generalising from the results of studies using non-clinical samples to clinical populations. Further research directly comparing the effects of worry on interpersonal behaviours between non-clinical and clinical samples is now warranted.

Extant research has shown that people with high levels of excessive and uncontrollable worry tend to worry more about interpersonal situations than other situations (Breitholtz, Johansson, & Ost, 1995; Roemer, Molina, & Borkovec, 1997). However, rather than this having negative consequences, in worrying about interpersonal problems, those with excessive worry may in fact be more aware of potential problems. Freeston et al. (1994) measured positive beliefs about worry, and found that those high on excessive and uncontrollable worry believe that

worrying helps find better solutions and increases control. Borkovec (1994) found that clients with clinical levels of worry expressed that worry helped them prepare for a negative event occurrence and generated ways of avoiding catastrophes, making it less likely that negative events would occur. Thus, for a non-clinical level at least, worrying may help to prevent negative interactions through presenting and promoting alternative positive behaviours, and avoiding negative ones. Future studies may implement additional measures of positive versus negative beliefs about worry in order to assess any differences in interpersonal problems associated with these beliefs.

4.2.6. The Association between Intolerance of Uncertainty and Interpersonal Problems Mediated by Worry.

Increased use of worry in the presence of high intolerance of uncertainty is associated with a reduction in reports of vindictive, self-centered, cold and distant behaviours. The negative effect of intolerance of uncertainty on interpersonal problems is therefore somehow reduced to the point of being absent in the presence of worry. Additionally, certain interpersonal problems are reversed, with decreased levels of interpersonal problems compared to those who worry less in the presence of intolerance of uncertainty. These reversals are associated with interpersonal styles which can be described as more avoidant, or hostile and antagonistic in nature. Worry is seen by those with excessive levels of worry as helpful in preventing negative consequences and finding alternative and better solutions to problems (Freeston et al., 1994; Borkovec, 1994). In those who have high intolerance of uncertainty, the uncertain nature of interpersonal interactions can cause that person to feel distressed (Dugas & Robichaud, 2007; Dugas et al., 1997). Worry may thus allow people high in intolerance of uncertainty to anticipate how their own actions will be viewed by others, and act in more socially acceptable ways. Thus, they may be more likely to engage in more positive behavior, after more careful consideration of an interaction or potential interaction.

4.2.7. A Path from Attachment to Interpersonal Problems in Those with Intolerance of Uncertainty and Worry.

The paths suggested by the results of the current study indicate that rejection during childhood attachment leads directly to an intolerance of uncertainty. It also suggests that, while rejection may not lead to an increase in worry directly, this increase in intolerance of uncertainty can also lead to an increase in excessive worry. Interpersonal problems can be affected by either a development of excessive worry via intolerance of uncertainty, or by the development of intolerance of uncertainty separately, or worry separately. When interpersonal problems are affected by intolerance of uncertainty directly, interpersonal problems tends to increase, however, when this path to interpersonal difficulties is mediated by an increase in worry, some interpersonal problems tend to decrease. Overall, an increase in specific interpersonal problems can be seen indirectly stemming from attachment related rejection through an accumulative effect of intolerance of uncertainty and worry.

While a positive indirect effect of rejection through intolerance of uncertainty to worry was seen, and a negative indirect effect from intolerance of uncertainty to vindictive, self-centered, cold and distant behaviours is present, interpreting the exact pathway from rejection to interpersonal problems is not possible from the present model. As the indirect effect from attachment to interpersonal problems is a cumulative effect, not only are the specific paths not specified, but whether some of those mediation paths are negative, and some are positive are not known. Additional models would be needed to compare the different pathways through intolerance of uncertainty and worry to interpersonal problems. For example, do experiences of rejection lead to intolerance of uncertainty and then to worry, and subsequently to domineering tendencies? Alternatively, does rejection only pass through intolerance of uncertainty to domineering behaviours. Incorporating a direct path from rejection to these specific interpersonal problems would expand the current model by allowing a comparison of the effects of rejection on interpersonal problems directly versus indirectly. This comparison can tell us whether an indirect path changes the direct effect of attachment on interpersonal

problems from a negative one to a positive one, as it passes through other variables.

Nevertheless, the results of the current study present an indirect relationship between attachment related rejection and interpersonal problems, thus leading the way for subsequent research to further analyse this path.

Additionally, these findings may add further to present information on the role of attachment through the lifespan. Bowlby's (1973) theory of attachment states that different parental attention or interactions during times of stress can lead to different ways of viewing future experiences. Thus ways of behaving and dealing with these experiences can be moulded by the attachment process.. However, in addition to this, the mediation of worry in the relationship between intolerance of uncertainty and interpersonal difficulties may also describe the effect of learned experiences altering a developmentally learned process. Thus, different schemas, with regard to how a person responds to or approaches interpersonal interactions, may be influenced by how the same people have learned to use worry, or how they have learned to think about uncertain situations.

The present findings suggest that those who may have experienced rejection during the attachment process, leading to some degree of intolerance of uncertainty, may then engage in cognitions and behaviours which lead to specific interpersonal problems described as being avoidant, hostile, or antagonistic. However, the addition of worry may ameliorate some of these for some people, but not for others. Thus, only a portion used worry in this productive way. In fact, the ways of experiencing interpersonal difficulties which were found, i.e, those with a more domineering, or self-sacrificing method, or those with a more reactive, or antagonistic, suggest learning of different approaches to interpersonal situations.

Consequently, how rejection is expressed within interpersonal interactions may be mediated by additional factors, such as worry, and additional factors which were not measured. For example, those behaviours seen as more antagonistic may be more likely to encounter resistance, and thus create the opportunity for change, specifically with respect to worry. Hence, those behaviours which are self-sacrificing, or domineering may attempt to assert

control without necessarily engaging in overtly confrontational or antagonistic behaviour, meaning that these behaviours are less likely to encounter direct resistance, or in fact reality testing from the other individual. For instance, if the behaviours being exhibited are problematic, but not overtly so, another person may be less likely to report back the negative impact that behaviour has on themselves and others. The consequences of a rejecting development may thus be expressed differently according to different experiences. Thus, the present findings provide evidence for both a schema based, lifelong interactional pattern, as well as the potential to change these through further experience or learning.

4.2.8. The Influence of Social Anxiety in the Relationship between Worry and Interpersonal Problems.

The current study assessed interpersonal problems in those with excessive and uncontrollable worry, and intolerance of uncertainty, while controlling for the variance explained by social anxiety. Social anxiety was significantly directly related to excessive worry and intolerance of uncertainty, as well as to cold, distant, vindictive, self-centered, overly accommodating, nonassertive, and socially inhibited behaviours. It was also significantly indirectly related to self-sacrificing, overly accommodating and nonassertive behaviours (see Appendix G for all direct and indirect effects). All direct and indirect effects were positively related, thus increases in social anxiety explained increases in these interpersonal problems.

One explanation of the lack of significant positive relationships between worry and interpersonal problems in the current study is that, in controlling for the variance explained by social anxiety, this study in fact controlled for the interpersonal problems commonly experienced by those with excessive worry co-morbid with social anxiety. Nearly 30% of those with clinical worry are likely to have co-morbid diagnosis of Social Phobia (Brown & Barlow, 1992). Additionally 80.6% of those with Social Phobia reported having impairment in relationships, with 22.5% reporting a severe impairment (Ruscio et al., 2008). Similarly, 86.1% reported impairment in their social life in general, with 28.8% reporting a severe impairment (Ruscio et al., 2008). In another study, those with social anxiety exhibited more

agreeable behavior, and less quarrelsome behavior than non-anxious controls during interactions in which they felt less emotionally secure (Russell, J., Moskowitz, D., Zuroff, D., Bleau, P., Pinard, G., & Young, S, 2011), which are consistent with the types of interpersonal problems found to be related to social anxiety in the present study. Therefore, the separation of the effects of social anxiety on worry could account for the lack of significant effects of worry on overly accommodating, nonassertive, and self-sacrificing behaviours, which have been found to be higher in those with clinical levels of worry than non-anxious controls (Eng & Heimberg, 2006). Consequently, those who suffer from excessive and uncontrollable worry, but not social anxiety, may experience less interpersonal difficulties in certain areas than those who suffer from worry co-morbid with social anxiety. However, further research is needed to identify the exact role social anxiety plays in the relationship between worry and interpersonal problems.

4.3. Therapeutic Implications.

Studies on the effects of adding interpersonal components to treatment in those with clinical levels of worry tend to provide positive results. Crits-Christoph et al. (1996) found that interpersonally as well as intrapersonally focused psychodynamic therapy were effective in reducing excessive worry. Similarly, Resvan et al. (2008) found that a group treated with CBT plus interpersonal therapy showed greater reductions in excessive worry than a CBT alone group at a one year follow up assessment. While Newman et al. (2011) found no difference statistically between the effectiveness of CBT alone and a CBT with integrated interpersonal therapy, their results suggest that the group with interpersonal therapy was approaching superior end state functioning in most variables, including excessive worry. In contrast, the results of our study suggest that those with difficulties with excessive worry may not benefit from a focus on interpersonal problems when treatment is being considered. However, intolerance of uncertainty, which was shown to significantly explain variance in excessive worry, was significantly related to interpersonal problems in the current study. Additionally, social anxiety was also significantly related to both excessive worry and

interpersonal problems. Crits-Cristoph et al. (1996) and Resvan et al. (2008) did not exclude those with co-morbid social anxiety, nor did they control for intolerance of uncertainty. While Newman et al. (2011) found that Social Phobia was approximately equal between treatment groups suggesting that potential differences in treatment effectiveness were not caused by differences in rates of social phobia, they did not control for intolerance of uncertainty. Therefore, one explanation of the contradiction in the present results with treatment studies may be that improvements in excessive worry in treatment studies may be more related to changes in these associated variables than excessive worry. In other words, a focus on interpersonal aspects of therapy may in fact improve either intolerance of uncertainty, or social anxiety, and through this, improve excessive worry.

Similarly, other studies have found differences in treatment effectiveness for different interpersonal subtypes in those with clinical levels of excessive worry. Borkovec et al. (2002) found that participants who had higher scores on the Cold/Distant subscale of the IIP improved significantly more than those who had higher scores on other subscales following Cognitive Therapy. They also found that those who had higher scores on the Nonassertive subscale found significantly greater improvements from a Self- Control Desensitisation treatment than those who had higher scores on other subscales. Salzer et al. (2011) found that participants who had higher scores on the Socially Avoidant cluster of the IIP were more resistant to CBT or Short Term Psychodynamic Therapy than those with higher scores on other clusters. Moreover, Crits-Christoph et al. (2005) found that improvement on worry, depression, and anxiety after treatment from Supportive Expressive Psychodynamic Therapy differed according to scores on different clusters of the IIP. Therefore, these studies suggest that identification of interpersonal subtypes may be important to treatment, as responses to different methods of therapy may be at least partially dependent on subtype identification. The results of the present study, while not finding that excessive worry was related to greater interpersonal problem, still found distinct interpersonal styles were related to those with excessive worry. Additionally, the present results did find that other variables related to

excessive worry, intolerance of uncertainty, social anxiety, and current mood, were significantly related to specific interpersonal problem subtypes. Therefore, the present study's results do not contradict the potential benefit in assessing interpersonal subtypes in those looking for treatment; rather, they suggest that interpersonal problems as such may not be specific to those with excessive worries. Intolerance of uncertainty as well as social anxiety may be a more relevant to interpersonal problems in those with excessive worry, considering the present study results. Thus, taking into consideration distinct interpersonal subtypes for those with co-morbid disorders, or an intolerance of uncertainty, may still be beneficial when planning therapeutic approaches.

