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Examination of Problem-Solving Related Metacognitions and Worry in an American Sample

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EXAMINATION OF PROBLEM-SOLVING RELATED METACOGNITIONS AND
WORRY IN AN AMERICAN SAMPLE

by

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Dedication

Mom, Dad, Helene, and Lewis – Thank you for always loving and supporting me.

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Abstract

Problem-solving metacognitions, including responsibility to continue to think about a problem and a low confidence in problem-solving, have been hypothesized to be associated with pathological worry; however, these metacognitive variables have received surprisingly little attention in the research literature. As a result, the purpose of this study was to examine the psychometric properties of the Problem-Solving Related Metacognitions Questionnaire (PSRMCQ), translated to English from Japanese. A sample of 241 non-referred college students completed the PSRMCQ, along with a measure of worry symptoms and a measure of other commonly examined metacognitions. The PSRMCQ measure was found to exhibit strong internal consistency. Further, the PSRMCQ was found to be associated with worry symptoms. Adequate incremental validity was also found, as the PSRMCQ was found to predict worry symptoms after controlling for other commonly examined metacognitive variables. Overall, these findings provide support for the association of the problem-solving metacognitions and worry, and the findings have the potential to inform cognitive treatments for pathological worry and generalized anxiety disorder.

Examination of Problem-Solving Related MetaCognitions and Worry in an American Sample

Worry is often defined as a negative chain of thoughts and images, which is uncontrollable in nature and aimed at mental problem-solving on an uncertain outcome (Borkovec, Robinson, Pruzinsky, & DePree, 1983; American Psychiatric Association, 2000). Further, worry is considered a central feature of Generalized Anxiety Disorder (GAD). Approximately 6.8 million Americans or 3.1% of people over the age of 18 are diagnosed with GAD (NIMH National Institute of Mental Health, 2012). Today the most common treatment for GAD includes either medication or psychotherapy, including behavioral or cognitive-behavioral therapy. Traditional recovery rates were found to range between 35-50%, which is lower than estimated recovery rate of 70% for other anxiety disorders (Barlow 2007; Fisher 2006). Overall, GAD appears to be a relatively common but difficult to treat disorder, and as a result, more research is needed in order to better understand the processes that lead to the development and maintenance of pathological worry and GAD symptoms.

A number of models focus on the role of specific cognitive processes in the development and maintenance of pathological worry. One promising model is the metacognitive model of GAD (Wells, 1995). In particular, the metacognitive model focuses on the role of metacognitive beliefs about the nature and function of worry, and according to this model, specific beliefs about worry lead to the development and maintenance of GAD symptoms. In addition, two basic categories of metacognitive beliefs are believed to maintain worry symptoms. The first category is positive beliefs about worry, which are reinforced in an individual that has strong beliefs about the positive consequences of worry. For example, individuals may believe that worry may keep them safe or that they need to worry to prevent bad things from happening. Positive beliefs can

be seen as motivation to continue to worry. The second category includes negative beliefs about worry. With negative beliefs about worry, individuals believe that worry has negative consequences, such as the belief that worry is inherently dangerous or will lead to negative consequences. In other words, they worry about their worrying. According to the model developed by Wells and colleagues, individuals with GAD tend to hold positive beliefs about worry, which means that they are more likely to engage in excessive and perseverative worry (Wells & Butler, 1997). However, due to negative beliefs about worry, their worry causes a high level of distress. Therefore, their worry is excessive and distressful. This model has received strong empirical support, and based on this model, effective treatments for GAD have been developed (Wells, 2006).

Problem-Solving Metacognitions

Although the metacognitive model has received strong empirical support, it is noteworthy that positive beliefs do not appear to be specific to GAD, and research on positive beliefs indicated that these beliefs have a significant, but relatively weak, association with GAD and pathological worry (Sugiura 2007; Wells, 2006). In addition, worry may not be disruptive to functioning or lead to preservation merely because it is found to be useful (Sugiura, 2007). As a result, it is possible that other metacognitive variables may explain the motivation to continue to worry. Sugiura (2004, 2007) noted that two additional cognitive processes may be associated with pathological worry and GAD symptoms. These variables have been described as problem-solving related metacognitions or beliefs that one holds when attempting to solve a problem, and include (1) perceived responsibility to continue thinking about a problem, and (2) low confidence in one's own problem solving ability (Sugiura 2004, 2007).

