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Application of the Transtheoretical Model Parent Facilitation of Healthy Anxiety Management in Their Children

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APPLICATION OF THE TRANSTHEORETICAL MODEL TO PARENT
FACILITATION OF HEALTHY ANXIETY MANAGEMENT IN THEIR CHILDREN

BY

CAITLIN BURDITT

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
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Abstract

Anxiety disorders represent one of the most common and debilitating forms of psychopathology among children, with prevalence rates estimated to be between 12% and 17.3%. Although a number of efficacious treatments for child anxiety exist, there is a distinct need for prevention programs as well. Moreover, research suggests that parents play a crucial role in how their children manage anxiety, underscoring the importance of involving parents in both the treatment and prevention of child anxiety. For a variety of reasons, parents may be at different levels of readiness to engage in behaviors that promote their child's healthy coping with anxiety. Although most existing prevention and treatment programs do incorporate parental components, no study to date examines how parental readiness effects this parental involvement. The present study aims to address this gap in the literature by developing theoretically-based measures to assess parental attitudes toward and readiness for helping their children to manage anxiety in a healthy manner using the Transtheoretical Model of Behavior Change. Results provide support for the use of the TTM applied to parent facilitation of healthy anxiety management in their children. Exploratory and confirmatory analyses for Decisional Balance, Confidence, and Parenting Behavior scales produced three internally consistent measures. Analyses resulted in one pros and one cons scale for the Decisional Balance construct, two subscales for the Confidence construct, and one scale representing Positive Parenting Behaviors. Stage of change measures including one-item and three-item categorical staging algorithms and a URICA continuous stage measure were developed and compared with regard to their relationship to other constructs of interest. Despite a skewed staging distribution under-representing the early stages of change, expected theoretical patterns by stage of change were found for all three scales. Evaluations of the

decisional balance and confidence measures by stage suggest that a three-item categorical staging algorithm may be best. However, additional research is necessary to fully evaluate the potential utility of a continuous stage measure. In addition, the sample for this study was primarily white, affluent, and educated so future research will need to examine the use of these measures in more diverse populations. The measures developed in this study have important implications for the future development of effective assessment and intervention tools to increase parental use of behaviors that facilitate healthy management of anxiety in their children.

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Application of the Transtheoretical Model to parent facilitation of healthy anxiety management in their children

Introduction

Anxiety is a universal human experience. It is a normal physiological and emotional reaction to a stressful situation, an adaptive response to physical threat, and can be a useful and motivational tool under many circumstances. Like most other physiological and psychological experiences, individual levels of anxiety exist on a spectrum ranging from healthy and adaptive to more problematic levels. Moderate levels of anxiety have actually been found to enhance performance (Albano, Causey, & Carter, 2001). It is only when anxiety becomes excessive, enduring, and interferes with daily functioning that it becomes a significant concern.

From a young age, all children experience transient anxiety and fears as they encounter unknown situations, objects and people (Dadds, Spence, Holland, Barrett, & Laurens, 1997). Usually, the specificity of these fears shifts over time, and the anxiety is hypothesized to follow a course that parallels children's emerging cognitive capacity to understand and distinguish real threats and danger from false alarms (Ollendick & Horsch, 2007). Most children and adolescents are able to cope with this anxiety in a healthy manner, and overcome their fears along a developmentally appropriate timeline. However for a portion of children, the anxiety they experience may be excessive, age-inappropriate, and may not resolve with time. If this anxiety is not dealt with appropriately, many of these children may go on to develop long-term difficulties with anxiety and anxiety disorders.

Anxiety disorders represent one of the most common and debilitating forms of psychopathology affecting children, with prevalence rates estimated between 12% and 17.3% (Dadds, Spence, Holland, Barrett, & Laurens, 1997; Vasey & Ollendick, 2000). Anxiety in children manifests itself in a number of distinct, but typically overlapping ways across a number of life domains. Some of the most commonly reported types of anxiety in children include: (1) social phobia or excessive concerns about being embarrassed or judged in social situations, (2) separation anxiety characterized by intense fear of being separated from parents, family or other caregivers, for fear that something terrible will happen to either themselves or loved ones, (3) generalized anxiety and pervasive worry across a number of life domains, and (4) obsessive compulsive disorder, which is characterized by obsessive, intrusive, anxiety-provoking thoughts and engagement in compulsive behaviors to minimize the anxiety brought on by these obsessions.

Regardless of the specific anxiety symptoms, most children with problematic levels of anxiety tend to interpret ambiguous stimuli as threatening and are prone to catastrophizing as well as avoidance of feared stimuli (Comer, 2004). Current research offers abundant evidence that high levels of anxiety impair functioning in a variety of areas. For example, academic underachievement and decreased social support are both associated with anxiety disorders (Velting et al., 2004), as are increased risk for depression and substance abuse later in life (Hirschfield-Becker & Biederman, 2002; Beidel & Turner, 1998). Left untreated, childhood anxiety can often maintain a chronic course, is linked to anxiety disorders in adulthood, and may also be associated with

increased disorder severity in adulthood (Hirshfield-Becker & Biederman, 2002).

Treatment vs. Prevention

The majority of research has focused on the development and evaluation of effective treatment for child anxiety disorders and has consistently reported promising results. Findings from multiple randomized clinical trials suggest that individual cognitive-behavioral therapy (CBT) for the treatment of anxious youth is highly efficacious (e.g. Barrett, Dadds, & Rapee, 1996; Kendall et al., 1997; Flannery-Schroeder & Kendall, 2000). Although the success of existing treatment for child anxiety is excellent news for children presenting in clinics, there are a number of concerns with the reach of these programs. First, it is likely that effect sizes for treatment efficacy would be significantly smaller when generalized to community samples, yet, effectiveness of these programs has rarely been examined at a public health level (Rapee et al., 2005). Second, many individuals with anxiety disorders still suffer from distressing symptoms and impairment after treatment, while treatment may be entirely ineffective for others (Rapee et al., 2005). Finally, and perhaps most importantly, the majority of children suffering from anxiety do not seek treatment until they are well into adulthood, while many never present for treatment at all (Rapee et al., 2005). In recent years, such limitations to existing treatment approaches have ignited interest in the application of prevention strategies to the field of child anxiety (Rapee et al., 2005; Donovan & Spence, 2000).

There are multiple levels of prevention, and each varies in their prevention targets. Universal prevention strategies target entire populations who have not been identified on the basis of existing risk factors. Selective prevention strategies are aimed at individuals who have been identified as having a high lifetime risk of developing a

disorder, and indicated prevention strategies target high risk individuals who already demonstrate detectable symptoms of the disorder (Donovan & Spence, 2000). Although an in depth discussion of the pros and cons of each level of prevention is beyond the scope of this paper, there are a few important points that should be highlighted. Although universal prevention approaches are costly, and require large sample sizes and lengthy follow-ups (Donovan & Spence, 2000), this should be considered in light of an in depth cost/benefit analysis of the expense of universal prevention vs. public health cost of anxiety disorders. In this calculation, the multiple sequelae associated with anxiety disorders such as time off work, cost of mental health and medical services, medications, and human suffering must be taken into consideration.

Despite the inherent challenges of adopting a universal approach to prevention, the potential impact that can be had in reducing anxiety disorder prevalence is immense. Although universal programs tend to produce smaller effects than clinic-based samples, these effects can be quite impressive at the population level (Dadds & Roth, 2008). In addition, universal approaches are the only approaches that aim to access all children and offer assistance to those that may have otherwise “slipped through the cracks” (Donovan & Spence, 2000). This is a potential benefit that no other treatment or prevention approach can claim. Furthermore, acquisition of anxiety management skills taught in a prevention program may increase protective factors even for those not considered “at risk,” and most children and parents could seemingly benefit from enhancing skills to better manage anxiety on a daily basis.

Only a small number of studies to date have adopted a truly universal prevention approach to childhood anxiety disorders (Dubow, Schmidt, McBride, Edwards, & Merk,

1993; Barrett & Turner, 2001; Lowry-Webster, Barrett, & Dadds, 2001). In one early study, the “I CAN DO” program, researchers provided fourth graders with a series of classroom sessions devoted to teaching general coping skills and practicing these skills in a variety of stressful situations (Dubow et al., 1993). Results demonstrated that students in the prevention program reported higher levels of self-efficacy in their ability to handle stressors, and increased problem solving ability compared with controls (Dubow et al., 1993). Barrett and Turner (2001) also reported promising results from a universal prevention trial based on Kendall’s (1994) Coping Cat program, comprised of both a parental and child component. Most recently, Dadds and Roth (2008) implemented REACH for RESILIENCE, a universal prevention program in 25 preschools across Australia. In addition to measuring outcome, one goal of the study was to examine the social validity of the program in terms of attendance and parent perception of usefulness and acceptability. Effect sizes were small overall, as can be expected from a population trial such as this, but participation rates were reportedly higher than all previous prevention trials for anxiety disorders. The authors viewed the high feasibility and acceptability of this intervention as strong support for the utility of running a universal program within the school setting (Dadds & Roth, 2008).