4.4. Strengths and Limitations.

The main strength of the current study was to integrate multiple paths into an overall assessment of interpersonal problems in those with excessive worry. In using Structural Equation Modeling to analyse an overall model, different paths could be analysed at the same time. The current study was able to test specific direct paths between attachment related variables, and both intolerance of uncertainty and excessive worry. At the same time it assessed paths between interpersonal problem subtypes, and both intolerance of uncertainty and excessive worry. Additionally, it simultaneously assessed the relationship between worry and intolerance of uncertainty. Furthermore, indirect paths could be tested to assess the mediation of intolerance of uncertainty on the relationship between attachment and worry, and the indirect effect of worry on the relationship between intolerance of uncertainty and interpersonal problems.

The other main strength of the study was to expand the amount of variables used and thus more accurately describe an overall relationship. Thus, interpersonal problem subtypes, and attachment problem subtypes were included so as to identify in increased depth, specific problems related to excessive worry and intolerance of uncertainty. Additionally, while other studies have demonstrated the existence of specific relationships assessed in the current study, many were not able to control for related variables which can influence the relationship.

Therefore, related variables which were not of specific interest, such as social anxiety and current mood, were also controlled for in order to identify effects specific to the variables of interest. This resulted in a very stringent test of relationships that may exist between the variables of interest.

A main limitation of the current study was the reliance on undergraduate students. Therefore, generalisations of the results are limited to a similar population. Studies on the benefits of conceptualising those with clinical levels of worry as either a discrete and separate group from those without clinical levels of GAD have found that, in fact, a continuum of worry is best able to describe pathological versus non pathological worry (Ruscio et al, 2001; Olatunji et al, 2010). However, a clinical sample may give the current results more insight into a clinical population as an extension of research utilising a dimensional approach to pathological worry. Considering that research suggests that there is an increased rate of divorce or separation in people with GAD compared to those with other disorders (Hunt et al., 2002; Wittchen et al., 1994), it is possible that problems with interpersonal interactions may only become prominent at the clinical level. Potentially, the protective effects of excessive worry at a non-clinical level may transform into unhelpful effects at a higher level. However, research is lacking in this area. A clinical sample may thus be a logical progression following from the present study.

A further limitation of the present study is the use of a cross-sectional design for a mediation study. While the use of Structural Equation Modeling can suggest causal paths, the present study measured all variables at the same time, and the use of cross sectional designs will typically result in biased estimates of mediation (Maxwell & Cole, 2006). A more accurate testing of the mediation would include measuring all variables over specific incremental times, thus assessing the causal effect of preceding variables on subsequent variables over time. The cross sectional approach fails to allow for causation over time, and rather, presumes that causation happens at the same time for all variables, (Reichardt & Gollob, 1986), which may be particularly relevant considering the self-report retrospective assessment of

attachment. Future studies could thus measure attachment during a participant's childhood, with measures of intolerance of uncertainty, excessive worry, interpersonal problems, as well as other variables being conducted in later years.

Another potential limitation is the reliance on self-report in the present study to measure interpersonal problems. While the use of self-report is common, considering Eng and Heimberg's (2006) finding that those with excessive worry rated their interpersonal interactions more negatively than their friends did, a question of a negative bias in self-ratings is raised. As interpersonal problems are a topic most worried about in those with clinical levels of worry (Breitholtz et al., 1995; Roemer et al., 1997), it would be understandable for these participants to report greater levels of interpersonal problems than someone with lower levels of excessive and uncontrollable worry. However, this was not the case in the present study; those with higher levels of excessive worry had significantly lower interpersonal problems in certain subscales than those with lower worry. In fact, the present study's results may support a negative self-report bias for those high in intolerance of uncertainty, rather than those with greater levels of excessive and uncontrollable worry. Nevertheless, future research could integrate more objective measurements such as reports from friends, as utilised by Eng and Heimberg's (2006) study, as another source of measurement.

4.5. Future Research.

The findings of the present study have formed the basis for many additional research paths. One avenue which may provide additional information on knowledge of interpersonal characteristics is a study which measures positive interpersonal aspects, rather than interpersonal problems. Findings in the current study of a decrease in more hostile interpersonal problems in those with excessive worry may indicate higher levels of positive behaviours during interactions which may be interesting, and helpful to discover. As non-clinical worry was suggested as a protective factor in the present research, it may be informative to consider positive interpersonal factors related to non-clinical levels of worry in order to further expand current knowledge.

Future models of interpersonal problems in those with excessive and uncontrollable worry may also benefit from the addition of alternative variables known to be relevant to clinical levels of worry. Although, as stated previously, the emotion regulation model, the meta-cognitive model, and the cognitive avoidance model deal predominantly with intrapersonal difficulties, they are relevant to interpersonal repercussions of worry. Therefore, causal mechanisms or risk factors described within these models may be relevant to a development of an intolerance of uncertainty and excessive worry. Future research could include measurements of variables related to these models to see whether they affect excessive worry over and above intolerance of uncertainty. It would be interesting to assess whether worry is a protective factor for interpersonal problems when associated with other variables besides intolerance of uncertainty. Additionally, other attachment related variables may also have large roles in the development of either intolerance of uncertainty into worry, or worry itself. Research into this would expand our understanding of how either intolerance of uncertainty, or excessive worry leads to interpersonal problems. For example, variables such as parent modeling of anxiety have been shown to be important in the subsequent development of worry (Muris et al., 2004), potentially also leading to indirect effects with interpersonal problems. Similarly, different variables relating to other disorder such as OCD, or Panic Disorder may be important to consider. An overall model which incorporated additional anxiety symptoms may lead to a more clear understanding of how each disorder develops processes which lead to interpersonal problems.

4.6. Conclusion.

In conclusion, the current study utilised Structural Equation Modeling to test a developmental model exploring pathways from attachment problems to interpersonal problems in people with intolerance of uncertainty and excessive and uncontrollable worry. Results found that people with higher levels of rejection during childhood were more likely to have increased intolerance of uncertainty, and through this, excessive worry. The current study also found

that those high in intolerance of uncertainty were likely to have increased difficulty with cold, distant, vindictive, self-centered, self-sacrificing, controlling and dominating behaviours. However, those high on excessive and uncontrollable worry were likely to have fewer problems with cold, distant, vindictive, and self-centered behaviours than those low on worry. Additionally, and most interestingly, it was found that those who were high on intolerance of uncertainty also reported decreased levels of cold, distant, vindictive and self-centered behaviours when they also had higher levels of worry. Thus, non-clinical levels of excessive and uncontrollable worry were a protective factor for those high in intolerance of uncertainty for specific interpersonal problems. These results have important implications for present knowledge about the role of worry and intolerance of uncertainty in interpersonal problems, as well as establishing a more precise link between attachment and interpersonal problems in those with excessive and uncontrollable worry.

5. REFERENCES

- Alden, L., Wiggins, J., & Pincus, A. (1990). Construction of circumplex scales for the inventory of interpersonal problems. *Journal of Personality Assessment, 55*, 521 – 536.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders*. (4th Ed). Washington, DC.
- Andrews, G., Hobbs, M., Borkovec, T., Beesdo, K., Craske, M., Heimberg, R., Rapee, R., et al. (2010). Generalized Anxiety Disorder and options for DSM-V. *Depression and Anxiety, 147*, 134–147.
- Antony, M., Bieling, P., Cox, B., Enns, M., & Swinson, R. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychological Assessment, 10*, 176–181.
- Baron, R., & Kenny, D. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–82.
- Beck, A., Epstein, N., Brown, G., & Steer, R. (1988). An inventory for measuring clinical anxiety: psychometric properties. *Journal of Consulting and Clinical Psychology, 56*, 893–7.
- Beck, A., & Steer, R. (1990). *Beck Anxiety Inventory manual*. San Antonio, TX: Psychological Corporation.
- Beck, A., Steer, R., & Carbin, M. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8*, 77–100.

- Bedford, A., & Foulds, G. (1978). *Delusions-Symptoms-States Inventory state of Anxiety and Depression*. Windsor, UK: NFER-Nelson.
- Ben-Noun, L. (1998). Generalized anxiety disorder in dysfunctional families. *Journal of Behavior Therapy and Experimental Psychiatry*, 29, 115–22.
- Bentler, P., & Chou, C.-P. (1987). Practical issues in structural modeling. *Sociological Methods & Research*, 16, 78–117.
- Berry, D., Willingham, J., & Thayer, C. (2000). Affect and personality as predictors of conflict and closeness in young adult's friendships. *Journal of Research in Personality*, 34, 84 – 107.
- Boelen, P., & Reijntjes, A. (2009). Intolerance of uncertainty and social anxiety. *Journal of Anxiety Disorders*, 23, 130–5.
- Bollen, K. (2000). Modeling strategies: In search of the Holy Grail. *Structural Equation Modeling: A Multidisciplinary Journal* 7, 74 – 81.
- Borkovec, T. (1994). The nature, functions, and origins of worry. In C. Davey & F. Tallis (Ed.), *Worrying: Perspectives on theory, assessment and treatment* (pp. 5 – 35). New York: John Wiley & Sons Ltd.
- Borkovec, T., Alcaine, O., & Behar, E. (2004). Avoidance theory of worry and generalized anxiety disorder. In: R. Heimberg, C. Turk, & D. Mennin (Eds.), *Generalized anxiety disorder: advances in research and practice* (pp. 77–108). New York, NY, US: Guilford Press.
- Borkovec, T., & Hu, S. (1990). The effect of worry on cardiovascular response to phobic imagery. *Behaviour Research and Therapy*, 28, 69–73.
- Borkovec, T., & Inz, J. (1990). The nature of worry in generalized anxiety disorder: a predominance of thought activity. *Behaviour Research and Therapy*, 28, 153–8.

- Borkovec, T., & Roemer, L. (1995). Perceived functions of worry among generalized anxiety disorder subjects: distraction from more emotionally distressing topics? *Journal of Behavior Therapy and Experimental Psychiatry*, 26, 25–30
- Borkovec, T., Newman, M., Pincus, A., & Lytle, R. (2002). A component analysis of cognitive-behavioral therapy for generalized anxiety disorder and the role of interpersonal problems. *Journal of Consulting and Clinical Psychology*, 70, 288–298.
- Bowlby, J. (1969/82). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.
- Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation*. New York: Basic Books.
- Breitholtz, E., Johansson, B., & Ost, L. (1999). Cognitions in generalized anxiety disorder and panic disorder patients. A prospective approach. *Behaviour Research and Therapy*, 37, 533–44.
- Browne, M & Cudeck, R. (1993). Alternative ways of assessing model fit. *Testing structural equation models*, 136-162.
- Brown, T., & Barlow, D. (1992). Comorbidity among anxiety disorders: Implications for treatment and DSM-IV. *Journal of Consulting and Clinical Psychology*, 60, 835 – 844.
- Budner, S. (1962). Intolerance of ambiguity as a personality variable. *Journal of Personality*, 30, 29– 59.
- Buhr, K, & Dugas, M. (2002). The Intolerance of Uncertainty Scale: psychometric properties of the English version. *Behaviour Research and Therapy*, 40, 931–45.
- Buhr, K, & Dugas, M. (2006). Investigating the construct validity of intolerance of uncertainty and its unique relationship with worry. *Journal of Anxiety Disorders*, 20, 222–36.