Responsibility to continue thinking or persistence in thinking (Responsibility) measures the degree to which one feels personally responsible for and obligated to continue to think about and solve stressful problems. Initial research has found inflated responsibility to be associated with perseverative worry and related symptoms of pathological worry (Startup & Davey, 2003; Sugiura (2004, 2007).

Although relatively few studies have examined the relation between Responsibility and GAD symptoms, Responsibility has received considerable attention in relation to OCD symptoms (Obsessive Compulsive Cognitions Working Group, 2005; Rheaume, Ladouceur, Freeston & Letarte, 1994; Salkovskis et al., 2000). In particular, Responsibility has consistently been found to be associated with OCD symptoms, and the construct has been identified as a central cognitive variable in the development and maintenance of OCD (OCD workgroup/taskforce, 2005). Further, it is noteworthy that similarities exist in the cognitive processes related to both GAD and OCD, as both are considered perseverative anxiety disorders. Overall, based on the similarities between OCD and GAD and the initial research providing support for the relation between responsibility and GAD symptoms, it is surprising that few studies have focused on the relation between Responsibility and GAD symptoms (Calleo, Hart, Bjorgvinsson, Stanley, 2010; Fergus & Wu, 2010; Langlois, Freeston, Ladouceur, 2000).

The second problem-solving metacognition has been referred to as a low confidence in problem-solving or poor problem-solving confidence (Low Confidence; Davey, Jubb, & Cameron, 1996; Sugiura, 2004, 2007). In particular, individuals with Low Confidence tend to have a negative appraisal or lack of confidence regarding their perceived ability to solve the problem or generate a satisfactory solution. Consequently, these individuals may tend to engage in perseverative worry. It is noteworthy that, Low Confidence has been found to be associated

with worry in a number of studies (Davey et al., 1996; Davey & Levy, 1999). As with Responsibility, more research is needed to determine the relative contribution of Low Confidence in the development and maintenance of worry and related GAD symptoms.

Problem-Solving Related Metacognitions Questionnaire. Sugiura developed the Problem-Solving Related Metacognitions Questionnaire (PSRMCQ) to assess both Responsibility and Low Confidence (Sugiura 2004, 2007). Items from this measure were derived from previous studies on problem-solving and worry. The PSRMCQ may be advantageous, as this measure was designed focus on the Responsibility in relation to pathological worry, and although other measures of Responsibility have been developed, these measures were developed to assess Responsibility in relation to OCD symptoms. Another advantage to this measure is that it is the only measure to assess *both* Responsibility and Low Confidence, and the two scales have been found to form distinct factors. This allows for the understanding of the relative contribution and unique role of each of these categories of metacognition to the development of pathological worry and GAD symptoms.

Initial research with the PSRMCQ has yielded promising results (Sugiura 2004, 2007). In particular, the measure has been found to yield adequate reliability, and both subscales have been found to be associated with pathological worry, as measured by the PSWQ. Further, although both subscales have been found to be associated with worry, Low Confidence has been found to mediate the association between Responsibility and PSWQ scores (Sugiura, 2004). In addition, initial evidence suggests that the PSRMCQ exhibits adequate incremental validity, as the measure predicts variance in worry symptoms beyond the variance accounted for by positive and negative metacognitive beliefs about worry (Sugiura, 2007).

Limitations of Previous Research and Focus of the Current Study

Overall, it appears that problem-solving metacognitions may be among the cognitive processes related to the development and maintenance of pathological worry and GAD. Although this appears to be a promising direction for research, surprisingly few studies have focused on Responsibility and Low Confidence in relation to GAD and pathological worry. Further, relatively few studies have been conducted with the PSRMCQ, and more research is needed on the psychometric properties of this measure. In addition, more research is needed to determine the contribution of problem-solving metacognitions to worry and GAD symptoms in relation to other cognitive variables, including positive and negative beliefs about worry. Finally, one possible reason for the limited research on the PSRMCQ is that the measure is only available in Japanese, and an English version of the measure has yet to be developed and validated.