Multi-level Prevention and Treatment: Involving Parents

Though the precise etiology cause of anxiety disorders remains unknown, most modern research embraces the developmental psychopathology framework, which conceptualizes childhood anxiety as the result of a complex interaction of internal and external risk and protective factors (Wood, McLeod, Sigman, Hwang & Chu, 2003). One modifiable risk/protective factor that has been consistently highlighted in the literature is

the role of parenting in the etiology, maintenance, and treatment of childhood anxiety disorders. A number of specific parenting dimensions have been repeatedly implicated in the anxiety literature, (Wood et al., 2003), and evidence suggests that childhood anxiety disorders are associated with parenting patterns that promote anxiety, such as modeling of fearful and/or avoidant responses (deRosnay, Cooper, Tsigaris & Murray, 2006; Gerull & Rapee, 2002; Brown & Whiteside, 2008), as well as intrusive and over controlling parenting (Wood et al., 2003). In an attempt to evaluate whether these parenting practices are significantly associated with childhood anxiety and to quantify the variance accounted for, Mcleod and colleagues (2007) synthesized data from 47 studies in a meta-analysis. They found that, overall, parenting accounted for only 4% of the variance in childhood anxiety across studies and that parental overcontrol was more strongly associated with child anxiety than was parental rejection (McLeod et al., 2007).

Importantly, McLeod et al. (2007) note a variety of methodological concerns with the studies included in their meta-analysis, primarily the inconsistency with which child anxiety and parenting were conceptualized and assessed. Authors suggest that these inconsistencies may have been a factor in the small overall effect sizes reported, although it is also possible that these parenting styles simply do not have as much influence on child anxiety as the authors initially thought. Additionally, Tiwari et al. (2008) found that deconstructing overarching parenting domains and examining whether each sub dimension was differentially associated with child anxiety yielded different results. For example, autonomy granting, defined as allowing a child to self-regulate psychological experiences and encouraging independence rather than exerting intrusive psychological control, accounted for 18% of the variance in child anxiety. On the other hand, parental

warmth, sensitivity, and acceptance of a child's emotional experience and needs accounted for less than 1%. The authors suggest that including broad parenting dimensions may have led to an underestimate of the link between parenting and child anxiety. Tiwari et al. (2008) propose dividing parenting domains into specific sub dimensions in order to gain increased understanding about which aspects of parenting may be the most influential intervention targets.

When investigating the role of parenting as it relates to child anxiety, it is potentially important to distinguish parenting style from specific parenting behaviors (Wood et al., 2003). Parenting style is defined as a global pattern of parenting practices influenced by overarching parent goals and attitudes across contexts, creating an emotional climate that may act as a moderator of child psychosocial development (Darling & Steinberg, 1993). Parenting behavior, on the other hand, can be thought of as the situation-specific, direct interactions between parents and their children and may more directly influence a child's emotions and behaviors (Darling & Steinberg, 1993). The historical focus on more global dimensions of parenting style may have little practical use in treatment and prevention development (Wood et al., 2003). It is likely that specific parenting behaviors will be more well-defined, measurable and modifiable intervention targets and consequently, important mechanisms for reduction in child anxiety.

One specific set of parenting behaviors that has received attention in the literature is parental modeling of anxious cognition and behavior (Wood et al., 2003). It is hypothesized that children in an environment where parents frequently model anxious behavior may come to believe that coping effectively is impossible and are less likely to

develop effective anxiety management and problem-solving techniques (Wood et al. 2003). Two studies examining this from a child-report perspective both found that children who report that their parents model less anxious behavior experience less anxiety themselves (Gruner, Muris & Merckelbach, 1999; Muris, Meesters, Merckelbach & Hulsenbeck, 2000). In addition, an observation study found that, 47% of the variance in child's anxiety diagnostic status could be explained by maternal catastrophizing (Whaley et al., 1999).

Another parenting variable that has been implicated is excessive parental responsiveness in scenarios that initially elicit an anxious response from children (Wood et al, 2003). This over-responsiveness may occur most often in novel contexts (e.g. first time a child rides the bus) where a parent promotes avoidance rather than encouraging independence and use of coping skills. This inadvertently reinforces the anxious behavior while simultaneously removing opportunity for the child to learn adaptive social approach behaviors, habituate to the novel situation, and practice coping and problem solving skills that build confidence (Wood et al., 2003). On the other hand, when parents encourage children to participate in novel activities, they promote independence and coping, while removing reward for anxiety and distress (Wood et al., 2003). It has been suggested that when parents set firm limits for their children and teach age-appropriate skills for coping with anxiety-provoking situations, the child is significantly less likely to develop an anxiety disorder (Vasey & Ollendick, 2000).

There are a range of parenting styles and behaviors that act as both risk and protective factors in the development of child anxiety disorders. Currently, scientific evidence suggests that specific parenting behaviors may have a greater impact on child

anxiety than more global parenting styles. However, existing research is hampered by methodological and measurement inconsistencies that make definitive conclusions about how parenting affects child anxiety difficult. Clearly, the role of the parent is influential in modeling and shaping how children respond to, express, and learn to manage anxiety, yet historically, the majority of child anxiety treatment programs have taken the form of individual therapy with minimal parental involvement (Barrett, Dadds, & Rapee, 1996; Kendall et al., 1997; Flannery-Schroeder & Kendall, 2000). More recently, in light of research supporting a significant relationship between parenting and child anxiety, there has been a shift toward a more multi-level approach to treatment, and increased involvement of parents and families.

A primary goal of research conducted on multi-level treatment programs for child anxiety has been to determine whether increasing parental involvement actually enhances treatment outcome. Two studies investigating whether parental involvement in treatment for child anxiety improved effects compared child-focused CBT (individual) to child-focused CBT with a parental component (family) (Barrett, Dadds, & Rapee, 1996; Wood, Piacentini, Southam-Gerow, Chu & Sigman, 2006). Results demonstrated that the family treatment group showed greater improvement in child anxiety symptoms than the individual therapy group (Barrett et al., 1996; Wood et al., 2006). In a randomized clinical trial with aims to clarify the benefits of increased parental involvement, Kendall and colleagues (2008) found that both individual child cognitive-behavioral therapy and family cognitive-behavioral therapy had treatment outcomes that were significantly superior to an educational/ support intervention. However, the family therapy was not found to outperform individual therapy. The authors point out that the lack of significant

findings may be due in part to the fact that even for the individual group, parents are involved in the treatment process as collaborators. This led Kendall et al. (2008) to conclude that parents may not need to be included in each session as co-clients to achieve positive treatment outcome, but that they do need to be involved as collaborators.

There is strong evidence to support involving parents in child anxiety prevention programs as well as treatment. Almost every existing prevention program, as well as guidelines for successful program development involves parents to some degree (Rapee & Jacobs, 2002; Rapee et al., 2005; Dadds et al., 1997, 1999; Barrett, Lock & Farrell, 2005; Donovan & Spence, 2001; Spence, 2001). Spence (2001) recommends including parent skills training to facilitate children's healthy coping with anxiety and altering parent behaviors as preventive methods across a range of ages. In the same vein, Dadds and Roth (2008) conclude that one of the common aspects of prevention studies has been that changes in parenting behavior have the power to reduce the development of internalizing problems in children. For example, in two prevention trials, Rapee and Jacobs (2002) and Rapee et al. (2005) found that children whose parents were educated on how to effectively manage fearful children showed a greater decrease in anxiety disorder diagnosis at 12-month follow-up.

Despite encouraging findings, one significant limitation to these studies is lack of measurement of parental fidelity to treatment protocol. There is little exploration in any of these studies as to whether parents and families actually implemented strategies and skills at home. This may in part explain some of the inconsistency in findings of the impact of involving parents in treatment and prevention. Simply educating parents about their role in their child's anxiety and teaching alternative behaviors does not ensure that

behavior change will take place. For a number of reasons, some parents may be unwilling, unable, or have considerable difficulty implementing positive behaviors and teaching their children healthy anxiety coping skills. For example, parents themselves may suffer from anxiety symptoms or psychopathology that interferes with their ability to aid their child in developing healthy anxiety management strategies (Cobham, Dadds & Spence, 1998; Cooper, Gallop, Willets, & Creswell & Cartwright-Hatton, 2007).

Creswell and Cartwright-Hatton (2007) propose two potential ways that parental anxiety can potentially impede child anxiety treatment outcome: (1) through the association between parental anxiety and anxiogenic parenting styles (e.g., an anxious parent's expressed fear and avoidance of feared stimuli counters treatment aims) and/or (2) by virtue of the difficulties anxious parents may experience in supporting aspects of their child's treatment (parent's own anxiety may interfere with ability to follow through with exposing child to feared stimuli while offering support and encouragement).

Even parents who are not troubled by significant anxiety themselves may engage in similar unhelpful parenting behaviors that maintain or exacerbate child anxiety. Parents may be quick to intervene in and assume control in anxiety-provoking situations, inadvertently depriving their child of the opportunity to independently direct their own behavior and develop essential self-regulation strategies (Wood et al., 2003). Parents may fear that they will harm their child if they "force" them to face their fears, be uninformed about age-appropriate behaviors, and lack sufficient confidence in their child's ability to cope. At present, little is known about the underlying mechanisms (other than parental anxiety) that may play a role in explaining why parents of anxious children have such a difficult time engaging in parenting practices that are more likely to

facilitate healthy anxiety management. A fairly new area of focus has been on the construct of Experiential Avoidance (EA), defined as the lack of willingness and/or incapability to tolerate negative internal emotion or distress. Experiential avoidance has emerged as one potential explanation for why parents of anxious children may be quick to intervene and behave in an overprotective or over controlling manner in a situation that is distressing and evokes an emotional response in their child. If parents are high in experiential avoidance, they may have limited tolerance for watching their own child experience distress (anxiety in this case) because of their own internal experience of negative emotion (Tiwari et al., 2008).