- Butzer, B., & Kuiper, N. (2006). Relationships between the frequency of social comparisons and self-concept clarity, intolerance of uncertainty, anxiety, and depression. *Personality and Individual Differences, 41*, 167–176.
- Byrne, B. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. New York: Routledge/Taylor & Francis Group.
- Cain, N., Pincus, A., & Grosse H. (2010). Interpersonal subtypes in social phobia: diagnostic and treatment implications. *Journal of Personality Assessment, 92*, 514–27.
- Carleton, R., Gosselin, P., & Asmundson, G. (2010). The intolerance of uncertainty index: replication and extension with an English sample. *Psychological Assessment, 22*, 396–406.
- Carleton, R., Norton, M., & Asmundson, G. (2007). Fearing the unknown: a short version of the Intolerance of Uncertainty Scale. *Journal of Anxiety Disorders, 21*, 105–17.
- Cassidy, J., Lichtenstein-Phelps, J., Sibrava, N., Thomas, C., & Borkovec, T. (2009). Generalized anxiety disorder: connections with self-reported attachment. *Behavior therapy, 40*, 23–38.
- Crawford, J., & Henry, J. (2003). The Depression Anxiety Stress Scales (DASS): normative data and latent structure in a large non-clinical sample. *The British Journal of Clinical Psychology, 42*, 111–31.
- Crits-Christoph, P., Gibbons, M., Narducci, J., Schamberger, M., & Gallop, R. (2005). Interpersonal problems and the outcome of interpersonally oriented psychodynamic treatment of GAD. *Psychotherapy: Theory, Research, Practice, Training, 42*, 211–224.
- Crits-cristoph, P., Mary, P., Connolly, B., Azarian, K., & Shappell, K. (1996). An open trial of brief Supportive-Expressive psychotherapy in the treatment of Generalized Anxiety Disorder. *Psychotherapy, 33*, 418–430.

- Davis, R., & Valentiner, D. (2000). Does meta-cognitive theory enhance our understanding of pathological worry and anxiety? *Personality and Individual Differences, 29*, 513–526
- Dugas, M., Freeston, M., & Ladouceur, R. (1997). Intolerance of uncertainty and problem orientation in worry. *Cognitive Therapy and Research, 21*, 593–606.
- Dugas, M., Gagnon, F., Ladouceur, R., & Freeston, M. (1998). GAD, a preliminary test of a conceptual model. *Behaviour Research and Therapy, 36*, 215–226.
- Dugas, M., Hedayati, M., Karavidas, A., Buhr, K., Francis, K., & Phillips, N. (2005). Intolerance of uncertainty and information processing: Evidence of biased recall and interpretations. *Cognitive Therapy and Research, 29*, 57–70.
- Dugas, M., & Koerner, N. (2005). Cognitive-behavioral treatment for Generalized Anxiety Disorder: Current status and future directions. *Journal of Cognitive Psychotherapy, 19*, 61–82.
- Dugas, M., & Robichaud, M. (2007). *Cognitive-behavioral treatment for generalized anxiety disorder: From science to practice*. New York: Routledge.
- Dugas, M., Marchand, A., & Ladouceur, R. (2005). Further validation of a cognitive-behavioral model of generalized anxiety disorder: diagnostic and symptom specificity. *Journal of Anxiety Disorders, 19*, 329–43.
- Dugas, M., Savard, P., Gaudet, A., Turcotte, J., Laugesen, N., Robichaud, M., Francis, K., et al. (2007). Can the components of a cognitive model predict the severity of generalized anxiety disorder? *Behavior Therapy, 38*, 169–78.
- Durham, R., Allan, T., & Hackett, C. (1997). On predicting improvement and relapse in generalized anxiety disorder following psychotherapy. *The British Journal of Clinical Psychology 36*, 101–19

- Eisen, S., Dill, D., & Grob, M. (1994). Reliability and validity of a brief patient-report instrument for psychiatric outcome evaluation. *Hospital & Community Psychiatry*, *45*, 242 – 247.
- Eng, W., & Heimberg, R. (2006). Interpersonal correlates of generalized anxiety disorder: Self versus other perception. *Journal of Anxiety Disorders*, *20*, 380–7.
- Foa, E., & Kozak, M. (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin*, *99*, 20–35.
- Freedman, M., Leary, T., Ossorio, A., & Goffey, H. (1951). The interpersonal dimension of personality. *Journal of Personality*, *20*, 143 – 161.
- Freeston, M., Rheaume, J., Letarte, H., Dugas, M., & Ladouceur, F. (1994). Why do people worry? *Personality and Individual Differences*, *17*, 791 - 802.
- George, C., Kaplan, N., & Main, M. (1984). *An adult attachment interview*, 1st ed. Berkeley: University of California Unpublished manuscript.
- George, C., Kaplan, N., & Main, M. (1985). *An adult attachment interview*, 2nd ed. Berkeley: University of California Unpublished manuscript.
- Gerbing, D & Anderson, J. (1984). On the meaning of within-factor correlated measurement errors. *Journal of Consumer Research*, *11*, 572 – 580.
- Hale, W., Engels, R., & Meeus, W. (2006). Adolescent's perceptions of parenting behaviours and its relationship to adolescent Generalized Anxiety Disorder symptoms. *Journal of Adolescence*, *29*, 407–17.
- Hahlweg, K., Conrad, M. (1983). Coding manual: Kategoriensystem Zur beobachtung partnerschaftlicher Interaktion [Interaction Coding System]. Unpublished manual available from Kurt Hahlweg, Institut fur Psychologie, TU braunschweig, Spielmannstrasse 12a, 38106 Braunschweig, Germany.

- Hayes, A. (2009). Beyond Baron and Kenny: Statistical Mediation Analysis in the New Millennium. *Communication Monographs*, 76, 408–420.
- Holaway, R., Heimberg, R., & Coles, M. (2006). A comparison of intolerance of uncertainty in analogue obsessive-compulsive disorder and generalized anxiety disorder. *Journal of Anxiety Disorders*, 20, 158–74.
- Hopwood, C., Pincus, A., DeMoor, R., & Koonce, E. (2008). Psychometric characteristics of the Inventory of Interpersonal Problems-Short Circumplex (IIP-SC) with college students. *Journal of Personality Assessment*, 90, 615–8.
- Horowitz, L., Alden, L., Wiggins, J., & Pincus, A. (2000). *Inventory of interpersonal problems manual*. San Antonio, TX: Psychological Cooperation.
- Horowitz, L., & de Sales French, R. (1979). Interpersonal problems of people who describe themselves as lonely. *Journal of Consulting and Clinical Psychology*, 47, 762–4.
- Horowitz, L., Rosenberg, S., Baer, B., Ureno, G., & Villasenor, V. (1988). Inventory of interpersonal problems: Psychometric properties and clinical applications. *Journal of Consulting and Clinical Psychology*, 56, 885-892.
- Hunt, C., Issakidis, C., & Andrews, G. (2002). DSM-IV generalized anxiety disorder in the Australian National Survey of Mental Health and Well-Being. *Psychological Medicine*, 32, 649 – 659.
- Hoyle, R. (Ed.). (1995). *Structural Equation Modeling: Concepts, issues and applications*. Thousand Oaks, CA: Sage.
- IBM Corp. Released 2012. IBM SPSS Statistics for Windows. Version 21.0. Armonk, NY: IBM Corp.
- Kenny, D. (Feb, 2014). Measuring Model Fit. Retrieved from <http://davidakenny.net/cm/fit.htm>

- Kline, R. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York: The Guilford Press.
- Koerner, N., & Dugas, M. (2008). An investigation of appraisals in individuals vulnerable to excessive worry: the role of intolerance of uncertainty. *Cognitive Therapy and Research, 32*, 619–638.
- Ladouceur, R., Blais, F., Freeston, M., & Dugas, M. (1998). Problem solving and problem orientation in Generalized Anxiety Disorder. *Journal of anxiety disorders, 12*, 139–52.
- Ladouceur, R., Gosselin, P., & Dugas, M. (2000). Experimental manipulation of intolerance of uncertainty: a study of a theoretical model of worry. *Behaviour Research and Therapy, 38*, 933–41.
- Ladouceur, R, Dugas, M., Freeston, M., Léger, E., Gagnon, F., & Thibodeau, N. (2000). Efficacy of a cognitive-behavioral treatment for generalized anxiety disorder: Evaluation in a controlled clinical trial. *Journal of Consulting and Clinical Psychology, 68*, 957–964.
- Laugesen, N., Dugas, M., & Bukowski, W. (2003). Understanding adolescent worry: the application of a cognitive model. *Journal of Abnormal Child Psychology, 31*, 55–64.
- Leary, T. (1957). *Interpersonal diagnosis of personality*. New York: Ronald,
- Lichtenstein, J., & Cassidy, J., (1991). The Inventory of Adult Attachment: Validation of a new measure. Paper presented at the Biennial Meeting of the Society for Research in Child Development, Seattle.
- Lovibond, P, Lovibond, S. (1995). The structure of negative emotional states: Comparisons of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behavior Research Therapy, 33*, 335–343.
- Lovibond, S. & Lovibond, P. (1995). *Manual for the Depression Anxiety Stress Scales (DASS)*. Psychology Foundation Monograph.

- Mackinnon, D., Lockwood, C., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods, *Multivariate Behavioral Research*, *39*, 37–41.
- Marks, I., & Mathews, A. (1979). Brief standard self-rating for phobic patients. *Behaviour Research and Therapy*, *17*, 262-267.
- Mattick, R., & Clarke, J. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behaviour Research and Therapy*, *36*, 455–70.
- Maxwell, S., & Cole, D. (2007). Bias in cross-sectional analyses of longitudinal mediation. *Psychological Methods*, *12*, 23-44.
- McEvoy, P., & Mahoney, A. (2011). Achieving certainty about the structure of intolerance of uncertainty in a treatment-seeking sample with anxiety and depression. *Journal of Anxiety Disorders*, *25*, 112–122.
- McEvoy, P., & Mahoney, A. (2012). To be sure, to be sure: intolerance of uncertainty mediates symptoms of various anxiety disorders and depression. *Behavior Therapy*, *43*, 533–45.
- Mennin, D., Heimberg, R., Turk, C., & Fresco, D. (2005). Preliminary evidence for an emotion dysregulation model of generalized anxiety disorder. *Behaviour Research and Therapy*, *43*, 1281–310.
- Mennin, D., Holaway, R., Fresco, D., Moore, M., & Heimberg, R. (2007). Delineating components of emotion and its dysregulation in anxiety and mood psychopathology. *Behavior Therapy*, *38*, 284–302.
- Meyer, T., Miller, M., Metzger, R., & Borkovec, T. (1990). Development and validation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy*, *28*, 487–95.