In response to the above limitations, the focus of the current study was to examine the role of problem-solving metacognitions, and more specifically, to examine the psychometric properties in an English version of the PSRMCQ. It was anticipated that the subscales of the PSRMCQ will exhibit adequate psychometric properties. In addition to adequate internal consistency, it is anticipated the PSRMCQ would demonstrate adequate criterion validity, as the PSRMCQ was expected to predict scores on a measure of pathological worry. Further, it was anticipated the measure would exhibit adequate incremental validity as the measure was expected to predict worry symptoms after controlling for other metacognitive variables. Finally, consistent with Sugiura (2004) Low Confidence was expected to mediate the association between responsibility and worry symptoms.

Method

Participants

Participants were 241 undergraduate students recruited from psychology courses at a university in the southeastern USA. The sample was composed of 188 females (78.0%) and 53 males (22.0%). The mean age of the sample was 21.84 years ($SD= 4.45$), and the ethnic backgrounds were: Caucasian/White (70.1%), African-American/Black (12.4%), Asian/Pacific Islander (5.0%), Hispanic (7.5%), and Other (5.0%). Participants reported varied household incomes; however, the most commonly reported was less than \$20,000 (30.7%). A majority reported not having been diagnosed with a psychiatric disorder ($n= 173$, 71.8%). In most cases participants were offered extra credit for participating their time in the study.

Measures

Penn State Worry Questionnaire The PSWQ is a 16-item self-report measure that is designed to determine the intensity and frequency of worry (Meyer, Miller, Metzger, & Borkovec, 1990). The PSWQ is a commonly utilized measure of worry symptoms with well-established psychometric properties (Davey 1993; Meyer et al. 1990; Startup and Erickson, 2006). Items are measured on a five-point Likert scale, extending from 1 (*not at all typical for me*) to 5 (*very typical of me*). Regarding reliability, Cronbach's alphas have been found to range from .88 to .95 (Meyer et al., 1990), and in the current sample, Cronbach's alpha was .94.

Problem-Solving Related Metacognitions Questionnaire The Problem-Solving Related Metacognition s Questionnaire (PSRMCQ) was developed to examine metacognitive appraisals that occur during stressful problem-solving processes. The PSRMCQ was translated from Japanese into English in collaboration with the author of the original version of the measure (Sugiura, 2004, 2007).

Items were to be answered by rating how often metacognitions occurred while they were solving stressful problems. There are two subscales to this measure. The first scale assesses a lack of confidence or satisfaction with problem-solving process (Low Confidence), and the second scales measures perceived responsibility to continue to think about a problem (Responsibility). Items for the PSRMCQ are provided in Appendix A.

The Low Confidence scale consists of 19 items and the Responsibility scale contains 14 items and each item is rated by participants on a five-point Likert scale ranging from 1 (*not at all*) to 5 (*a lot*). Regarding reliability, Cronbach's alphas have been found to range from .86-.91 in all scales (Sugiura, 2004, 2007) and in the current sample, Cronbach's alphas for Responsibility was .85 and Low Confidence was .92.

Metacognitions Questionnaire The Metacognitions Questionnaire (MCQ) is a 30-item questionnaire that is focused on beliefs about worry, intrusive thoughts, and cognitive functions that are geared towards an individual's thought processes (Cartwright-Hatton and Wells, 1997). The measure contains five subscales: positive beliefs about worry, negative beliefs about worry, lack of cognitive confidence, need for control, and cognitive self-consciousness. Respondents answer each item on a four-point scale ranging from 1 (*do not agree*) to 4 (*agree very much*). Validity was assessed by testing the MCQ against all existing measures on beliefs about worry and found all moderate correlations in relations of the subscales. Regarding reliability, Cronbach's alphas have been found to range from .72- .89 (Cartwright-Hatton and Wells, 1997), and in the current sample, Cronbach's alpha for all scales ranged from .68- .91.

Design and Procedures

In this survey-based study, participants completed survey packets in a classroom setting. Researchers distributed informed consent and administered survey packets to each participant. All measures in the survey packets were self-report measures, and the survey packets took approximately 20 minutes to complete. Each room was monitored by researchers who were present throughout the entire study to answer any questions and to assure independent responding.