In summary, intervening on parent behaviors has the potential to impact child learning and implementation of sustained healthy coping with anxiety. However, achieving the goal of meaningful and productive inclusion of parents in treatment and prevention of child anxiety requires a certain level of readiness or preparedness to make what are sometimes difficult changes in how parents respond to and interact with their children. For a plethora of reasons, parents are at different levels of readiness and have different levels of efficacy for their ability to engage in positive parenting behaviors. Parents that are not prepared to take action will be less likely to implement the parenting skills and behaviors that have the potential to enhance treatment outcome and/or prevent the development of anxiety disorders.

Despite the essential role that parental readiness may play in achieving intervention and prevention goals in the child anxiety field, no study involving parents has specifically assessed or tailored to level of parental readiness to make behavioral changes. Most clinic-based interventions are modified on an individual basis dependent

upon child and parent needs throughout treatment, but rarely, if ever, is readiness for change formally assessed in a coherent and uniform way. Regardless of the specific treatment or prevention protocol employed in existing studies, each adopts an “action-oriented” approach to altering parent behaviors that generally assumes that parents and children are ready to work to reduce anxiety symptoms and change anxiety promoting and sustaining behaviors. The majority of programs are designed for parents who are already prepared to make behavioral changes. Moreover, most of the efficacy studies conducted have focused on clinic-based samples which primarily consist of children and families where anxiety is of sufficient concern to drive them to treatment, neglecting the significant population affected by child anxiety who do not seek treatment. Still, many parents of anxious children who present at clinics still may not be prepared to engage in behaviors that facilitate the treatment process. Even for a strictly clinic-based approach, parenting interventions tailored to parental readiness will likely incur less resistance and be more effective.

In addition, anxiety is a population problem, necessitating a population-based approach to address it. If targeting the entire population with a universal prevention protocol, we will encounter even larger percentages of parents in earlier stages of readiness. In the general population, many children and families may have trouble managing anxiety, yet may not be ready to address it, may not have access to resources to address it, and/or be prepared to address the issues related to barriers to treatment. The clinic-model of intervention and prevention is based on the assumption that parents recognize the need for change in parenting and child behavior, have the treatment resources necessary to make these changes, and are making the commitment to attend

therapy sessions at a clinic. This clinic-based framework mis-serves much of the population who could potentially benefit from data-based interventions that they might be capable of implementing independent of a specialty treatment clinic. A worthy goal then would be to help all parents aid their children in practicing healthy anxiety management, regardless of their readiness level, suggesting a pressing need for the creation of programs that are tailored to readiness to enhance effectiveness and reach.

Application of the Transtheoretical Model to Parenting and Child Anxiety

A thorough review of the parenting and child anxiety literature sheds light on the necessity of a multilevel approach to developing interventions to treat and prevent childhood anxiety. However, efforts to increasingly involve parents have often been executed in a rather inconsistent and atheoretical fashion (Creswell & Cartwright-Hatton, 2007). It seems the field could benefit substantially from development of theory-based intervention and prevention programs targeting parents as well as children. Furthermore, in recent years, there has been a gradual shift from treatment to prevention in the field of child anxiety, and the necessity for a population-based approach capable of accessing all children suffering from anxiety has become apparent. One existing theoretical framework that has the capacity to address the multilevel and population based needs for intervention design and delivery in the field of child anxiety is the Transtheoretical Model of Behavior Change (TTM). Developing a TTM-based intervention tailored to parental readiness would fill a significant void that exists in the child anxiety literature.

TTM Overview

The TTM is a well-established, comprehensive theoretical approach to understanding intentional behavior change and developing effective behavior change

interventions (Prochaska & DiClemente, 1983; Prochaska et al., 1992; Prochaska & Velicer, 1997). The TTM has a public health focus and has guided the development of numerous successful interventions capable of accessing entire populations while utilizing program designs that are individually tailored. Randomized controlled trials have confirmed that TTM based interventions have greater reach and are more effective than other interventions in changing a number of health behaviors (e.g. smoking cessation, exercise adoption, increasing sun protection, dietary fat reduction, etc.) (Prochaska et al., 1993; Prochaska et al., 2001; Marcus et al., 1998; Rossi et al., 1997; Greene et al., 1999). The theory can also be applied to single, multiple, and complex behavioral targets (Prochaska & DiClemente, 1986; Johnson, S.S., Paiva, A.L. Cummins, C., Johnson, J.L. Dymont, S., Wright, J.A., Prochaska, J.O., Prochaska, J.M., Sherman, K. (2008); Mauriello, L. M., Ciavatta, M. M., Paiva, A. L., Sherman, K. J., Castle, P. H., Johnson, J. L., Prochaska, J. M. (2010)). TTM research and practice indicate that interventions developed to enhance behavior change are more effective when tailored to an individual's readiness level assessed by stage of change.

Stages of Change. The central organizing construct of the TTM is the temporal dimension, represented by five stages of change: Precontemplation, Contemplation, Preparation, Action, and Maintenance. The stage of change measure reflects an individual's readiness to take action in changing or adopting a behavior. The TTM asserts that change involves movement through this series of readiness stages and that individuals will be differentially distributed among them. In the *Precontemplation* (PC) stage of change, individuals are not planning to take action in the near future. Frequently people in the PC stage are unaware of the issue, uninformed about alternative behaviors,

resistant to change, and may overestimate the costs and underestimate the benefits of behavior change. In the *Contemplation* (C) stage, individuals are considering action in the near future (e.g., within the next six months). However, they are ambivalent about changing and lack confidence in their ability to do so. Individuals in the *Preparation* (PR) stage are ready to take action in the immediate future (e.g., within the next 30 days) and have taken some initial steps toward their behavior change goal. Individuals in the *Action* (A) stage are actively engaged in the behavior of interest or have acquired the new health behavior. These individuals have made behavior changes within the last six months. Finally, in the *Maintenance* (M) stage, individuals have maintained the desired behavior change for a prolonged period (e.g., 6 months or more).

Stage of change can be assessed using either continuous or categorical measures that represent each of the different stages. The University of Rhode Island Change Assessment (URICA) is a continuous measure of stage of readiness that requires cluster analysis to determine staging assignment while a categorical staging algorithm is used to place individuals into different staging categories. The URICA was originally developed to assess psychotherapy patients' readiness to change some problem behavior (McConaughy, DiClemente, Prochaska, & Velicer, 1989; McConaughy, Prochaska, & Velicer, 1983) and includes four dimensions representing Precontemplation, Contemplation, Action, and Maintenance. A Preparation dimension is not included because it was found that participants on which the measures were developed did not differentiate Preparation from Contemplation and Action. Stage of change is determined through cluster analytic procedures that place individuals into homogenous groups on the basis of their patterns or profiles of scores on the URICA dimensions. For example, in

the application of the URICA staging to assess readiness to desist violence in men in batter treatment, 6 clusters emerged representing 2 Precontemplation stage profiles, and 1 each Contemplation, Preparation, Action High Relapse, and Action Low Relapse stage profiles (Levevesque, Gelles, & Velicer, 2000). These profiles were used in the present study to guide interpretation of the results from cluster analysis.

There are pros and cons of using either approach to staging. Although the URICA continuous stage measure as compared to the categorical method of staging is lengthier and requires labor intensive cluster analysis, the URICA may also have the ability to more accurately capture individuals' attitudes and behaviors that characterize more than one stage at a time (Levesque, Gelles & Velicer, 2000). Alternatively, categorical staging algorithms are generally brief and simpler, and therefore more widely used in the application of the TTM to other health behaviors. Given the complexity of parenting behavior as it relates to child anxiety, it is not yet clear whether a simple categorical staging algorithm can entirely capture participant readiness. Hence, the URICA style continuous method to measure stage will be used as a comparison measure as well.

Decisional Balance. The TTM decisional balance construct provides a measure of an individual's rating of the relative importance of the pros and the cons of changing a specific behavior (Velicer et al., 1985). An examination of an individual's decisional balance effectively exposes their underlying attitudes towards the behavior of interest as well as their commitment to making a change (Plummer et al., 2001). This construct was initially derived from the Janis and Mann (1977) model of the cognitive and motivational aspects of decision making that included four categories of pros (instrumental gains for

self and others and approval for self and others) and four categories of cons (instrumental costs to self and others and disapproval from self and others). However, an empirical test of the model in the field of smoking cessation revealed only two factors: Pros and Cons (Velicer, DiClemente, Prochaska, & Brandenburg, 1985) and since has been shown to maintain this two-factor structure across a long series of studies of other health behaviors (Prochaska et al., 1994).