- Muris, P., Meesters, C., Merckelbach, H., & Hülßenbeck, P. (2000). Worry in children is related to perceived parental rearing and attachment. *Behaviour Research and Therapy*, *38*, 487–97.
- Muris, P., Meesters, C; Schouten, E, & Hoge, E. (2004). Effects of perceived control on the relationship between perceived parental rearing behaviors and symptoms of anxiety and depression in nonclinical preadolescents. *Journal of Youth and Adolescence*, *33*, 51 - 58.
- Newman, M., Castonguay, L., Borkovec, T., Fisher, A., Boswell, J., Szkodny, L., & Nordberg, S. (2011). A randomized controlled trial of cognitive-behavioral therapy for generalized anxiety disorder with integrated techniques from emotion-focused and interpersonal therapies. *Journal of Consulting and Clinical Psychology*, *79*, 171–81.
- Newman, M., & Llera, S. (2011). A novel theory of experiential avoidance in generalized anxiety disorder: a review and synthesis of research supporting a contrast avoidance model of worry. *Clinical Psychology Review*, *31*, 371–82.
- Newman, M., Llera, S., Erickson, T., Przeworski, A., & Castonguay, L. (2013). Worry and Generalized Anxiety Disorder: a review and theoretical synthesis of evidence on nature, etiology, mechanisms, and treatment. *Annual Review of Clinical Psychology*, *9*, 275–97.
- Olatunji, B., Broman-Fulks, J., Bergman, S., Green, B, & Zlomke, K. (2010). A taxometric investigation of the latent structure of worry: dimensionality and associations with depression, anxiety, and stress. *Behavior Therapy*, *41*, 212–28.
- Przeworski, A., Newman, M., Pincus, A., Kasoff, M., Yamasaki, A., Castonguay, L., & Berlin, K. (2011). Interpersonal pathoplasticity in individuals with generalized anxiety disorder. *Journal of Abnormal Psychology*, *120*, 286–98.

- Reichardt, C., & Gollob, H. (1986). Satisfying the constraints of causal modeling. In W. M. K. Trochim (Ed.), *Advances in quasi-experimental design and analysis* (pp.91 – 107). San Francisco: Jossey-Bass.
- Rezvan, S., Baghban, I., Bahrami, F., & Abedi, M. (2008). A comparison of cognitive-behavior therapy with interpersonal and cognitive behavior therapy in the treatment of generalized anxiety disorder. *Counselling Psychology Quarterly*, *21*, 309–321.
- Roemer, L., Molina, S., & Borkovec, T. (1997). An investigation of worry content among generally anxious individuals. *Journal of Nervous and Mental Disease*, *185*, 314–319.
- Roemer, L., & Orsillo, S. (2006). Expanding our conceptualization of and treatment for Generalized Anxiety Disorder: Integrating mindfulness/acceptance-based approaches with existing cognitive-behavioral models. *Clinical Psychology: Science and Practice*, *9*, 54–68.
- Robichaud, M., Dugas, M., & Conway, M. (2003). Gender differences in worry and associated cognitive-behavioral variables. *Journal of Anxiety Disorders*, *17*, 501–16.
- Ruscio, A., Borkovec, T., & Ruscio, J. (2001). A taxometric investigation of the latent structure of worry. *Journal of Abnormal Psychology*, *3*, 413 – 422.
- Ruscio, A., Brown, T., Chiu, W., Sareen, J., Stein, M., & Kessler, R. (2008). Social fears and social phobia in the USA: results from the National Comorbidity Survey Replication. *Psychological medicine*, *38*, 15–28.
- Russell, J., Moskowitz, D., Zuroff, D., Bleau, P., Pinard, G., & Young, S. (2011). Anxiety, emotional security and the interpersonal behavior of individuals with social anxiety disorder. *Psychological Medicine*, *41*, 545–54.
- Salzer, S., Pincus, A., Hoyer, J., Kreische, R., Leichsenring, F., & Leibing, E. (2008). Interpersonal subtypes within generalized anxiety disorder. *Journal of Personality Assessment*, *90*, 292–9.

- Salzer, S., Pincus, A., Winkelbach, C., Leichsenring, F., & Leibing, E. (2011). Interpersonal subtypes and change of interpersonal problems in the treatment of patients with generalized anxiety disorder: A pilot study. *Psychotherapy*, *48*, 304–310.
- Schlotz, W., Hellhammer, J., Schulz, P., & Stone A. (2004). Perceived work overload and chronic worrying predict weekend-weekday differences in the cortisol awakening response. *Psychosomatic Medicine*. *66*, 207–14
- Schwartz, G., Davidson, R. & Goleman, D. (1978). Patterning of cognitive and somatic processes in the self-regulation of anxiety: Effects of meditation versus exercise. *Psychosomatic Medicine*, *40*, 321-328.
- Sexton, K, Norton, P., Walker, J., & Norton, G. (2003). Hierarchical model of generalized and specific vulnerabilities in anxiety. *Cognitive Behaviour Therapy*, *32*, 82–94.
- Smilkstein, G.(1984). The Family Apgar. *Journal Family Practitioner*, *6*, 1231 – 1329.
- Spielberger, C. (1983). *Manual for the state-trait anxiety inventory STAI (Form Y)*. Palo Alto, CA: Consulting Psychologists Press.
- Pielberger, C., Gorsuch, A., & Lushene, R. (1970). *The state-trait anxiety inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Stein, M., & Heimberg, R. (2004). Well-being and life satisfaction in generalized anxiety disorder: comparison to major depressive disorder in a community sample. *Journal of Affective Disorders*, *79*, 161–6.
- Sullivan, H. (1953). *The interpersonal theory of psychiatry*. New York: WW Norton & Co.
- Tan, S., Moulding, R., Nedeljkovic, M., & Kyrios, M. (2010). Metacognitive, cognitive and developmental predictors of generalised anxiety disorder symptoms. *Clinical Psychologist*, *14*, 84–89.

- Turk, C., Heimberg, R., Luterek, J., Mennin, D., & Fresco, D. (2005). Emotion dysregulation in Generalized Anxiety Disorder: A Comparison with Social Anxiety Disorder. *Cognitive Therapy and Research, 29*, 89–106.
- Uhmann, S., Beesdo-Baum, K., Becker, E., & Hoyer, J. (2010). Specificity of interpersonal problems in generalized anxiety disorder versus other anxiety disorders and depression. *The Journal of Nervous and Mental Disease, 198*, 846–51.
- Viana, A., & Rabian, B. (2008). Perceived attachment: relations to anxiety sensitivity, worry, and GAD symptoms. *Behaviour Research and Therapy, 46*, 737–47.
- Watson, D., & Friend, R. (1969). Measurement of social-evaluative anxiety. *Journal of Consulting and Clinical Psychology, 33*, 448-457.
- Wei, M., Vogel, D., Ku, T-Y., & Zakalik, R. (2005). Adult attachment, affect regulation, negative mood, and interpersonal problems: The mediating roles of emotional reactivity and emotional cutoff. *Journal of Counseling Psychology, 52*, 14–24.
- Weissman, M., & Bothwell, S. (1976). Assessment of social adjustment by patient self-report. *Archives of general psychiatry, 33*, 1111 - 1115.
- Weissman, M., & Paykel, E. (1974). *The depressed women: A study of social relationships*. Chicago, IL: University of Chicago Press.
- Wells, A. (2005). The Metacognitive Model of GAD: Assessment of meta-worry and relationship with DSM-IV Generalized Anxiety Disorder. *Cognitive Therapy and Research, 29*, 107–121.
- Wells, A., & Carter, K. (2001). Further tests of a cognitive model of generalized anxiety disorder: metacognitions and worry in GAD, Panic Disorder, Social Phobia, Depression, and nonpatients. *Behavior Therapy, 32*, 85–102.
- Whisman, M., Sheldon, C., & Goering, P. (2000). Psychiatric disorders and dissatisfaction with social relationships: does type of relationship matter? *Journal of Abnormal Psychology, 109*, 803–8.

- Williams, J., & Mackinnon, D. (2008). Resampling and distribution of the product methods for testing indirect effects in complex models. *Structural Equation Modeling: A Multidisciplinary Journal*, 15, 23–51.
- Wittchen, H. (1994). Reliability and validity studies of the WHO--Composite International Diagnostic Interview (CIDI): A critical review. *Journal of Psychiatric Research*, 28, 57–84.
- Yonkers, K. (2000). Factors predicting the clinical course of generalised anxiety disorder. *The British Journal of Psychiatry*, 176, 544–549.
- Yook, K., Kim, K.-H., Suh, S., & Lee, K. (2010). Intolerance of uncertainty, worry, and rumination in major depressive disorder and generalized anxiety disorder. *Journal of Anxiety Disorders*, 24, 623–8.
- Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 67, 361–370.
- Zinbarg, R., Lee, J., & Yoon, K. (2007). Dyadic predictors of outcome in a cognitive-behavioral program for patients with generalized anxiety disorder in committed relationships: a “spoonful of sugar” and a dose of non-hostile criticism may help. *Behaviour Research and Therapy*, 45, 699–713.
- Zlomke, K., & Young, J. (2009). A retrospective examination of the role of parental anxious rearing behaviors in contributing to intolerance of uncertainty. *Journal of Child and Family Studies*, 18, 670–679.
- Zoccola, P., Dickerson, S., & Yim, I. (2011). Trait and state perseverative cognition and the cortisol awakening response. *Psychoneuroendocrinology* 36, 592–95

6. APPENDICES

Appendix A: Advertisement for Participation in Study as Seen by Students.

“This study is attempting to identify relationships between attachment, intolerance of uncertainty, worrying, and different patterns of interpersonal relationships. There are a number of different factors thought to be related to interpersonal functioning. Intolerance of Uncertainty describes a tendency to experience high levels of distress when faced with uncertain situations. Another factor thought to be related is attachment to a primary caregiver during development. Finally, worry or anxiety may also be related to the way people interact with others. This study is attempting to identify the interrelationships among these factors, and to establish the ways in which different patterns of interpersonal functioning, attachment history, intolerance of uncertainty, and worrying may be related to each other.”

Appendix B: Questionnaires

DASS 21

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

Social Interaction Anxiety Scale (SIAS)

For each question, please circle a number to indicate the degree to which you feel the statement is characteristic or true of 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.

1. I get nervous if I have to speak to someone in authority (teacher, boss)

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 mixing comfortable with the people I work with.

0 1 2 3 4

5. I find it easy to make friends of 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 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 an attractive person 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 I 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

Inventory of interpersonal Problems - 32 Item (IIP-32)

People have reported having the following problems in relating to other people. Please read the list below, and for each item, consider whether it has been a problem for you with respect to **any** significant person in your life. Then fill in the numbered circle that describes how distressing that problem has been.

0 = Not at all

1 = A little bit

2 = Moderately

3 = Quite a bit

4 = Extremely

The following are things you find hard to do with other people.