Results

Descriptive Statistics

Descriptive statistics for the study variables is provided in Table 1. A series of bivariate correlations were conducted to examine the association among the study variables and are provided in Table 2.

Table 1.

Means and Standard Deviations of Study Variables

Variable	Mean (Standard Deviation)	Cronbach's Alpha
PSRMCQ		
Responsibility	47.57 (8.81)	.85
Low Confidence	43.27 (12.41)	.92
MCQ	70.13 (14.52)	.68-.91
PSWQ	51.53 (14.66)	.94

Note: Values are sample means with standard deviations in parentheses. PSRMCQ= Problem-solving related Metacognitions Questionnaire, MCQ= Metacognitions Questionnaire, PSWQ= Penn State Worry Questionnaire.

Table 2.

Correlation Matrix of Study Variables

Variable	1	2	3	4
RESP	1			
LOW CONFIDENCE	.43**	1		
MCQ	.57**	.58**	1	
PSWQ	.37**	.52**	.69**	1

Note: RESP= Responsibility to Continue Thinking, LC= Low Confidence; MCQ= Metacognitions Questionnaire; PSWQ= Penn State Worry Questionnaire.

** $p < .01$.

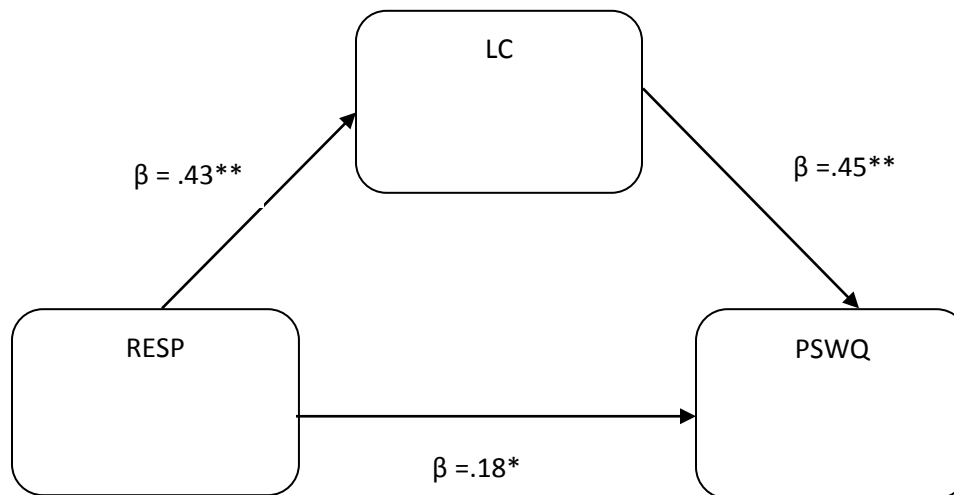
Problem Solving Cognitions and Worry

A series of analysis were conducted to determine the degree to which Responsibility and Low Confidence predicts worry, as measured by the PSWQ. First, a regression was conducted to determine the degree to which Responsibility predicted scores on the PSWQ. Responsibility ($\beta = .37, p < .001$) was found to be a significant predictor of PSWQ scores, $F(1, 233) = 36.44, p < .001, R^2 = .14$, indicating that higher scores on Responsibility were associated with higher scores on the PSWQ. Next, a regression analysis was conducted to determine the degree to which Low Confidence ($\beta = .52, p < .001$) predicted scores on the PSWQ. Lack of Confidence was found to be significantly associated with PSWQ scores, $F(1, 238) = 88.77, p < .001, R^2 = .27$, indicating that lower levels of confidence were associated with higher PSWQ scores. Responsibility and Low Confidence were then entered in a regression equation simultaneously. The overall model was significant, $F(2, 231) = 50.18, p < .001, R^2 = .30$, and both Responsibility ($\beta = .18, p < .01$) and Low Confidence ($\beta = .45, p < .001$) were significantly associated with scores on the PSWQ.

Consistent with Sugiura (2004), a mediational analysis was conducted to determine if Low Confidence mediated the association between scores on Responsibility and the PSWQ. Holmbeck's (2002) model for post hoc probing of mediation effects was conducted to determine if Low Confidence mediates the association between Responsibility and PSWQ scores. The model was significant, $z = 5.20$, $p < .001$, and the mediational pathway accounted for 28% of the variance in association between the parent and child anxiety (see Figure 1).