Compelling evidence supporting the internal validity of this two-factor decisional balance construct can be found in a study of the relationship between stage of change and decisional balance across 12 behavior areas (Prochaska et al., 1994). Results of this study demonstrated a general and consistent pattern of a one standard deviation increase in the evaluation of the pros of changing as individuals progress from Precontemplation to Action and about a half a standard deviation decrease in the cons of changing as individuals progress from Precontemplation to Action. This specific functional relationship was appropriately entitled the strong and weak principle of change, as the pros increase twice as much as the cons as an individual progresses through the stages. More recently, in a meta-analytic review of the strong and weak principle Hall and Rossi (2008) demonstrated that this principle was consistent across 120 datasets, including over 50,000 participants from 10 countries, and across 48 health behaviors. Given the rigorous statistical methods and number of datasets, this examination provides even more convincing evidence for the functional relationship between stage of change and decisional balance.

Self-Efficacy/Confidence. This TTM construct was derived and adapted from self-efficacy theory originally proposed by Bandura (1977; 1982). Situational self-efficacy

represents the level of confidence an individual has to engage in a new behavior or to maintain a behavior in a variety of challenging situations (Velicer et al., 1990). Although this construct is relevant across all stage of change transitions, it is particularly important as an individual moves through the later stages of change (e.g. from PR to A) and is also a predictor of relapse to earlier stages (DiClemente et al., 1985; Prochaska et al., 1985).

In order to successfully apply the TTM to the field of parental management of child anxiety, the first step is the development of measures of the core TTM constructs. The development of valid and reliable measures for assessment is critical to creating effective interventions to facilitate parental behavior change that may aid in the treatment and prevention of child anxiety. Moreover, creating psychometrically sound measures of the constructs of interest is essential in establishing the fit of the TTM constructs and their expected interrelationships for the parenting behaviors of interest and corresponding change processes. The aim of the present study is develop TTM measures for stage of change, decisional balance, and self-efficacy for parental readiness to facilitate healthy anxiety management in their children as well as to create a measure to assess the key parenting behaviors that may influence how a child copes with situations in which they feel anxious or worried. In the future, these measures may be used in a population-based, parent-focused, intervention program to assist parents in better helping their children cope with anxiety. Stage-matched, tailored interventions have the potential to address varying degrees of readiness to make changes in parenting behavior and to aid parents in becoming more receptive to parent skills training. Given the current state of the child anxiety field and the shifts that have been made from (1) treatment to prevention, (2) primarily clinic-based samples to populations, and (3) individual to multi-level

interventions, developing, and eventually applying these measures as the base of assessment and feedback for TTM driven interventions is certainly warranted.

Methodology and Procedure

Measurement Development Overview

A sequential approach to measurement development including both qualitative and quantitative phases of research was used in this study following guidelines delineated by Jackson (1970; 1971) and more recently, Redding, Maddock, & Rossi (2006). This included item development using qualitative methods such as expert reviews and cognitive interviews followed by three phases of analysis including 1) exploratory analyses, 2) confirmatory analyses, and 3) external validation analyses of the Stages of Change, Decisional Balance, Self-efficacy, and Parenting Behaviors measures.

Item Development

Initial items for stage of change, decisional balance, self-efficacy, and parenting behaviors were generated through an in-depth review of the literature, and consultation with experts in the field of child anxiety as well as experts in the TTM.

Item Generation and Review. The first step in generating items for the measurement development survey involved an in-depth review of the literature on both parenting behaviors and child anxiety as well as previous applications of the TTM to other behavior content areas.

Expert Review. Item sets based on previously developed TTM measures in other content areas as well as novel information gleaned during literature review were assembled for each construct. Experts in the TTM and in child anxiety at URI reviewed all items for face validity and also made suggestions to improve language simplicity and concept clarity. This iterative process produced feedback that led to alteration of the items and finalization of the item sets. The primary goal of this expert consultation was

to ensure that the items comprising the TTM measures were sufficient in representing factors that might be important to parents when making decisions about their behavior in situations where their children show anxiety. Moreover, this expert review was employed to evaluate the elements of good items such as clear, simple language, representation of only one concept per item, and lack of redundancy.

Cognitive Interviews. Once the items were compiled into survey format, a series of four cognitive interviews were conducted with parents, including two who had a child diagnosed with an anxiety disorder and two who felt their children did not have any difficulties with anxiety. Interviews were facilitated by a clinical psychology doctoral student. The primary purpose of interviews was to determine the clarity and readability of the instructions and item pool. Items and survey instructions were eliminated, added, and re-worded to improve clarity, relevance, readability and understandability based on cognitive interview feedback.

Measures

The following preliminary measures were developed for the measurement development survey:

Stage of Change Items

Development of a stage of change measure for parental readiness to aid in healthy management of child anxiety represented a complex behavior target, and as a result, a more challenging measurement development endeavor. Most relevant for this content area was the effective application of the TTM to other complex behavioral targets such as high-fat diet (Greene et al., 1999), domestic violence (Levesque, Gelles, & Velicer, 2000; Levesque, Velicer, Castle, & Greene, 2008) and stress management (Evers et al., 2006;

Mauriello et al., 2007). The successful work in these content areas was used to guide application of TTM staging to child anxiety prevention and treatment. Each of these applications employ multiple interwoven behavior targets known as “marker” behaviors to represent the staging algorithm and to define action criteria for the behavior. For example, the stress management staging algorithm behavior criteria includes (1) regular relaxation, (2) physical activity, (3) talking with others, and (4) taking time for social activities. In developing the items to represent the stage of change measure for parental facilitation of healthy management in their children, the first step was to identify these marker behaviors.

The child anxiety literature offered some insight into candidates for marker parental behaviors, but there is not yet a unanimously agreed upon set of parental behaviors that are deemed necessary for effective treatment and/or prevention. Some preliminary ideas for the marker behaviors included: (a) modeling of coping skills and problem solving; (b) identifying anxious self-talk and replacing it with coping self-talk, (c) reinforcement of child coping skills and problem-solving, (d) modeling of approach rather than avoidance, (e) removal of reinforcement for avoidant coping strategies, and (f) reward for approach of feared stimuli (Spence, 2001). Marker behaviors were decided upon for the present study through consultation with experts.

As parental management of child anxiety involves a complex set of behaviors, development of a staging algorithm to assess readiness/intention of a parent to perform the behaviors was also complex. One overarching goal of this study was to evaluate alternative methods of staging to determine which seemed to most accurately capture stage of change for parental readiness to facilitate healthy anxiety management in their

children. Three different efforts to develop stage measures were created for inclusion in the measurement development survey: (1) the University of Rhode Island Change Assessment (URICA), a continuous multi-item scale that includes four dimensions representing Precontemplation, Contemplation, Action, and Maintenance (also called Relapse), (2) a three-item series of questions regarding intention and current behavior designed to place participants in one of five mutually exclusive categories for stage of change, and (3) a single item categorical staging algorithm. The characteristics of each of these staging algorithms were compared based on relationships with other essential TTM constructs such as decisional balance and self-efficacy, as well as a parenting behavioral measure, and parent-rated child anxiety.

URICA Continuous Staging. The instructions and items written to represent the URICA continuous staging measure were based on previous applications of the URICA in other behavior areas (McConnaughy, DiClemente, Prochaska, & Velicer, 1989; McConnaughy, Prochaska, & Velicer, 1983; Levesque, Gelles, & Velicer, 2000; Levesque, Velicer, Castle, & Greene, 2008). Items were written for the four URICA dimensions (PC, C, A, and R) using the original URICA (McConnaughy et al.), the more recent application of the URICA to men in batterer treatment (Levesque, Gelles & Velicer, 2000) as well as the stage of change constructs from the TTM. The following instructions were given at the start of the survey: "All children show different amounts of anxiety (worry and fear) as they make their way in the world and come across situations, things, people, and places that scare them. We want to learn about how you shape the way your child handles things that are scary or frightening. This survey asks questions about **using effective strategies to help your child manage anxiety**. When answering

these questions, please keep in mind that we are talking about situations that may make your child anxious but are not seriously dangerous or harmful.”

To determine which stage of change for facilitation of healthy anxiety management in their children parents were in at baseline, we provided participants with the following definition of effective parenting strategies to help their child manage anxiety: “In the rest of this survey, “using effective strategies to help your child manage anxiety” means: (1) Encouraging your child to do things he/she is afraid of, (2) Seeking out or creating opportunities for your child to face the things he/she is afraid of, (3) Helping your child make a plan for how to handle things that make them anxious by: Talking through a plan for how your child will act, helping your child look at the situation in a positive way (e.g., view the situation as exciting, not scary), telling your child you are sure he/she can handle it and (4) Requiring that your child does things that other kids his/her age do (e.g., riding the school bus, giving an oral book report). Using effective strategies to help your child to manage anxiety” also means: (1) Not allowing your child to run away from or avoid things he/she is scared or nervous about, (2) Not allowing your child to focus too much on risks in the world, and (3) Not always stepping in to help in situations where your child is afraid.” These instructions were followed by a series of 36 items written to represent the aforementioned 4 staging dimensions. Parents were asked to rate how much they agreed or disagreed with each item on a 5 point scale ranging from 1 = “strongly disagree” to 5 = “strongly agree.”