It is hard for me to:

2. Say “no” to other people

0 1 2 3 4

3. Join in on groups

0 1 2 3 4

4. Keep things private from other people

0 1 2 3 4

5. Tell a person to stop bothering me

0 1 2 3 4

6. Introduce myself to new people

0 1 2 3 4

7. Confront people with problems that come up

0 1 2 3 4

8. Be assertive with another person

0 1 2 3 4

9. Let other people know when I am angry

0 1 2 3 4

10. Socialize with other people

0 1 2 3 4

11. Show affection to people

0 1 2 3 4

12. Get along with other people

0 1 2 3 4

13. Be firm when I need to be

0 1 2 3 4

14. Experience a feeling of love for another person

0 1 2 3 4

15. Be supportive of another person's goals in life

0 1 2 3 4

16. Feel close to other people

0 1 2 3 4

17. Really care about other people's problems

0 1 2 3 4

18. Put somebody else's needs before my own.

0 1 2 3 4

19. Feel good about another person's happiness

0 1 2 3 4

20. Ask other people to get together socially with me

0 1 2 3 4

21. Be assertive without worrying about hurting the other person's feelings

0 1 2 3 4

The following are things I do too much

22. I am too aggressive towards other people

0 1 2 3 4

23. I try to please other people too much

0 1 2 3 4

24. I want to be noticed too much

0 1 2 3 4

25. I try to control other people too much

0 1 2 3 4

26. I put other people's needs before my own too much

0 1 2 3 4

27. I am overly generous to other people too much

0 1 2 3 4

28. I manipulate other people too much to get what I want

0 1 2 3 4

29. I tell personal things to other people too much

0 1 2 3 4

30. I argue with other people too much

0 1 2 3 4

31. I let other people take advantage of me too much

0 1 2 3 4

32. I am affected by another person's misery too much.

0 1 2 3 4

Penn State Worry Questionnaire (PSWQ)

For the following questions please choose the option which you think best applies to you

- 0 = Not at all typical of me**
- 1 = A little typical of me**
- 2 = Moderately typical of me**
- 3 = Quite a bit typical of me**
- 4 = Very typical of me**

1) If I do not have enough time to do everything, I do not worry about it.

0 1 2 3 4

2) My worries overwhelm me.

0 1 2 3 4

3) I do not tend to worry about things.

0 1 2 3 4

4) Many situations make me worry.

0 1 2 3 4

5) I know I should not worry about things, but I just cannot help it.

0 1 2 3 4

6) When I am under pressure I worry a lot.

0 1 2 3 4

7) I am always worrying about something.

0 1 2 3 4

8) I find it easy to dismiss worrisome thoughts.

0 1 2 3 4

9) As soon as I finish one task, I start to worry about everything else I have to do.

0 1 2 3 4

10) I never worry about anything.

0 1 2 3 4

11) When there is nothing more I can do about a concern, I do not worry about it any more.

0 1 2 3 4

12) I have been a worrier all my life.

0 1 2 3 4

13) I notice that I have been worrying about things.

0 1 2 3 4

14) Once I start worrying, I cannot stop.

0 1 2 3 4

15) I worry all the time.

0 1 2 3 4

16) I worry about projects until they are all done.

0 1 2 3 4

Intolerance of Uncertainty Scale (IUS)

For the following questions please choose the option which you think best applies to you

- 0 = Not at all typical of me**
- 1 = A little typical of me**
- 2 = Moderately typical of me**
- 3 = Quite a bit typical of me**
- 4 = Very typical of me**

1 Uncertainty stops me from having a strong opinion.

0 1 2 3 4

2 Being uncertain means that a person is disorganized

0 1 2 3 4

3 Uncertainty makes life intolerable.

0 1 2 3 4

4 It's unfair having no guarantees in life.

0 1 2 3 4

5 My mind can't be relaxed if I don't know what will happen tomorrow.

0 1 2 3 4

6 Uncertainty makes me uneasy, anxious, or stressed.

0 1 2 3 4

7 Unforeseen events upset me greatly.

0 1 2 3 4

8 It frustrates me not having all the information I need.

0 1 2 3 4

9 Uncertainty keeps me from living a full life.

0 1 2 3 4

10 One should always look ahead so as to avoid surprises.

0 1 2 3 4

11 A small unforeseen event can spoil everything, even with the best planning.

0 1 2 3 4

12 When it's time to act, uncertainty paralyses me.

0 1 2 3 4

13 Being uncertain means that I am not first rate.

0 1 2 3 4

14 When I am uncertain, I can't go forward.

0 1 2 3 4

15 When I am uncertain, I can't function very well.

0 1 2 3 4

16 Unlike me, others seem to know where they are going with their lives.

0 1 2 3 4

17 Uncertainty makes me vulnerable, unhappy, or sad.

0 1 2 3 4

18 I always want to know what the future has in store for me.

0 1 2 3 4

19 I can't stand being taken by surprise.

0 1 2 3 4

20 The smallest doubt can stop me from acting.

0 1 2 3 4

21 I should be able to organize everything in advance.

0 1 2 3 4

22 Being uncertain means that I lack confidence.

0 1 2 3 4

23 I think it's unfair that other people seem to be sure about their future.

0 1 2 3 4

24 Uncertainty keeps me from sleeping soundly.

0 1 2 3 4

25 I must get away from all uncertain situations.

0 1 2 3 4

26 The ambiguities in life stress me.

0 1 2 3 4

27 I can't stand being undecided about my future.

0 1 2 3 4

Perceptions of Adult Attachment (PAAQ)

The majority of the following statements refer to your early childhood relationships with your mother (when you were approximately 3 to 8 years old). In most cases the principal caregiver is the “mother”. If someone else was the principle person responsible for your care in childhood, please respond to the questions which refer to “mother with that person in mind.

A few of the questions have two parts. For example “when I caused trouble as a child I knew my mother would forgive me”. Some people might feel like they never caused trouble as a child, however, they consider their mothers very forgiving. How then do they answer? Only answer **AGREE** or **STRONGLY AGREE** if you agree with **both** parts of the statement. If you agree with only one part of the statement answer **NEUTRAL**. If you disagree with both parts of the statement answer **DISAGREE** or **STRONGLY DISAGREE**.

A = STRONGLY DISAGREE

B = DISAGREE

C = NEUTRAL (NEITHER DISAGREE NOR AGREE)

D = AGREE

E = STRONGLY AGREE.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

Please fill in the appropriate circle.

1) In childhood I felt like I was really reassured by my mother

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

2) In childhood I sometimes felt like my mother was really lonely when I was not with her

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

3) My mother was not very affectionate

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

4) When I was a young child and little things went wrong, I did not feel sure that I could count on my mother to take care of me.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

5) As a child I couldn't stand being separated from my mother

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

6) My mother can make me feel really good, but when she is not nice to me she can really tear me apart

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

7) In my family of origin we don't make a show of expressing our feelings. We prefer keeping feelings to ourselves

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

8) Neither myself nor my mother are perfect but somehow we made it through childhood.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

9) I remember when I was frightened as a child my mother holding me close

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

10) When I was a child my mother sometimes told me that if I was not good she would stop loving me

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

11) My mother is selfishly caught up in herself to the exclusion of everybody else

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

12) My family was not particularly intimate, but this has never bothered me.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

13) It's hard for me to remember my early relationship with my mother in any detail.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

14) In childhood I sometimes felt that my mother and I were so alike that I didn't know where she ended and I began.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

15) If anything happened to my mother I wonder if I could survive it.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

DISAGREE

AGREE

16) I remember as a child feeling a desire to protect my mother.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

17) Even though I went through rough times with my mother during my childhood, somewhere along the line I managed to let go of the majority of those angry, hurt feelings.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

18) In childhood I knew I was low on my mother's priority list.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

19) My mother was an all-around excellent mother.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

20) No one gets under my skin like my mother.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

21) As a child I never thought separations from my parents were any big deal.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

22) I often feel responsible for my mother's welfare.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

23) In childhood my mother sometimes threatened to leave me or to send me away if I wasn't good.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

24) To this day my mother had no clue who I am or what I am all about.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

25) Even with all our past difficulties, I realize my mother did the best for me that she could.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

26) I have forgotten what most of my early childhood was like.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

27) I always knew my mother was there for me; no matter what I could depend on her.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

28) There are times when I feel like shaking my mother and saying “wake up and see me for who I am”

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

29) In childhood I often had the impression that my mother was not listening to me. She often tuned me out.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

30) During my childhood I sometimes felt like I was my mother’s whole life.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

31) My mother and I are more accepting of each other’s differences than we have been in the past

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

32) When I was young I often feared something dreadful would happen to my mother or father.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

33) I remember my mother telling me that I didn’t pay enough attention to her or love her enough

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

34) I often take my mother’s opinions about me to heart and lose sight of my own opinion about myself

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

35) My mother is a real nag.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

36) My mother and I were so alike we often could finish each other's sentences.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

37) I think people put too much emphasis on the mother/ child relationship.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

38) I remember very little about my early childhood (ages three to seven).

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

39) The concept of the loving, supportive mother is pure myth.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

40) My relationship with my mother has gone through major changes over the course of my childhood and adolescence

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

41) Even as an adult I sometimes feel like I will never dig myself out from under my mother's influence.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

42) As a child I sometimes go the feeling that without me my mother would have fallen apart.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

43) I couldn't have asked for a better mother.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

DISAGREE

AGREE

44) If my mother was not fair to me as a child I realize it was because she was dealing with her own problems.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

45) If something really bad happened to me in childhood I did not feel I could count on my mother to support me

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

46) When i was a child I sometimes got the feeling that my mother wished I was never born.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

47) I remember as a child feeling scared that one or both of my parents would die unexpectedly.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

48) My mother can devastate me with her criticism.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

49) In Childhood my mother often told me she was sacrificing herself for me

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

50) I don't think my early childhood relationship with my mother has any significant influence on who I am today or my present relationships.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

51) My mother was always there for me when I needed her.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

52) When I acted bad my mother would, at times, threaten to send me away.

A STRONGLY DISAGREE B DISAGREE C NEUTRAL D AGREE E STRONGLY AGREE

53) I never felt like my mother gave me enough attention.

A STRONGLY DISAGREE **B** DISAGREE **C** NEUTRAL **D** AGREE **E** STRONGLY AGREE

54) For all our past problems my mother and I can still enjoy a good laugh together

A STRONGLY DISAGREE **B** DISAGREE **C** NEUTRAL **D** AGREE **E** STRONGLY AGREE

55) During my childhood my mother would often turn to me and tell me lots of things that upset and bothered her

A STRONGLY DISAGREE **B** DISAGREE **C** NEUTRAL **D** AGREE **E** STRONGLY AGREE

56) In childhood I often worried about my mother's state of health.

A STRONGLY DISAGREE **B** DISAGREE **C** NEUTRAL **D** AGREE **E** STRONGLY AGREE

57) I find it difficult to remember my early childhood.