Figure 1

Meditational Model of Responsibility to Continue Thinking, Low Confidence, and Penn State Worry Questionnaire



Note: RESP= Responsibility to Continue Thinking, LC= Low Confidence; PSWQ= Penn State Worry Questionnaire
* $p < .01$, ** $p < .001$.

Problem Solving Cognitions and Related Metacognitions

A hierarchical regression analysis was conducted to determine the degree to which scores on the PSRMCQ predicted PSWQ scores beyond the variance accounted for by other metacognitive variables, as measured by the MCQ. The MCQ was entered as a total score in the first step of the regression equation, and the subscales of the PSRMCQ were entered in the second step of the regression equation. The first step of the model was significant, $F(1, 226) = 203.89$, $p < .001$, $R^2 = .47$, and the addition of the PSRMCQ subscales in the second step of the regression equation led to a significant improvement in the model, $F(2, 224) = 6.66$, $p < .001$, $\Delta R^2 = .03$. However, based on examination of the beta weights, it is noteworthy that Low Confidence was significantly associated with PSWQ scores ($\beta = .21$), but Responsibility was non-significant ($\beta = -.05$). Overall, these findings suggest that, although both subscales of the PSRMCQ are associated with PSWQ scores, only Low Confidence predicts unique variance in PSWQ scores after controlling for other metacognitions.

Discussion

The role of problem-solving related metacognitions, including responsibility to continue to think about a problem and a low confidence in problem-solving, have been hypothesized to be associated with pathological worry and GAD symptoms (Sugiura, 2004, 2007). However, these variables have received surprisingly little attention in the research literature. This gap in the research literature may, in part, be due to a lack of reliable and valid measures to assess these constructs. In response to these limitations, the purpose of this study was to examine the association between problem-solving related metacognitions and symptoms of pathological worry and provide a preliminary assessment of the psychometric properties of the Problem-Solving Related Metacognitions Questionnaire (PSRMCQ), which was translated from

Japanese to English for the purpose of this study. This measure includes 2 subscales, one subscale assesses responsibility to continue to think about a problem (Responsibility) and the second subscale assesses a lack of confidence in problem solving (Low Confidence).

Regarding the reliability of the PSRMCQ, both subscales exhibited good internal consistency, with alphas of .85 and .95 for Responsibility and Low Confidence, respectively. It is noteworthy that the obtained Cronbach's alphas are consistent with the values obtained with previously published the Japanese version of the PSRMCQ (Sugiura 2004, 2007). Although these results are promising, it is recommended that follow-up studies are conducted to confirm the factor structure of the newly developed English version of the PSRMCQ.

Based on bivariate correlations, both subscales of the PSRMCQ were found to be associated with scores on the PSWQ, suggesting that both subscales predict symptoms of pathological worry, which is a central feature of GAD. It is also noteworthy that the obtained correlation coefficients of .37 for Responsibility and .52 for Low Confidence are consistent with previous research on the Japanese version of the PSRMCQ (Sugiura 2004, 2007). Further, based on both current research and previous research the PSRMCQ, it is noteworthy that the Low Confidence appears to be a slightly more robust predictor of PSWQ scores than Responsibility. Also, consistent with previous research, Low Confidence was found to mediate the association between Responsibility and PSWQ scores (Sugiura, 2004). This finding suggests that the degree to which Responsibility is associated with PSWQ is dependent upon one's level of Low Confidence in problem-solving.

Based on a hierarchal regression, PSRMCQ was found to predict scores on the PSWQ after controlling for the MCQ, which is a commonly utilized measure of common metacognitions related to worry symptoms. However, it is noteworthy that only the Low

Confidence subscale was significant. Consequently, although both Responsibility and Low Confidence are associated with worry symptoms, only Low Confidence exhibited incremental validity over other commonly examined metacognitions.

In general, the above findings suggest that problem-solving related metacognitions may play a role in the development and maintenance of worry and GAD symptoms. In particular, the current findings are consistent with previous research in which those who experience a high level of responsibility to continue thinking about problems appear to be more likely to experience pathological worry (Startup & Davey, 2003; Sugiura 2004, 2007). However, more research is needed to determine the degree to which responsibility influences worry symptoms beyond the symptoms accounted for by other metacognitions. Further, additional research is needed to determine the degree to which the current Responsibility scale overlaps with the Responsibility Attitudes Scale, which is more typically used in relation to obsessive-compulsive disorder (Salkovskis et al., 2000).