Two Categorical Staging Algorithms. To categorically determine which stage of change for facilitation of healthy anxiety management in their children parents were in at baseline, we provided parents the following definition of effective parenting strategies to

help their child manage anxiety: “Studies suggest that if you are using effective strategies to help your child manage anxiety, you are: (1) Strongly encouraging your child to approach things, situations, and people they are afraid of or nervous about, (2) Not allowing your child to avoid or run away from things, situations, and people they are afraid of or nervous about, and (3) Helping your child make a plan for how to handle things that make them anxious (e.g., talking through how your child will act, telling your child you are sure he/she can handle it, helping your child to think more positively).” For the one-item staging algorithm, participants were then asked, “Do you effectively help your child manage his/her anxiety? (meaning that you regularly do all 3 behaviors above)?” Participants were asked to endorse one of five response categories, placing the participants in one of five stages of change for parental facilitation of healthy anxiety management in their children: precontemplation (not intending to begin in the next 6 months), contemplation (intending to begin in the next 6 months), preparation (intending to begin in the next 30 days), action (practicing the behavior, but for less than 6 months) or maintenance (practicing the behavior for at least 6 months). This measure was based on staging algorithms that have been developed for a variety of other health behaviors (Velicer, et al., 1985, Greene et al., 1999, Evers et al., 2006; Mauriello et al., 2007). The three-item staging algorithm consisted of three questions, each listing one of the above marker behaviors separately. Each three-item staging question was followed by the same response options provided for the one-item staging question.

Decisional Balance

Thirty-eight items were designed to represent the pros (19 items) and cons (19 items) of practicing the marker behaviors (defined above in stage of change) for parents.

This decisional balance scale was intended to measure how important each of these items (e.g., my child would not miss out on things because of anxiety, fears, and worries; doing things he/she is fearful of will make my child more anxious in the short term) is in an individual's decision whether or not to engage in the marker behaviors. Responses were made on a 5- point Likert scale, ranging from 1 = "not at all important" to 5 = "extremely important."

Self Efficacy/Confidence

Items on the confidence/self-efficacy scales were designed to assess parents' confidence in their ability to practice the use of effective strategies to help their child manage anxiety in a variety of situations that may present challenges or obstacles to engaging in the behavior (e.g. when my child is fearful in public; when I am already stressed out). The initial scale to assess confidence/self-efficacy consisted of seventeen items. Participants were asked to rate responses on a 5-point Likert scale, ranging from 1 = "not at all confident" to 5 = "extremely confident."

Parenting Behaviors Inventory

Items on the Parenting Behaviors Inventory were designed to assess the behaviors, both healthy and unhealthy, that parents may engage in during situations where their child is showing an anxious response to a situation. The initial scale to assess parenting behaviors consisted of twenty two items. Parents were given the following instructions: "This section describes things parents might do to help their children manage anxiety. Please think about your own life and answer how often you did each of the following in the past month." Sample items include (e.g., let my child make minor mistakes that serve a teaching purpose; looked for or created new opportunities to build

my child's anxiety coping skills). Participants were asked to rate responses on a 5-point Likert scale, ranging from 1 = "never" to 5 = "very often."

Multidimensional Anxiety Scale for Children – Parent Version (MASC)

A measure to assess child anxiety level was included in this study to compare the relationship among the newly developed scales to child anxiety with the goal of eventually using child anxiety as an outcome measure for evaluating efficacy of future interventions developed from these measures. The MASC-Parent Version (March, 1998) is an anxiety screening tool that assesses the major dimensions of anxiety in youth and has been adapted for use with parents from the MASC child-report instrument. The MASC assesses child anxiety symptoms on a number of subscales including the Physical Symptoms (e.g., your child gets shaky or jittery), Harm Avoidance (e.g., your child keeps his/her eyes open for danger), Social Anxiety (e.g., your child is afraid that other kids will make fun of him/her) and Separation Anxiety/Panic Scales (e.g., your child tries to stay near his/her parents). In addition, the measure includes an Anxiety Disorders index, a set of items that have been shown to differentiate children with an anxiety disorder diagnosis from those without a diagnosis. Parents are asked to rate responses on a 4-point Likert scale ranging from 1 = never true to 4 = often true.

Recruitment

Traditionally, literature guiding the measure development process has advised that sample size should be determined by considering subject to variable ratios, but more recently, Redding, Maddock, & Rossi (2006) have argued that considering anticipated item loadings may be a more helpful approach. Still, a minimum sample of 200 participants, and a more ideal sample size of 400 participants has been recommended

(Comrey, 1988; Redding, Maddock & Rossi, 2006). Planned analyses required that a split-half procedure be employed in which the sample is randomly split, exploratory analyses performed on Split 1 and confirmatory analyses on Split 2. Therefore, recruitment of a sample of 300-400 participants was the goal of this study.

The recruitment goal was to access a sample of parents of school-aged children ranging in age from 5-13 with heterogeneity in terms of child anxiety level, parenting behaviors, and parental readiness to facilitate healthy anxiety management in their children. The goal of recruiting a heterogeneous sample such as this is to represent variability in views in order to conduct a large scale measure development endeavor including both exploratory and confirmatory procedures (Clark & Watson, 1995). With regard to age of children, this target population was chosen to complete the measurement development survey because research suggests that implementing prevention programs at earlier ages may be more effective than waiting until later adolescence, where anxiety disorders may already be well-established (Barrett, Lock & Farrell, 2005).

Since this project aimed to develop TTM measures that could be used for a sample of parents with children in treatment as well as universal prevention purposes, efforts were made to access parents with children who represented variability in both age and anxiety level. Recruitment of these parents took place through a range of sites including but not limited to, the Child Anxiety Program at URI, the Rhode Island Center for Cognitive Behavior Therapy, Rhode Island school systems, physicians offices, and via the internet. Internet recruitment took the form of emails to friends and family, links to the survey on Facebook, and accessing email listservs for parents and professionals. Parents who chose to participate were provided with a link to complete the survey online.

The only eligibility criteria were that participants were required to be at least 18 years of age and have at least one child in the desired age range.

Cultural Assumptions. It was anticipated that the types of questions asked on the survey would and likely be applicable to parents regardless of demographic variables. It was not expected that there would be significant differences in validity or reliability based on demographic and cultural variables. As predicted, the number of participants from ethnically diverse groups in this sample was not sufficient to measure the scale's psychometric characteristics for different ethnic groups. Future research with a larger sample of individuals representing diverse ethnic groups will be required to further evaluate these cultural assumptions.

Results

Results Overview

The sequential approach to measurement development employed three phases of data analysis including 1) exploratory analyses, 2) confirmatory analyses, and 3) external validation analyses of the Stages of Change, Decisional Balance, Self-efficacy, and Parenting Behaviors measures.

Participants. The overall sample of 562 participants was randomly split into two samples for measurement development purposes ($N_1 = 290$ and $N_2 = 272$). However, this number included participants who only partially completed the survey, and had complete data for some of the items, but not the entire set of survey questions. Only 297 of these individuals had complete data. Therefore, sample size differed for each analysis based on how many complete cases were available.

Exploratory Phase

Exploratory analyses were conducted on the N_1 sample. Specifically, for URICA Staging ($N = 192$), Decisional Balance ($N = 174$), Confidence ($N = 161$), and Parenting Behaviors ($N = 185$). The sample was primarily female (81.5%), and parents reported having children ranging in age from 5 to 13 with a mean age of 9.36 years. The great majority of participants identified as being non-Hispanic (94.1%) and the distribution of race was as follows: 86.2% White, 5.3% Black, 2.3% Asian, 1.4% American Indian/Alaskan Native, 2.7% Multiracial, and 2.1% other. For level of education, 4.1% of participants reported education level of high school or less, 52.6% reported some college or college degree, and 43.3% reported having graduate training. More than 50% of participants reported a combined annual household income of \$80,000 or greater. A

summary of demographic characteristics of the sample can be viewed in Table 1. Means and standard deviations of the measures developed in this study by demographic variables can be viewed in Table 2. Stage distribution varied based on which staging assessment tool was used. These data are reported for each staging method separately.

Exploratory Procedure Overview. Exploratory factor analysis was conducted using principal components analysis (PCA) with varimax rotation on the intercorrelation matrices. The goals of these exploratory analyses were: (1) to determine the number of components present and to estimate the correlation between them; (2) to provide factor loadings of items on these relative components, with the aim of eliminating complex items (a component loading of .40 on two or more components), and (3) to estimate the internal consistency of the components using Chronbach's Alpha. The number of components to retain was based on the minimum average partial procedure (MAP) (Velicer, 1976) and parallel analysis (Horn, 1965). These two methods have been found to be most accurate for determining the number of components to retain (Zwick & Velicer, 1986). Furthermore, final items were selected on the basis of lack of redundancy, item clarity, simple expression of the idea, and being representative of the conceptual definition of the constructs.

URICA Staging. *A priori* considerations about the content and factor structure of URICA measures in other behavior domains suggested that a four factor, correlated model would be the best fit for the URICA data. As a result of these predictions combined with the complexity of these dimensions, PCAs were not performed on the URICA items. Rather, exploratory analyses were conducted utilizing structural equation measurement modeling. The aims of these analyses were to: 1) provide estimates of the

factor loadings and 2) estimate internal consistency for each component using Cronbach's alpha. Item selection was an iterative process, in which items with poor loadings ($<.40$) were removed, and analyses were repeated. Final item selection was also determined on the basis of item clarity, lack of redundancy, and conceptual breadth. A total of four SEM measurement models were run, ultimately reducing the pool of 36 URICA items to 20, representing the four factors or dimensions of Precontemplation, Contemplation, Action, and Relapse/Maintenance, with five items per factor. All item loadings were adequate, ranging from .49 to .83, and the internal consistency for each of the URICA factors was as follows: Precontemplation ($\alpha = .73$), Contemplation ($\alpha = .88$), Action ($\alpha = .88$), and Maintenance ($\alpha = .75$). The item content and exploratory factor loadings for the URICA measures can be viewed in Table 3.