A STRONGLY DISAGREE **B** DISAGREE **C** NEUTRAL **D** AGREE **E** STRONGLY AGREE

58) My mother was a perfect mother

A STRONGLY DISAGREE **B** DISAGREE **C** NEUTRAL **D** AGREE **E** STRONGLY AGREE

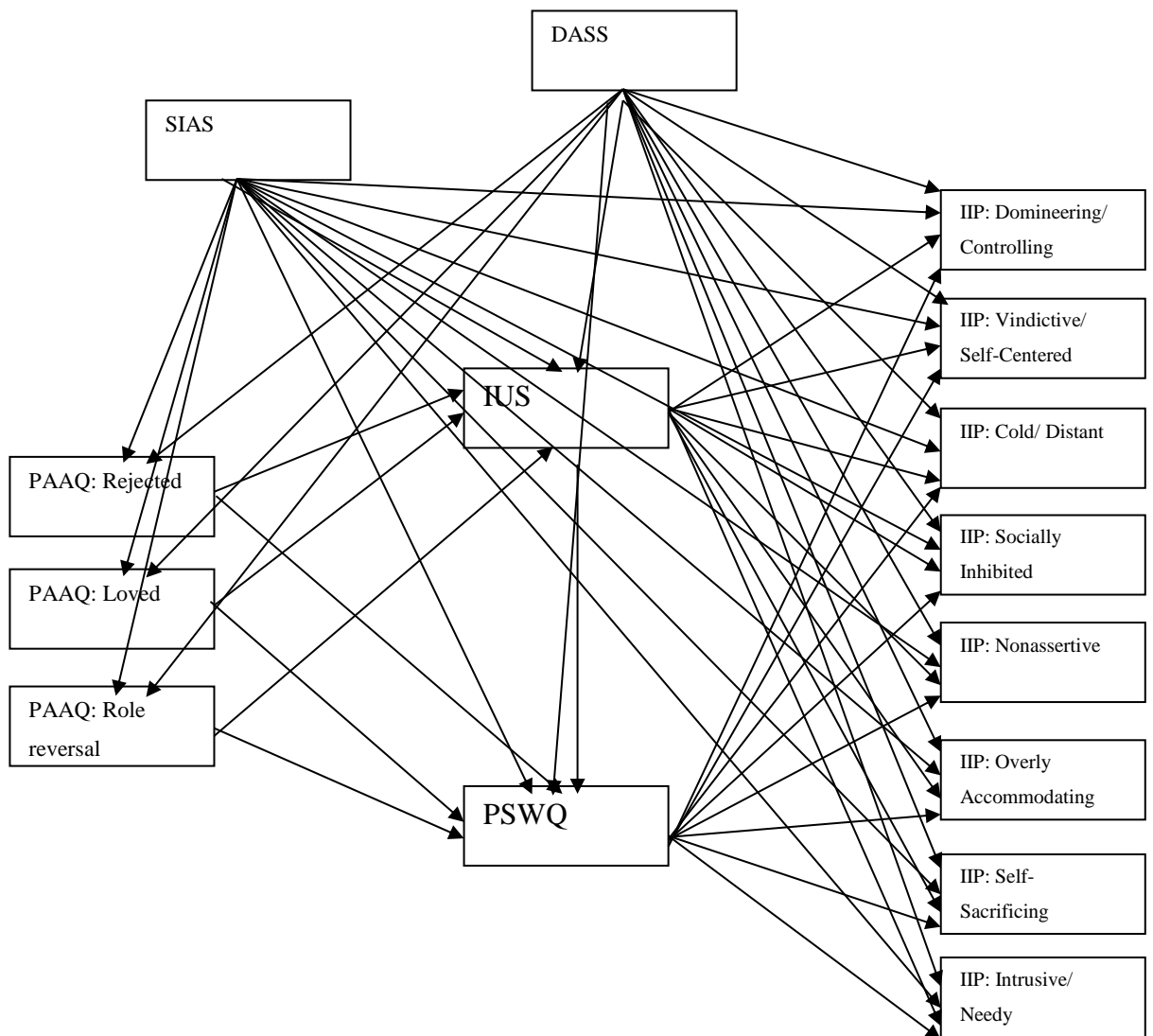
59) My mother's issues are still interfering with my life

A STRONGLY DISAGREE **B** DISAGREE **C** NEUTRAL **D** AGREE **E** STRONGLY AGREE

60) When I think back to my early childhood experiences I discovered things about myself and my parents that I've never considered before.

A STRONGLY DISAGREE **B** DISAGREE **C** NEUTRAL **D** AGREE **E** STRONGLY AGREE

Appendix C: Full Structural Model Including Control Variables



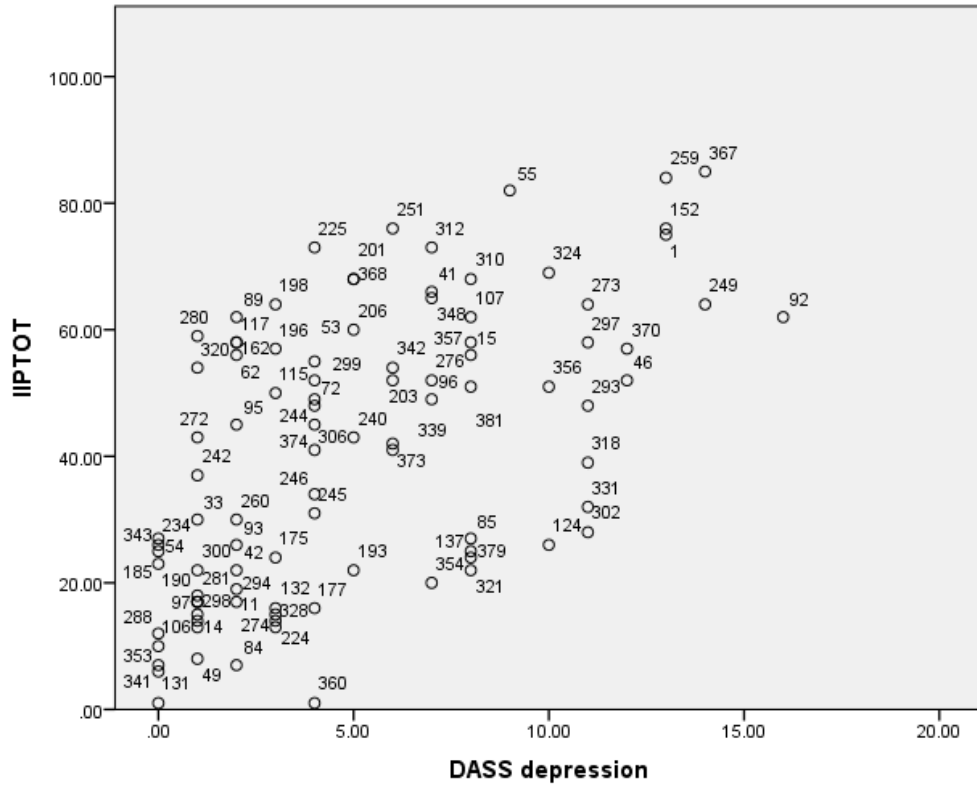
Appendix D: Kolmogorov-Smirnov Statistics for all Variables

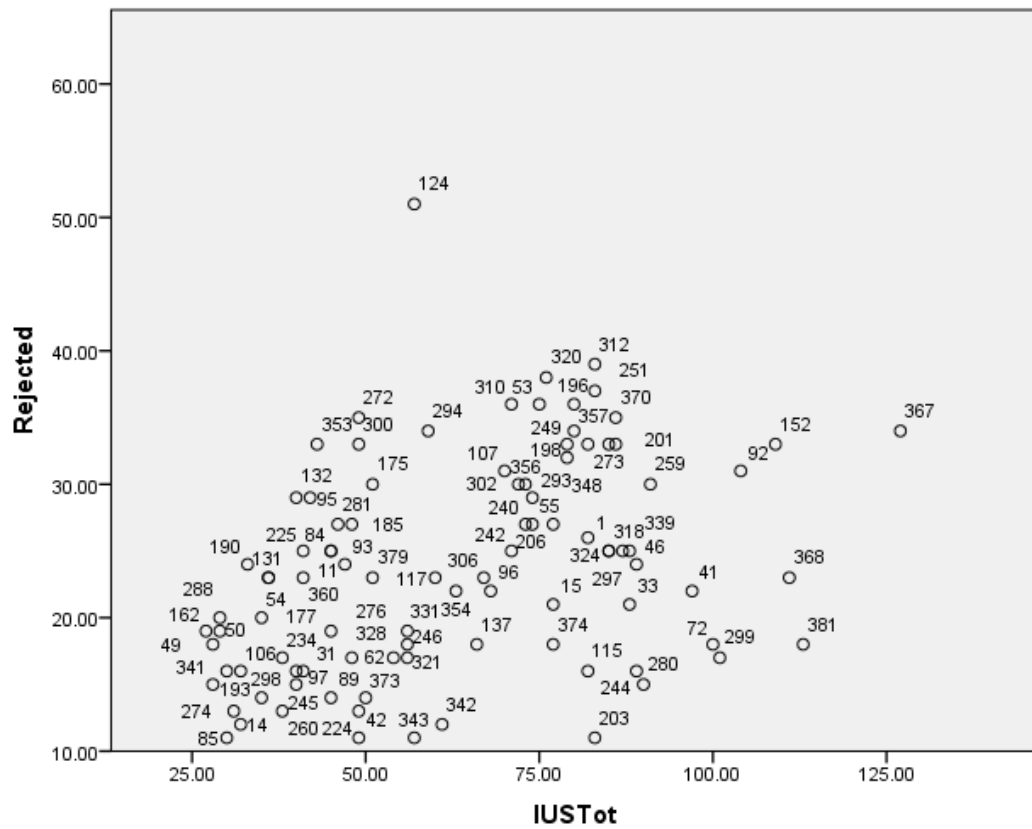
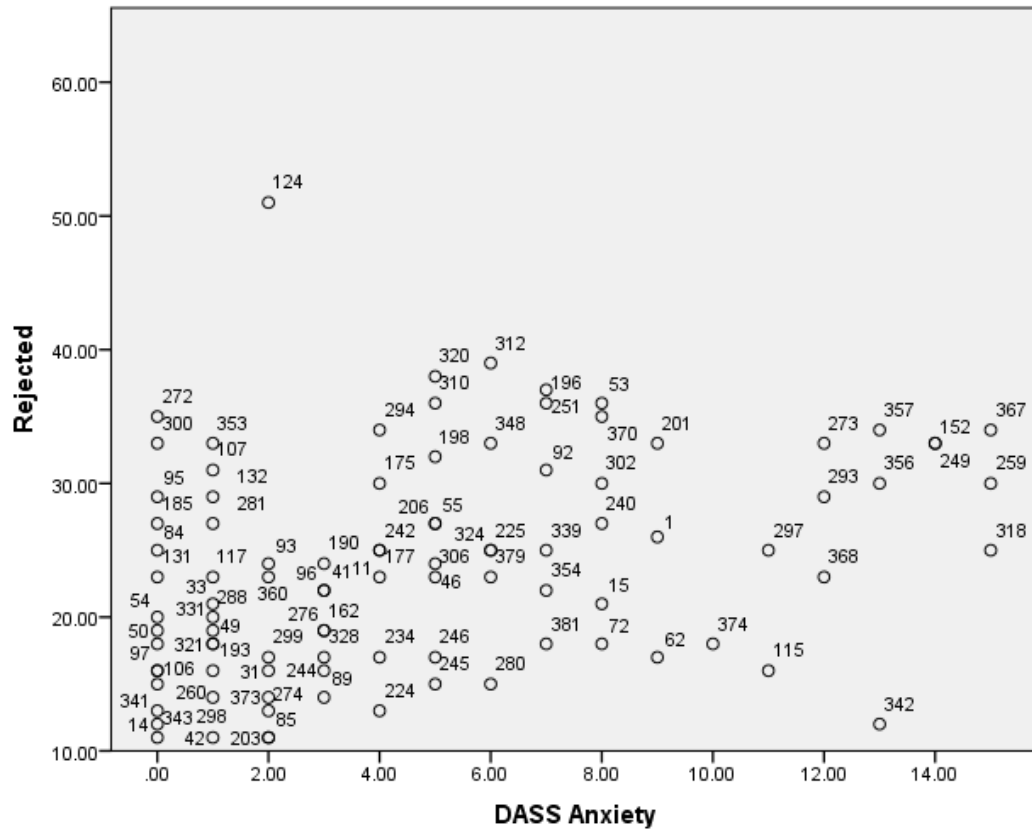
Tests of Normality