In addition to Responsibility, the current study adds to a relative small body of research suggesting that Low Confidence is associated with worry and GAD symptoms (Davey et al., 1996; Davey & Levy, 1999; Sugiura, 2004, 2007). These findings suggest that individuals who engage in excessive and uncontrollable worry may do so, in part, because they do not have confidence in their ability to solving problems. This study, along with the research by Sugiura 2004 & 2007, suggests that Low Confidence is a more robust predictor of worry than Responsibility.

Although initial research on problem-solving metacognitions is promising, a number of limitations and directions for future research are noteworthy. The current study also has limitations that should be addressed in future studies. First, this study is based off of a non-

clinical sample of college students. As, a result a recommended direction for future research would be to examine a clinical sample of individuals with GAD. Another limitation is a potential self-report bias, as participants may not be able to recall specific cognitions that they typically experience. Further, more research is needed on the reliability and factor structure of the PSRMCQ. For example, it is recommended that follow-up studies examine the test-retest reliability of this measure.

In summary, the current study may increase the understanding of the underlying processes related to the development and maintenance of GAD. In particular, the current study adds to a relatively small body of research focused on the relation between problem-solving related cognitions and worry, and this is the first study to examine an English version of the PSRMCQ. Finally, this line of research has potential implications for the assessment and treatment of GAD. In particular, it is possible that interventions can be developed to identify and modify problem-solving metacognitions.

Appendix A

Problem-Solving Related Metacognitions Questionnaire

Directions: We like to learn what is happening while you are dealing with difficult problems. When you are solving difficult problems, how often things described in each statement come to your mind? For each item, please circle the appropriate number from 1 to 5.

1 Not at all	2 A little	3 Moderately	4 Quite a bit	5 A lot
-----------------	---------------	-----------------	------------------	------------

When thinking about a difficult problem, I have the thought that...

- | | | | | | |
|---|---|---|---|---|---|
| 1. I don't know how to solve this problem. | 1 | 2 | 3 | 4 | 5 |
| 2. The necessary steps or skills to solve this problem are beyond my ability. | 1 | 2 | 3 | 4 | 5 |
| 3. I somehow feel that I have not thought enough about the problem, and I need to continue to think until I run out of ideas. | 1 | 2 | 3 | 4 | 5 |
| 4. I wonder what I should do about the problem. | 1 | 2 | 3 | 4 | 5 |
| 5. I can't stop thinking about the problem unless I find a satisfactory answer. | 1 | 2 | 3 | 4 | 5 |
| 6. Things have never worked out successfully for me. | 1 | 2 | 3 | 4 | 5 |
| 7. I might not have made sufficient effort to solve the problem. | 1 | 2 | 3 | 4 | 5 |
| 8. There seems to be no solution to this problem. this problem. | 1 | 2 | 3 | 4 | 5 |
| 9. I still haven't found the idea or solution that will make everything alright. | 1 | 2 | 3 | 4 | 5 |
| 10. I should keep thinking until I find a better solution. | 1 | 2 | 3 | 4 | 5 |
| 11. It is my responsibility to address the problem, even if it is something that I run away from. | 1 | 2 | 3 | 4 | 5 |

12. Even if I reach a conclusion of my own, I still don't feel better.	1	2	3	4	5
13. When I stop thinking, the undesirable situation will continue and lead to negative results in the future.	1	2	3	4	5
14. No matter how much I think it over, I can't find the cause of the problem.	1	2	3	4	5
15. I have to keep thinking about this problem over and over.	1	2	3	4	5
16. I keep thinking that I must do something to solve this problem, but I can't get myself to take action.	1	2	3	4	5
17. I feel stupid or dumb because I can't solve this problem.	1	2	3	4	5
18. When I do carry out the solution, I believe that it will not work out.	1	2	3	4	5
19. No matter how much information I gather about the problem, I can't be satisfied.	1	2	3	4	5
20. There are a lot of shortcomings to all of the solutions to this problem.	1	2	3	4	5
21. I definitely know what to do to solve this problem, but I can't get myself to take action.	1	2	3	4	5
22. I try to think of any potential solution to the problem, but I can't seem to carry it out.	1	2	3	4	5
23. I must consider all possible options regarding this problem.	1	2	3	4	5
24. I can't do anything about this problem.	1	2	3	4	5
25. I think that other people cope with the problem better than I do.	1	2	3	4	5
26. I feel I will be able to solve this problem.	1	2	3	4	5
27. I have to keep thinking about the possible outcomes (e.g., "what if this or that happens?").	1	2	3	4	5