Decisional Balance. All thirty-eight decisional balance items were included in the initial exploratory factor analysis. PCA with varimax rotation on the 38 X 38 matrix of item intercorrelations was conducted to determine the factor structure of the decisional balance measure. A total of eight PCAs were conducted, ultimately reducing the pool of 38 items to 12, representing the pros and cons of parents facilitating healthy anxiety management in their children (as defined by engaging in the specific marker behaviors). Both MAP and parallel analysis indicated a two-component solution, equally representing the pros and cons. All items loadings were above .60, and the internal consistency was good for both the pros ($\alpha = .89$) and cons ($\alpha = .83$). The two factors accounted for 61.43% of the total variance. The item content and exploratory factor loadings for the Decisional Balance items can be viewed in Table 4.

Self-efficacy. All 17 self-efficacy items were included in the initial exploratory factor analysis. PCA with varimax rotation on the 17 X 17 matrix of item intercorrelation was conducted to determine the factor structure of the self-efficacy scale. A total of 4 PCAs were conducted on the self-efficacy items and the initial pool of 17 items was eventually reduced to six items. Both MAP and parallel analysis indicated a two-component solution. Examination of the item content revealed that one factor seemed to represent parental confidence to engage in the marker behaviors when in situations where their child is behaving in a way that makes implementing these parenting behaviors more challenging (e.g., when my child is fearful in public). The second factor included items that represented parent confidence to effectively help their child manage anxiety when the parents are struggling with their own difficult feelings (e.g., when I feel a lot of anxiety). All item loadings were above .60 and the internal consistency of both self-efficacy factors was good: child factor ($\alpha = .86$) and parent factor ($\alpha = .82$). The two factors accounted for 77.59% of the total variance. The item content and exploratory factor loadings of the final confidence scales are displayed in Table 5.

Parenting Behaviors Inventory. Twenty two parenting behavior items were included in the initial exploratory factor analysis. PCA with varimax rotation was conducted on the 22 X 22 matrix of item intercorrelations to determine the factor structure of the parenting behaviors measure. A total of 4 PCAs were conducted and the initial pool of items was reduced to ten items. MAP and parallel analysis indicated a one component solution representing positive and healthy parenting behaviors that are expected to facilitate healthy anxiety management and coping in children. The resulting parenting behaviors scale had good internal consistency ($\alpha = .91$) and accounted for

51.47% of the variance. The item content and exploratory loadings of the final parenting behaviors inventory are displayed in Table 6.

Confirmatory Phase

A confirmatory factor analysis was conducted on the URICA staging, decisional balance, confidence, and parenting behaviors scales with sample N₂ (N=272) using structural equation modeling in EQS (Bentler, 1993). Only cases with complete data for URICA staging (N = 176), decisional balance (N = 156), confidence (N = 146), and parenting behaviors (N = 173) were used for confirmatory analyses. For all constructs, four fit indices were compared for each of the alternative models to determine the best fitting model. These included (1) the likelihood ratio chi-square statistic; (2) the goodness of fit index (GFI); (3) the comparative fit index (CFI); and (4) the average absolute standardized residual statistic (AASR). Traditionally, values of .80 to .89 on the GFI and CFI indicate adequate to marginal fit, while values of .90 and above indicate good to excellent fit (Knight et al. 1994). For the AASR, values below .06 indicate excellent fit (Tabachnik and Fidell, 2001). More conservative criteria purport that an acceptable GFI and CFI should be at least .90, while .95 and above indicate excellent fit (Hu and Bentler, 1998).

URICA Staging. Alternative models were tested for the URICA measures to determine which model provided the best fit for the data. For the URICA measure, the following three models were tested; (1) the null model (suggesting no latent factors and used as a comparative model), (2) four-factor correlated model, and (3) four-factor uncorrelated model.

The four-factor correlated model showed the best fit: $\chi^2(164) = 474.33$, CFI=.82, GFI = .79, AASR = .09. The reliability coefficient alphas for the Precontemplation (PC), Contemplation (C), Action (A), and Relapse (R) factors were ($\alpha = .75$), ($\alpha = .89$), ($\alpha = .86$) and ($\alpha = .77$) respectively. Correlations among the factors can be viewed in Table 7 and the final items and their loadings in the confirmatory sample are shown in Figure 1.

Decisional Balance. Alternative models were tested for decisional balance to determine which model provided the best fit for the data. For decisional balance, the following three models were tested; (1) the null model (suggesting no latent factors and used as a comparative model) (2) two-factor uncorrelated model (3) two-factor correlated model. The best fitting models proved to be both the two-factor correlated model, $\chi^2(53) = 99.67$, $p < .001$, CFI=.952, GFI=.901, AASR= .05, and the two factor uncorrelated model, $\chi^2(54) = 100.65$, $p < .001$, CFI=.95, GFI = .91, AASR= .06. A χ^2 difference test comparing the correlated and uncorrelated models was not significant, $\chi^2(1) = .98$, $p > .05$. The fit indices of the correlated and uncorrelated models were almost identical; however, the uncorrelated model utilizes fewer degrees of freedom. Thus in the interest of parsimony, the uncorrelated model was selected as the best fit for the data. Coefficient alpha's for the Pros and Cons scales were $\alpha=.92$ and $\alpha=.82$, respectively, and the correlation between the Pros and Cons scales was .09. The final items and their loadings in the confirmatory sample are shown in Figure 2.

Confidence. Alternative models were tested for the confidence scales to determine which model provided the best fit for the data. As for decisional balance scales, three models were tested; (1) the null model (suggesting no latent factors and used as a comparative model) (2) two-factor uncorrelated model and (3) two-factor correlated

model. The two factor correlated model produced the best fit. Results of the structural modeling produced good factor loadings and good model fit, $\chi^2 (8) = 12.27$, CFI=.99, GFI = .97, AASR = .02. The internal consistency of the confidence related to parent feelings was ($\alpha = .85$), and confidence related to child behavior was ($\alpha = .83$), and the scales were significantly correlated ($r = .58$). Given this high correlation between the two confidence factors, one alternative model was also run to determine if a hierarchical structure would provide as strong or better fit than the two-factor, correlated model. However, the hierarchical model did not produce a good fit, further supporting that the two-factor correlated model best represents the data. The final confidence items and their loadings in the confirmatory sample are shown in Figure 3.

Parenting Behaviors. Two alternative models were tested for the parenting behaviors inventory to determine which model provided the best fit for the data. The following models were tested; (1) the null model (suggesting no latent factors and used as a comparative model) and (2) the one-factor model (all items on a single factor). The one-factor model showed the best fit $\chi^2 (35) = 133.04$, CFI=.90, GFI = .85, AASR = .04. The internal consistency of the scale was good ($\alpha = .92$). The final parenting behavior items and their loadings in the confirmatory sample are shown in Figure 4.

External Validation Phase

Participants. The entire sample of participants with complete data ($N = 297$) was used for external validation purposes.

Procedure. Following the exploratory and confirmatory procedures, the external validity of each measure was assessed. This was accomplished by examining the functional relationship between stage of change and the newly created scales for

decisional balance, confidence, parenting behaviors, and the MASC parent version (a measure of parental assessment of a child's anxiety). These relationships were then compared with the relationships typically found for these Transtheoretical Model constructs in other content areas as well as predicted relationships among TTM constructs and measures of behavior and child anxiety. Since this is a new content area application for the TTM, the staging algorithm was also being developed and tested.

Mean scores on the decisional balance scale, confidence scale, parenting behaviors and MASC subscales were converted to T-scores ($M=50$, $SD=10$), as standardization allows graphing and comparison of the scales in relation to one another. Correlations among the Decisional Balance, Confidence, Parenting Behaviors, and Child anxiety scale scores can be viewed in Table 8. Given the clearly uneven staging distribution for all methods of staging, all of the following results were compared in both un-weighted and weighted forms of stage of change for the one-item, three-item, and URICA staging.

As previously discussed, extensive research on the construct of decisional balance has shown a predictable pattern of relationships by stage of an increase in the importance of the pros and decrease in the importance of the cons from the earlier to later stages of change, with a characteristic crossover of pros and cons between Contemplation to Preparation (Prochaska et al., 1994; Hall, 2008). Self-efficacy/confidence is expected to increase as one progresses through the stages and becomes more confident in their ability to engage in the maker behaviors even in difficult or challenging situations. Additionally, parent use of positive and healthy parenting behaviors was expected to be significantly greater for people in later stages of change than for those in earlier stages of

change. It was hypothesized that level of child anxiety would also be related to stage and that children of parents in the later stages of change for facilitation of health anxiety management in their children would have overall lower levels of anxiety than children of parents in the earlier stages of change.