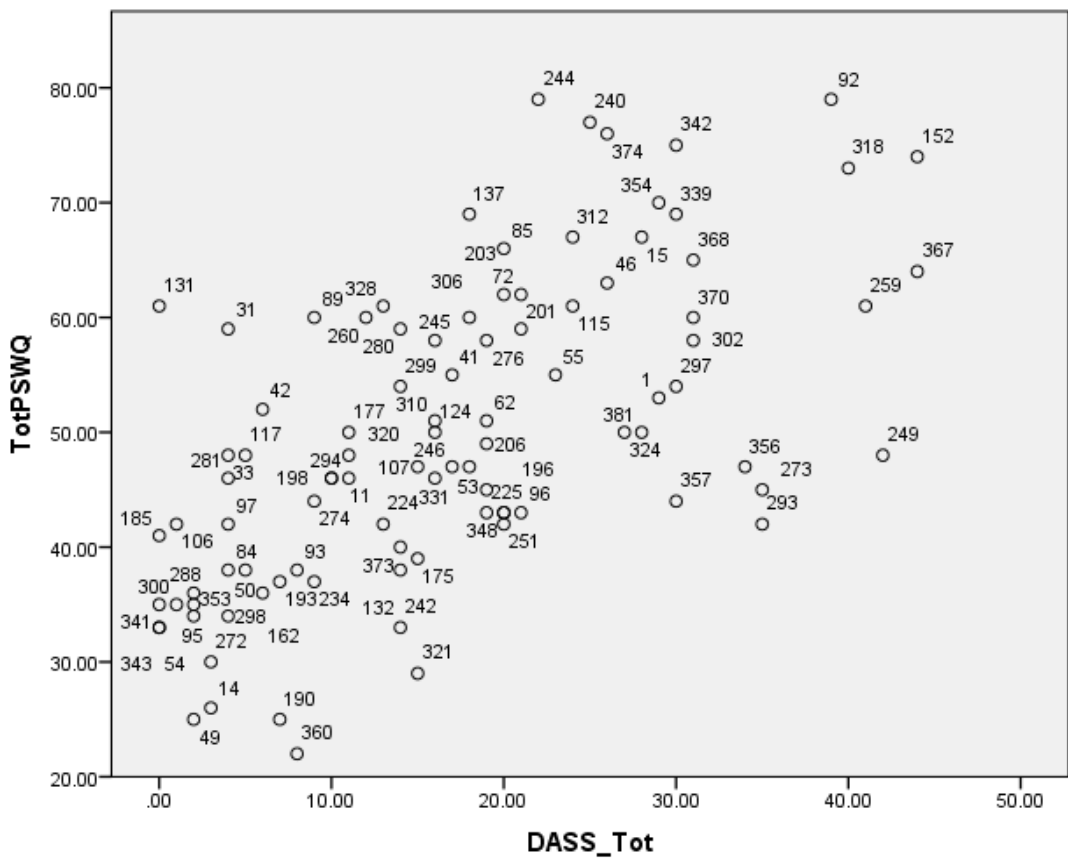
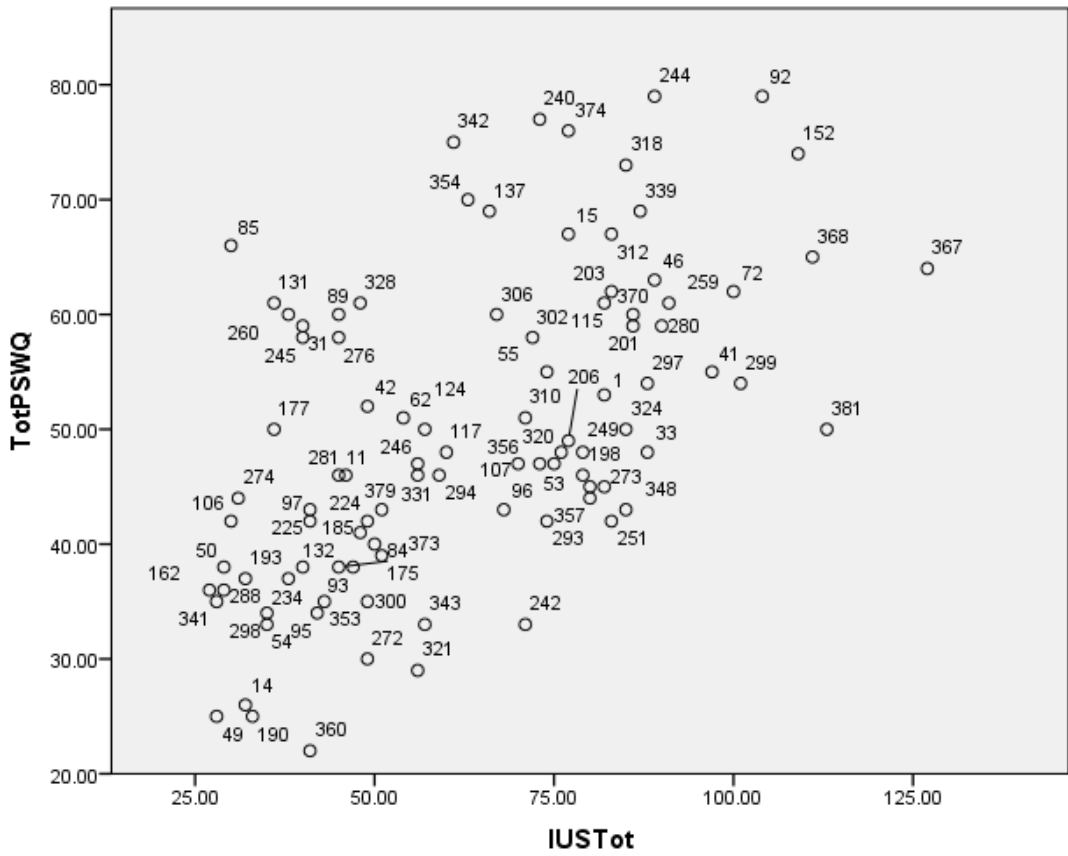
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
IIPTOT	.075	377	.000	.981	377	.000
Domineering/Controlling	.173	377	.000	.870	377	.000
Vindictive/Self-Centered	.191	377	.000	.823	377	.000
Cold/Distant	.174	377	.000	.892	377	.000
Socially Inhibited	.113	377	.000	.949	377	.000
Nonassertive	.078	377	.000	.973	377	.000
Overly Accomodating	.083	377	.000	.976	377	.000
Self-Sacrificing	.090	377	.000	.970	377	.000
Intrusive/Needy	.133	377	.000	.926	377	.000
Rejected	.091	377	.000	.946	377	.000
Loved	.109	377	.000	.924	377	.000
Role Reversal	.054	377	.011	.994	377	.136
Vulnerable	.079	377	.000	.989	377	.005
Balancing Forgiving	.110	377	.000	.973	377	.000
Angry	.102	377	.000	.968	377	.000
Derogating	.098	377	.000	.977	377	.000
Reporting No Memory	.100	377	.000	.977	377	.000
DASS depression	.154	377	.000	.892	377	.000
DASS Anxiety	.169	377	.000	.872	377	.000
DASS Stress	.071	377	.000	.968	377	.000
DASS_Tot	.096	377	.000	.941	377	.000
IUSTot	.105	377	.000	.940	377	.000
SIASTot	.059	377	.003	.979	377	.000
TotPSWQ	.059	377	.003	.983	377	.000

a. Lilliefors Significance Correction

Appendix E: Scatter plots of Select Correlations for Participants who Completed the Study in Under 15 Minutes







**Appendix G: Means and Standard Deviations in Other Studies Using Non
Clinical Populations for Variables Used in the Present Study**

Measure	Article	Mean(SD)
IIP Total	Hopwood et al. (2008)	35.15(16.79)
IIP-Domineering	Hopwood et al. (2008)	3.04(2.64)
IIP-Vindictive/Self-Centered	Hopwood et al. (2008)	3.17(2.76)
IIP-Cold/Distant	Hopwood et al. (2008)	3.60(3.42)
IIP-Socially Inhibited	Hopwood et al. (2008)	4.19(3.79)
IIP-Nonassertive	Hopwood et al. (2008)	5.68(3.66)
IIP-Overly Accommodating	Hopwood et al. (2008)	5.54(3.41)
IIP-Self-Sacrificing	Hopwood et al. (2008)	5.86(3.30)
IIP-Intrusive/Needy	Hopwood et al. (2008)	4.10(2.20)
PAAQ- Rejection	**	**
PAAQ-Loved	**	**
PAAAQ- Role-reversal/Enmeshment	**	**
DASS Depression	P. Lovibond and S. Lovibond (1995)	7.19(6.54)
DASS Anxiety	P. Lovibond and S. Lovibond (1995)	5.23(4.83)
DASS Stress	P. Lovibond and S. Lovibond (1995)	10.54(6.94)
DASS Total	P. Lovibond and S. Lovibond (1995)	
IUS Total	Buhr & Dugas, 2002	54.78(17.44)
SIAS Total	Mattick & Clarke (1998)	19.0(10.1)
PSWQ Total	Buhr & Dugas (2002)	47.22(13.82)

**Means for the PAAQ in the Cassidy et al. (2009) article were averaged within subscales, and so were compared in a separate table.

Appendix H: Average Score for the PAAQ Subscales in the Present Study, and Average Scores for the PAAQ Subscales for a Control and GAD Clinical Group in Cassidy et al. (2009)

PAAQ Subscale	Mean(SD)	Subscale Mean(SD)*	Control sample**	GAD sample
PAAQ- Rejection	21.97(8.15)	2.00(0.74)	1.74(0.67),	2.19(0.79)
PAAQ-Loved	24.14(4.75)	4.02(0.79)	3.83(0.80)	3.49(0.98)
PAAAQ- Role-reversal/Enmeshment	28.56(6.17)	2.86(0.62)	2.16(0.59)	2.49(0.72)

*Subscale means were calculated by dividing the mean and SD for each subscale by the number of questions in that subscale.

Appendix I: Residual Matrix for Variables Used in Structural Model

Standardized Residual Covariances

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1: DASS	0														
2: SIAS	0	0													
3: PAAQ Role	0	0	0												
4: PAAQ Loved	0	0	0	0											
5: PAAQ Rejection	0	0	0	0	0										
6: IUS	0	0	0	0	0	0									
7: PSWQ	0	0	0	0	0	0	0								
8: IIP Cold/Distant	0	0	0.756	-1.9	1.219	0	0	0							
9: IIP Self Sacrificing	0	0	2.652	2.138	-0.78	0	0	0	0						
10: IIP Intrusive/ Needy	0	0	0.233	-1.25	1.658	0	0	0	0	0					
11: IIP Vindictive/ Self - Centered	0	0	0.378	-2.64	2.318	0	0	0	0	0	0				
12: IIP Domineering/ Controlling	0	0	0.159	-1.11	0.621	0	0	0	0	0	0	0			
13: IIP Overly Accommodating	0	0	-0.27	0.575	-0.39	0	0	0	0	0	0	0	0		
14: IIP Nonassertive	0	0	-0.63	0.242	0.148	0	0	0	0	0	0	0	0	0	
15: IIP Socially Inhibited	0	0	-0.54	-0.59	-0.26	0	0	0	0	0	0	0	0	0	0

Appendix J: Standardised Direct and Indirect Effects, Upper and Lower bounds of the Bias Corrected 90% Confidence Interval, and Significance for Variables Used in Structural Model.