28. I think it irresponsible to stop thinking about the problem.	1	2	3	4	5
29. I think there are many people who are in a better position than me.	1	2	3	4	5
30. I want to improve this situation somehow.	1	2	3	4	5
31. I have to collect more information about the problem.	1	2	3	4	5
32. I will make every possible effort to improve this situation.	1	2	3	4	5
33. No matter what it takes, I must put effort into solving this problem.	1	2	3	4	5

References

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.
- Barlow, D.H. (Ed.). (2007). *Clinical handbook of psychological disorders: A step-by-step treatment manual* (4th ed.). New York: Guilford Press.
- Borkovec, T. D., Robinson, E., Pruzinsky, T., & DePree, J. A. (1983). Preliminary exploration of worry: Some characteristics and processes. *Behaviour Research And Therapy*, 21(1), 9-16. doi:10.1016/0005-7967(83)90121-3
- Calleo, J. S., Hart, J., Björgvinsson, T., & Stanley, M. A. (2010). Obsessions and worry beliefs in an inpatient OCD population. *Journal Of Anxiety Disorders*, 24(8), 903-908. doi:10.1016/j.janxdis.2010.06.015
- Cartwright-Hatton, S., & Wells, A. (1997). Beliefs about worry and intrusions: The Metacognitions Questionnaire and its correlates. *Journal Of Anxiety Disorders*, 11(3), 279-296. doi:10.1016/S0887-6185(97)00011-X
- Davey, G. C. (1993). A comparison of three worry questionnaires. *Behaviour Research and Therapy*, 31(1), 51-56. doi:10.1016/0005-7967(93)90042-S
- Davey, G. L., & Levy, S. (1999). Internal statements associated with catastrophic worrying. *Personality and Individual Differences*, 26(1), 21-32. doi:10.1016/S0191-8869(98)00162-7
- Davey, G. L., Jubb, M., & Cameron, C. (1996). Catastrophic worrying as a function of changes in problem-solving confidence. *Cognitive Therapy And Research*, 20(4), 333-344. doi:10.1007/BF02228037

- Davey, G. L., & Levy, S. (1998). Catastrophic worrying: Personal inadequacy and a perseverative iterative style as features of the catastrophizing process. *Journal of Abnormal Psychology, 107*(4), 576-586. doi:10.1037/0021-843X.107.4.576
- Fergus, T. A., & Wu, K. D. (2010). Do symptoms of generalized anxiety and obsessive-compulsive disorder share cognitive processes?. *Cognitive Therapy And Research, 34*(2), 168-176. doi:10.1007/s10608-009-9239-9
- Fisher, P. L. (2006). The Efficacy of Psychological Treatments for Generalised Anxiety Disorder? In G. L. Davey, A. Wells (Eds.), *Worry and its psychological disorders: Theory, assessment and treatment* (pp. 359-377). Hoboken, NJ US: Wiley Publishing. doi:10.1002/9780470713143.ch20
- Holmbeck, G. N. (2002). Post-hoc probing of significant moderational and mediational effects in studies of pediatric populations. *Journal of Pediatric Psychology, 27*(1), 87-96. doi:10.1093/jpepsy/27.1.87
- Langlois, F., Freeston, M. H., & Ladouceur, R. (2000). Differences and similarities between obsessive intrusive thoughts and worry in a non-clinical population: Study 1. *Behaviour Research and Therapy, 38*(2), 157-173. doi:10.1016/S0005-7967(99)00027-3
- Meyer, T. J., Miller, M. L., Metzger, R. L., & Borkovec, T. D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy, 28*(6), 487-495. doi:10.1016/0005-7967(90)90135-6
- National Institute of Mental Health (2012). *Generalized anxiety disorder among adults*. Retrieved from http://www.nimh.nih.gov/statistics/1GAD_ADULT.shtml