URICA External Validation

Cluster analysis was used to identify smaller groups of homogeneous parental subtypes based on profiles of scores on the URICA dimensions. This cluster analysis resulted in 4 clusters, which were interpreted and labeled based on a comparison to the 6 clusters found in the recent application to men in batterer treatment as well as by examining the relationships of the profiles to relevant TTM variables, parenting behaviors, and child anxiety scores. The URICA staging resulted in the following staging distribution: Precontemplation (5.9%), Contemplation (16.2%), Preparation (39.8%), and Action (38%). A graphical representation of these clusters can be viewed in Figure 5.

Decisional Balance by URICA Stage. A Multivariate Analysis of Variance (MANOVA) conducted on the pros and cons scales revealed that individuals in different stages of readiness to engage in effective parenting behaviors differed significantly on their overall decisional balance scale scores ($F(6, 650) = 15.41, p < .001, \eta^2 = .13$). Follow up ANOVAs indicated that individuals in different stages of change differed significantly on both the pros ($F(3, 326) = 15.51, p < .001, \eta^2 = .13$) and cons scale $F(3, 326) = 14.73, p < .001, \eta^2 = .12$). Follow up Tukey tests revealed that for pros, Precontemplation ($M = 38.07$) was significantly lower than Preparation ($M = 52.08$), and Action ($M = 49.78$). For cons, Precontemplation ($M = 56.97$) and Preparation ($M =$

52.32) were significantly higher than Action ($M = 46.4$). Overall, the pros increased 1.2 standard deviations from Precontemplation to Action and the cons decreased 1.1 of a standard deviation. It is evident that the pattern of findings is consistent with findings of the relationship between pros and cons and stage of change found in other health behavior areas, but with a greater increase visible for the pros from PC to A and a greater decrease in cons from PC to A. The crossover pattern that typically between C and PR is instead visible directly at the Preparation stage.

Confidence by URICA Stage. A MANOVA conducted to examine both of the confidence scales across the stages of change revealed that individuals in different stages of readiness to engage in effective parenting behaviors differed significantly on overall confidence scale scores ($F(6, 604) = 12.88, p < .001, \eta^2 = .11$). Follow up ANOVA's indicated that individuals in different stages of change differed significantly on confidence related to difficult child behavior ($F(3, 303) = 22.78, p < .001, \eta^2 = .18$) and confidence related to difficult parental feelings scale ($F(3, 303) = 5.12, p < .005, \eta^2 = .05$). Follow up Tukey tests revealed that for confidence related to child behavior, Precontemplation ($M = 37.18$) was significantly lower than Preparation ($M = 48.79$) and Action ($M = 53.46$) and Preparation was also lower than Action. For confidence related to parental feelings, only Preparation ($M = 48.13$) was significantly lower than Action ($M = 52.24$).

Parenting Behaviors by URICA Stage. A one-way Analysis of Variance (ANOVA) conducted to examine positive parenting behaviors across stage of change revealed that there were significant differences in parenting behavior inventory scores across stage of change, ($F(3, 354) = 28.06, p > .001, \eta^2 = .19$). As expected, use of

positive parenting behaviors showed an increase from earlier to later stages of change. A follow up Tukey test indicated that Parenting Behavior Inventory scores were lower in Precontemplation ($M = 34.89$) and Contemplation ($M = 32.28$) than Preparation ($M = 51.41$) and Action ($M = 51.1$).

Child Anxiety by URICA Stage. A MANOVA conducted to examine scores on the MASC parent version across the stages of change revealed that individuals in different stages of readiness to engage in effective parenting behaviors differed significantly on child MASC scores ($F(6, 584) = 9.84, p < .001, \eta^2 = .09$). Follow up ANOVAs indicated that parent-rated level of child anxiety differed by parental stage of change significantly on the ADI subscale of the MASC ($F(3, 293) = 14.67, p < .001, \eta^2 = .13$) as well as the MASC total score ($F(3, 293) = 19.66, p < .001, \eta^2 = .17$). Follow up Tukey tests revealed that parents in Precontemplation ($M = 57.53$) reported significantly higher ADI subscale scores in their children than parents in the Contemplation ($M = 28.26$) and Action ($M = 47.03$) stages, parents in Contemplation reported significantly lower child ADI scores than parents in Precontemplation, Preparation ($M = 51.99$) and Action, and parents in Preparation reported significantly lower child ADI scores than parents in the Action stage.

For total MASC score, parents staged in Precontemplation ($M = 57.84$) reported significantly higher levels of overall anxiety in their children than parents in Contemplation ($M = 29.29$) and Action ($M = 46.29$), parents in Contemplation reported higher child overall MASC scores than parents in Precontemplation, Preparation ($M = 52.63$) and Action, and parents in Preparation reported higher child MASC score than

parents in Action. A graphical representation of both the weighted and un-weighted external validation analyses using the URICA staging is shown in Figure 6.

One-item Categorical Staging External Validation

In using the one item staging algorithm, the distribution of staging was as follows: Precontemplation (7.9%), Contemplation (5%), Preparation (7.6%), Action (7.3%), and Maintenance (72.2%).

Decisional Balance by One-item Stage. A Multivariate Analysis of Variance (MANOVA) conducted on the pros and cons scales revealed that individuals in different stages of readiness to engage in effective parenting behaviors differed significantly on their overall decisional balance scale scores ($F(8, 592) = 8.15, p < .001, \eta^2 = .15$). Follow up ANOVAs indicated that individuals in different stages of change differed significantly on both the pros ($F(4, 297) = 15.2, p < .001, \eta^2 = .17$) and cons scale $F(4, 297) = 9.8, p < .001, \eta^2 = .12$). Follow up Tukey tests revealed that for pros, Precontemplation ($M = 37.2$) was significantly lower than Preparation ($M = 50.5$), Action ($M = 50.03$), and Maintenance ($M = 51.6$) and Contemplation ($M = 43.45$) was significantly lower than Maintenance. For cons, Precontemplation ($M = 56.8$), Contemplation ($M = 57.4$) and Action ($M = 55.9$) were significantly higher than Maintenance ($M = 48.2$). Overall, the pros increased 1.28 standard deviations from Precontemplation to Action and the cons decreased .86 of a standard deviation. It is evident that the pattern of findings is consistent with findings of the relationship between pros and cons and stage of change found in other health behavior areas, but with a greater increase in the pros from PC to A and greater decrease in cons from PC to A. In addition, the crossover pattern that typically occurs between C and PR is instead visible between A and M.

Confidence by One-item Stage. A MANOVA conducted to examine both of the confidence scales across the stages of change revealed that individuals in different stages of readiness to engage in effective parenting behaviors differed significantly on overall confidence scale scores ($F(8, 592) = 8.15, p < .001, \eta^2 = .099$). Follow up ANOVA's indicated that individuals in different stages of change differed significantly on confidence related to difficult child behavior ($F(4, 297) = 15.7, p < .001, \eta^2 = .17$) and confidence related to difficult parental feelings scale $F(4, 297) = 3.74, p < .05, \eta^2 = .05$). Follow up Tukey tests revealed that for confidence related to child behavior, Precontemplation ($M = 39.8$) and Contemplation ($M = 41.04$) were significantly lower than Action ($M = 49.7$) and Maintenance ($M = 52.36$) and Preparation ($M = 46.5$) was significantly lower than Maintenance. For confidence related to parental feelings, only Preparation ($M = 44.95$) was significantly lower than Maintenance ($M = 51.04$).

Parenting Behaviors by One-item Stage. A one-way Analysis of Variance (ANOVA) conducted to examine positive parenting behaviors across stage of change revealed that there were significant differences in parenting behavior inventory scores across stage of change, ($F(4, 297) = 2.1, p > .001, \eta^2 = .23$). As expected, use of positive parenting behaviors showed an increase from earlier to later stages of change. A follow up Tukey test indicated that parent behavior scores were lower in Precontemplation ($M = 28.88$) than Action ($M = 36.73$) and Maintenance ($M = 38.84$) and scores in Contemplation ($M = 25.47$) were lower than Preparation ($M = 33$), Action and Maintenance.

Child Anxiety by One-item Stage. A MANOVA conducted to examine scores on the MASC parent version across the stages of change revealed that individuals in

different stages of readiness to engage in effective parenting behaviors differed significantly on child MASC scores ($F(8, 582) = 2.60, p < .01, \eta^2 = .03$). Follow up ANOVAs indicated that parent-rated level of child anxiety differed by parental stage of change significantly on the ADI subscale of the MASC ($F(4, 292) = 3.34, p < .05, \eta^2 = .04$) as well as the MASC total score ($F(4, 292) = 5.02, p < .01, \eta^2 = .06$). Follow up Tukey tests revealed that parents in the Contemplation ($M = 57.16$) stage reported significantly higher ADI subscale scores in their children than parents in the Maintenance ($M = 49.07$) stage. For total MASC score, parents staged in Contemplation ($M = 57.16$) reported significantly higher levels of overall anxiety in their children than parents in both the Precontemplation ($M = 48.66$) and Maintenance ($M = 49.07$) stages. A graphical representation of both the weighted and un-weighted external validation analyses using the one-item categorical staging is shown in Figure 7.

Three-item Categorical Staging. The three item staging algorithm resulted in the following staging distribution among participants: Precontemplation (4.6%), Contemplation (4.3%), Preparation (28.8%), Action (16.2%), Maintenance (46%). Similar to the one-item staging algorithm, the three-item staging also resulted in a disproportionately small percentage of parents being categorized into the pre-action stages of change, particularly Precontemplation and Contemplation.