Standardized Direct Effects

	DASS	SIAS	PAAQ Role Reversal	PAAQ Loved	PAAQ Rejected	IUS	PSWQ
IUS	0.417	0.331	0.069	0.038	0.22	0	0
PSWQ	0.266	0.156	-0.002	0.06	-0.089	0.379	0
IIP Cold/Distant	0.083	0.498	0	0	0	0.239	-0.211
IIP Self Sacrificing	0.226	0.089	0	0	0	0.147	0.079
IIP Intrusive/ Needy	0.402	-0.019	0	0	0	0.064	-0.11
IIP Vindictive/ Self - Centered	0.117	0.223	0	0	0	0.324	-0.228
IIP Domineering/ Controlling	0.257	0.097	0	0	0	0.196	-0.089
IIP Overly Accommodating	0.114	0.387	0	0	0	0.087	0.081
IIP Nonassertive	0.059	0.464	0	0	0	0.077	0.062
IIP Socially Inhibited	0.006	0.807	0	0	0	0.044	-0.009

Standardized Direct Effects - Lower Bounds (Bias Corrected)

	DASS	SIAS	PAAQ Role Reversal	PAAQ Loved	PAAQ Rejected	IUS	PSWQ
IUS	0.324	0.244	-0.009	-0.069	0.112	0	0
PSWQ	0.159	0.049	-0.099	-0.065	-0.203	0.261	0
IIP Cold/Distant	-0.03	0.402	0	0	0	0.113	-0.306
IIP Self Sacrificing	0.098	-0.038	0	0	0	0.005	-0.052
IIP Intrusive/ Needy	0.257	-0.138	0	0	0	-0.084	-0.242
IIP Vindictive/ Self - Centered	-0.01	0.106	0	0	0	0.174	-0.333
IIP Domineering/ Controlling	0.12	-0.021	0	0	0	0.041	-0.215
IIP Overly Accommodating	-0.01	0.283	0	0	0	-0.034	-0.039
IIP Nonassertive	-0.06	0.36	0	0	0	-0.048	-0.049
IIP Socially Inhibited	-0.07	0.745	0	0	0	-0.046	-0.085

Standardized Direct Effects - Upper Bounds (Bias Corrected)

	DASS	SIAS	PAAQ Role Reversal	PAAQ Loved	PAAQ Rejected	IUS	PSWQ
IUS	0.504	0.421	0.15	0.145	0.332	0	0
PSWQ	0.365	0.259	0.089	0.176	0.028	0.491	0
IIP Cold/Distant	0.193	0.584	0	0	0	0.372	-0.121
IIP Self Sacrificing	0.355	0.21	0	0	0	0.281	0.202
IIP Intrusive/ Needy	0.547	0.105	0	0	0	0.215	0.028
IIP Vindictive/ Self - Centered	0.243	0.336	0	0	0	0.471	-0.113
IIP Domineering/ Controlling	0.401	0.207	0	0	0	0.346	0.045
IIP Overly Accommodating	0.24	0.48	0	0	0	0.216	0.198
IIP Nonassertive	0.178	0.564	0	0	0	0.205	0.169
IIP Socially Inhibited	0.082	0.868	0	0	0	0.135	0.062

Standardized Direct Effects - Two Tailed Significance (Bias Corrected)

	DASS	SIAS	PAAQ Role Reversal	PAAQ Loved	PAAQ Rejected	IUS	PSWQ
IUS	0	0	0.079	0.497	0	...	...
PSWQ	0	0.008	0.957	0.356	0.132	0	...
IIP Cold/Distant	0.137	0.001	...	...	...	0	0
IIP Self Sacrificing	0	0.168	...	...	...	0.041	0.236
IIP Intrusive/ Needy	0	0.781	...	...	...	0.4	0.116
IIP Vindictive/ Self - Centered	0.062	0.001	...	...	...	0	0.001
IIP Domineering/ Controlling	0.001	0.135	...	...	...	0.014	0.181
IIP Overly Accommodating	0.066	0	...	...	...	0.15	0.199
IIP Nonassertive	0.337	0	...	...	...	0.225	0.292
IIP Socially Inhibited	0.895	0	...	...	...	0.325	0.784

Standardized Indirect Effects

	DASS	SIAS	PAAQ Role Reversal	PAAQ Loved	PAAQ Rejected	IUS	PSWQ
IUS	0	0	0	0	0	0	0
PSWQ	0.158	0.126	0.026	0.014	0.084	0	0
IIP Cold/Distant	0.01	0.02	0.011	-0.007	0.054	-0.08	0
IIP Self Sacrificing	0.095	0.071	0.012	0.011	0.032	0.03	0
IIP Intrusive/ Needy	-0.02	-0.01	0.002	-0.006	0.015	-0.042	0
IIP Vindictive/ Self - Centered	0.038	0.043	0.017	-0.005	0.073	-0.087	0
IIP Domineering/ Controlling	0.044	0.04	0.011	0.001	0.044	-0.034	0
IIP Overly Accomodating	0.071	0.052	0.008	0.009	0.019	0.031	0
IIP Nonassertive	0.058	0.043	0.007	0.007	0.017	0.023	0
IIP Socially Inhibited	0.015	0.012	0.003	0.001	0.01	-0.003	0

Standardized Indirect Effects - Lower Bounds (Bias Corrected)

	DASS	SIAS	PAAQ Role Reversal	PAAQ Loved	PAAQ Rejected	IUS	PSWQ
IUS	0	0	0	0	0	0	0
PSWQ	0.104	0.081	-0.002	-0.026	0.041	0	0
IIP Cold/Distant	-0.05	-0.028	-0.012	-0.042	0.021	-0.133	0
IIP Self Sacrificing	0.025	0.021	-0.004	-0.009	-0.002	-0.018	0
IIP Intrusive/ Needy	-0.1	-0.066	-0.014	-0.035	-0.02	-0.098	0
IIP Vindictive/ Self - Centered	-0.03	-0.014	-0.011	-0.047	0.033	-0.142	0
IIP Domineering/ Controlling	-0.02	-0.011	-0.004	-0.027	0.011	-0.088	0
IIP Overly Accomodating	0.006	0.004	-0.004	-0.006	-0.011	-0.013	0
IIP Nonassertive	0.002	0.002	-0.004	-0.006	-0.011	-0.017	0
IIP Socially Inhibited	-0.03	-0.019	-0.003	-0.007	-0.009	-0.033	0

Standardized Indirect Effects - Upper Bounds (Bias Corrected)

	DASS	SIAS	PAAQ Role Reversal	PAAQ Loved	PAAQ Rejected	IUS	PSWQ
IUS	0	0	0	0	0	0	0
PSWQ	0.225	0.183	0.06	0.058	0.142	0	0
IIP Cold/Distant	0.077	0.073	0.042	0.026	0.1	-0.041	0
IIP Self Sacrificing	0.174	0.13	0.038	0.045	0.075	0.083	0
IIP Intrusive/ Needy	0.053	0.045	0.019	0.01	0.055	0.009	0
IIP Vindictive/ Self - Centered	0.109	0.104	0.055	0.038	0.129	-0.041	0
IIP Domineering/ Controlling	0.124	0.104	0.038	0.029	0.094	0.014	0
IIP Overly Accomodating	0.136	0.104	0.029	0.038	0.056	0.081	0
IIP Nonassertive	0.119	0.092	0.026	0.031	0.054	0.068	0
IIP Socially Inhibited	0.058	0.044	0.015	0.012	0.034	0.024	0

Standardized Indirect Effects - Two Tailed Significance (Bias Corrected)

	DASS	SIAS	PAAQ Role Reversal	PAAQ Loved	PAAQ Rejected	IUS	PSWQ
IUS	...	...	...	...	...	...	...
PSWQ	0	0	0.067	0.474	0	...	...
IIP Cold/Distant	0.697	0.41	0.343	0.707	0.002	0	...
IIP Self Sacrificing	0.008	0.007	0.139	0.256	0.059	0.215	...
IIP Intrusive/ Needy	0.563	0.694	0.782	0.412	0.416	0.098	...
IIP Vindictive/ Self - Centered	0.245	0.129	0.244	0.867	0	0	...
IIP Domineering/ Controlling	0.214	0.127	0.144	0.929	0.008	0.164	...
IIP Overly Accomodating	0.032	0.03	0.197	0.212	0.214	0.176	...
IIP Nonassertive	0.045	0.043	0.189	0.275	0.23	0.265	...
IIP Socially Inhibited	0.463	0.41	0.313	0.66	0.276	0.779	...

Appendix K: Ethics Approval Document

Ref: IM/HW

8 November 2011

Dr Marianna Szabo
School of Psychology
Faculty of Science
The University of Sydney
Email: marianna.szabo@sydney.edu.au

Dear Dr Szabo

I am pleased to inform you that the Human Research Ethics Committee (HREC) approved your protocol entitled "The Role of Attachment and Intolerance of Uncertainty in the Relationship between Worry and Interpersonal Problems" at its meeting held on **8 November 2011**.

Details of the approval are as follows:

Protocol No.: 14253
Approval Date: 8 November 2011
First Annual Report Due: 30 November 2012
Authorised Personnel: Dr Marianna Szabo
Mr Dilan Perera

Documents Approved:

Document	Version Number	Date
Worry and Social Behaviour - Questionnaire	1	22/09/2011
Participant Debrief	1	22/09/2011
Participant Information Statement	1	22/09/2011
Advertisement	1	22/09/2011

HREC approval is valid for four (4) years from the approval date stated in this letter and is granted pending the following conditions being met:

Condition/s of Approval

- Continuing compliance with the National Statement on Ethical Conduct in Research Involving Humans.
- Provision of an annual report on this research to the Human Research Ethics Committee from the approval date and at the completion of the study. Failure to submit reports will result in withdrawal of ethics approval for the project.
- All serious and unexpected adverse events should be reported to the HREC within 72 hours.



- All unforeseen events that might affect continued ethical acceptability of the project should be reported to the HREC as soon as possible.
- Any changes to the protocol including changes to research personnel must be approved by the HREC by submitting a Modification Form before the research project can proceed.

Chief Investigator / Supervisor's responsibilities:

1. You must retain copies of all signed Consent Forms (if applicable) and provide these to the HREC on request.
2. It is your responsibility to provide a copy of this letter to any internal/external granting agencies if requested.

Please do not hesitate to contact Research Integrity (Human Ethics) should you require further information or clarification.

Yours sincerely

**Associate Professor Ian Maxwell
Chair
Human Research Ethics Committee**

cc: **Dilan Perera** Dper4137@uni.sydney.edu.au

This HREC is constituted and operates in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research (2007), NHMRC and Universities Australia Australian Code for the Responsible Conduct of Research (2007) and the CPMP/ICH Note for Guidance on Good Clinical Practice.