- Obsessive Compulsive Cognitions Working Group (2005). Psychometric validation of the obsessive belief questionnaire and interpretation of intrusions inventory—Part 2: Factor analyses and testing of a brief version. *Behaviour Research and Therapy*, 43, 1527–1543.
- Rhéaume, J., Ladouceur, R., Freeston, M. H., & Letarte, H. (1994). Inflated responsibility in obsessive-compulsive disorder: Psychometric studies of a semiidiographic measure. *Journal of Psychopathology and Behavioral Assessment*, 16(4), 265-276.
doi:10.1007/BF02239407
- Salkovskis, P. M., Wroe, A. L., Gledhill, A. A., Morrison, N. N., Forrester, E. E., Richards, C. C., & Thorpe, S. S. (2000). Responsibility attitudes and interpretations are characteristic of obsessive compulsive disorder. *Behaviour Research And Therapy*, 38(4), 347-372. doi:10.1016/S0005-7967(99)00071-6
- Startup, H. M., & Davey, G. L. (2003). Inflated responsibility and the use of stop rules for catastrophic worrying. *Behaviour Research and Therapy*, 41(4), 495-503.
doi:10.1016/S0005-7967(02)00245-0
- Startup, H. M., & Erickson, T. M. (2006). The Penn State Worry Questionnaire (PSWQ). In G. L. Davey, A. Wells (Eds.) , *Worry and its psychological disorders: Theory, assessment and treatment* (pp. 101-119). Hoboken, NJ US: Wiley Publishing.
doi:10.1002/9780470713143.ch7
- Sugiura, Y. (2004). Detached mindfulness and worry: A meta-cognitive analysis. *Personality and Individual Differences*, 37(1), 169-179. doi:10.1016/j.paid.2003.08.009
- Sugiura, Y. (2007). Responsibility to continue thinking and worrying: Evidence of incremental validity. *Behaviour Research and Therapy*, 45(7), 1619-1628.
doi:10.1016/j.brat.2006.08.001

- Wells, A. (1994). A multi-dimensional measure of worry: Development and preliminary validation of the Anxious Thoughts Inventory. *Anxiety, Stress & Coping: An International Journal*, 6(4), 289-299. doi:10.1080/10615809408248803
- Wells, A. (1995). Meta-cognition and worry: A cognitive model of generalized anxiety disorder. *Behavioural And Cognitive Psychotherapy*, 23(3), 301-320.
doi:10.1017/S1352465800015897
- Wells, A., & Butler, G. (1997). Generalized anxiety disorder. In D. Clark, C. G. Fairburn (Eds.) , *Science and practice of cognitive behaviour therapy* (pp. 155-178). New York, NY US: Oxford University Press.
- Wells, A. (2006). Metacognitive Therapy for Worry and Generalised Anxiety Disorder. In G. L. Davey, A. Wells (Eds.) , *Worry and its psychological disorders: Theory, assessment and treatment* (pp. 259-272). Hoboken, NJ US: Wiley Publishing.

Vita

Jennifer Jacobson was born on _____ in Plantation, Florida. She was raised by her parents – George and Sandra Jacobson. Jennifer attended high school at Coral Glades High School in Coral Springs, Florida. While at Coral Glades High School Jennifer was a member of the Health Occupations Students of America for four years, and excelled in all Honors classes.

Jennifer pursued a Bachelor of Science in Psychology at the University of North Florida. While at the University of North Florida, Jennifer was a member of Psi Chi, Kappa Alpha Theta, and Order of Omega. Jennifer was also consistently on the Dean's list. Jennifer was awarded the Bright Futures Scholarship throughout her entire undergraduate education. In addition to her studies, Jennifer was very involved in research, served executive positions within her sorority, dedicated time to volunteering with numerous organizations, and enjoyed her leisure time doing health related activities.

Jennifer completed her Honors Thesis with implications for identifying and treating individuals with generalized anxiety disorder. She plans to earn a doctoral degree in clinical psychology and pursue a career in private practice.