Decisional Balance by Three-item Stage. A Multivariate Analysis of Variance (MANOVA) conducted on the pros and cons scales across the three-item staging algorithm revealed that individuals in different stages of readiness to engage in effective parenting behaviors differed significantly on overall decisional balance scale scores ($F(8, 592) = 15.86, p < .001, \eta^2 = .18$). Follow up ANOVAs indicated that individuals in

different stages of change differed significantly on the pros ($F(4, 297) = 18.74, p < .001, \eta^2 = .20$) and cons scale $F(4, 297) = 10.847, p < .001, \eta^2 = .13$). Follow up Tukey tests revealed that for pros, parents in Precontemplation ($M = 32.95$) rated the pros significantly lower than those individuals in the Preparation ($M = 50.5$), Action ($M = 50.96$), and Maintenance ($M = 51.83$) stages. Furthermore parents in Contemplation ($M = 43.45$) also had significantly lower pros scores than parents in Preparation, Action and Maintenance. For cons, individuals in Precontemplation ($M = 59.16$), Contemplation ($M = 56.22$), Preparation ($M = 52.08$) and Action ($M = 52.84$) had significantly higher scores on the cons scales than those in Maintenance ($M = 46.76$). Overall, the pros increased 1.8 standard deviations from Precontemplation to Action and the cons decreased .63 of a standard deviation from Precontemplation to Action.

Confidence by Three-item Stage. A MANOVA conducted to examine both of the confidence scales across the three-item stages of change revealed that individuals in different stages of readiness to engage in effective parenting behaviors differed significantly on overall confidence scale scores ($F(8, 592) = 7.38, p < .001, \eta^2 = .09$). Follow up ANOVAs indicated that individuals in different stages of change differed significantly on confidence related to difficult child behavior ($F(4, 297) = 13.04, p < .001, \eta^2 = .15$), but did not differ significantly on confidence related to difficult parental feelings scale $F(4, 297) = .69, p > .05, \eta^2 = .01$). Follow up Tukey tests revealed that for scores on confidence related to child behavior, parents in the Precontemplation ($M = 35.5$) stage reported significantly lower confidence than individuals in Preparation ($M = 49.73$), Action ($M = 50.07$) and Maintenance ($M = 52.58$) and parents in the Contemplation stage ($M = 43.26$) reported lower confidence than those in Maintenance.

Parenting Behaviors by Three-item Stage. A one-way Analysis of Variance (ANOVA) conducted to examine positive parenting behaviors across three-item stage of change revealed that there were significant differences in parenting behavior inventory scores across stage of change, ($F(4, 297) = 21.23, p > .001, \eta^2 = .222$). As with one-item categorical stage, use of positive parenting behaviors showed an increase from earlier to later stages of change. A follow up Tukey test indicated that parent scores on use of positive parenting behaviors were lower in Precontemplation ($M = 23.43$) and Contemplation ($M = 26.31$) than Preparation ($M = 38.45$), Action ($M = 36.02$) and Maintenance ($M = 38.34$).

Child Anxiety by Three-item Stage. A MANOVA conducted to examine scores on the MASC parent version across the three-item stage of change revealed that child anxiety as measured by the ADI subscale and total MASC scores did not differ in a statistically significant manner by parental stage of readiness to engage in effective parenting behaviors. A graphical representation of both the weighted and un-weighted external validation analyses using the three-item categorical staging is shown in Figure 8.

Decisional Balance by Weighted Stage Variables. Due to the notable imbalance in distribution of participants across the stages of change, and the vast majority of participants being categorized into the later stages, it was hypothesized that a more even stage distribution may have resulted in slightly different results in terms of the functional relationship between the decisional balance scale and stage of change. For example, with a more balanced stage distribution, the crossover between pros and cons was expected to occur between C and PR and the magnitude of increase in pros and decrease in cons across stage was predicted to be smaller than in the un-weighted analyses. In an effort to

account for the disproportionate number of individuals in the Maintenance stage for the categorical staging algorithms and Action for the URICA staging compared with the earlier stages, mean scores on the pros and cons scales were also examined across stage using weighted stage variables. This weighted analysis also showed that individuals in different stages of readiness to engage in effective parenting behaviors differed on decisional balance scores for all three methods of staging. For the URICA staging, the weighted analyses appear to be almost identical to the un-weighted version. However, for both the one and three-item staging, the crossover between the pros and cons scaled scores occurs between the Contemplation and Preparation stage as opposed to between the Action and Maintenance stage in the un-weighted analyses, reflecting results more similar to those found in other TTM behavioral applications.

Confidence by Weighted Stage. Similar to the decisional balance scale, mean scores on both confidence scales were also examined using weighted stage variables. Results appeared to be very similar to the non-weighted analyses though the slope of the increase in the confidence across stage of change was altered slightly in the weighted version.

Parenting Behaviors and Child Anxiety by Weighted Stage. Scores on the parenting behaviors inventory as well as parent-rated child anxiety using the MASC were also examined by weighted stage for all three staging methods. As is evident from the graphical representations of these analyses, there was not a dramatic change visible between the weighted and un-weighted analyses. However, similar to the weighted analyses for the confidence measures, some subtle changes are apparent in the weighted analyses. This weighted approach allows for a comparison of what the relationship

between stage and these non-TTM variables might look like if the staging distribution was more balanced.

Cross Tab Comparisons of Staging Algorithms. A series of descriptive statistical analyses were run using cross tabs to compare the staging distributions resulting from the three methods of staging. A comparison between the one and three-item categorical staging algorithms as well as the one and three-item staging compared with URICA staging showed that the alternative staging methods resulted in considerably different stage distributions. This difference is particularly notable when considering how individuals staged in Maintenance using the one-item staging were differentially distributed among the other stages when employing alternative staging approaches. The specific differences in stage distribution among the URICA, one-item, and three-item staging based on cross tab comparisons can be viewed in Table 9.

Discussion

The results of the present study have important theoretical and applied implications for the role of parenting as it relates to child anxiety and anxiety disorders. It has been well-established that parents are influential in the way children express and learn to manage anxiety. Consequently, in recent years, there has been a shift in focus within the field of child anxiety to include parents as essential components in both the treatment and prevention of the development of potentially debilitating anxiety disorders of childhood. However, to involve parents in a meaningful and productive way, it takes a certain level of parental readiness or preparedness to practice the parenting behaviors that facilitate healthy anxiety management in children. Implementing these behaviors often requires that parents make what are sometimes difficult changes in how they respond to and interact with their children. For myriad reasons, parents are at different levels of readiness and have different levels of efficacy for their ability to engage in parenting behaviors that can facilitate healthy anxiety management in their children.

Parents who are not prepared to take action will be less likely to implement the parenting skills and behaviors that have the potential to enhance treatment outcome and/or prevent the development of anxiety disorders. This variation in parental readiness to make behavior changes suggests a pressing need for the creation of programs that are tailored to readiness to enhance effectiveness and reach. The Transtheoretical Model of behavior change is one theory that has the capacity to guide the development of multi-level, population-based, intervention and prevention programs that are tailored to level of readiness. One notable benefit of the successful application of the TTM to a behavior content area includes development of interventions that are applicable for the entire

population, regardless of level of readiness. In addition, measures developed to assess TTM constructs have been used in intervention platforms that can be delivered to large populations without inherent need of counselors (e.g., expert system interventions delivered via the internet), but can also be used interactively with mental health professionals.

To our knowledge, this study is the first to develop measures of parental readiness to utilize behaviors that facilitate healthy anxiety management in their children using the Transtheoretical Model of Behavior Change. The study results provide strong support for the application of Stage of Change, Decisional Balance, and Self-efficacy constructs to the field of parenting and child anxiety. In addition, a measure of parenting behaviors was developed to provide further validation of the TTM measures. The new measures are succinct yet inclusive, offering a range of content but with good reliability. The measures also showed good internal and external validity. Overall, these results support this novel application of the Transtheoretical Model theory to an important area of behavior change with a unique population.

Stage of Change Measures

The Stage of Change measures for parental facilitation of healthy anxiety management in their children represent an individual's readiness to engage in (or continue engaging in) marker behaviors that are believed to facilitate healthy anxiety management in children. This approach is a further extension of the more complex behavioral applications of the TTM that target multiple behaviors, and require interpersonal interactions as it (1) addresses parenting behaviors that affect child emotional and behavioral reactions rather than intervening directly on the child and

child's behavior, and (2) represents a complex behavioral target that requires that an individual be readily engaging in multiple "marker" behaviors rather than terminating (e.g. smoking cessation) or initiating (e.g. exercise) one behavior. Both of these factors contribute to the complexity of developing staging algorithms for this particular behavior, and consequently made for a more challenging measurement development endeavor. To address these complexities, multiple methods of staging were developed and tested in this study to better understand the nature of readiness to participate in the marker behaviors and to determine which method best captured the data: the URICA continuous staging method, a one-item categorical staging algorithm, and a three-item categorical algorithm. Specifically, this study evaluated whether a very simple one-item algorithm would be sufficient to capture stage of readiness for change as compared to a three-item algorithm or an entirely different and more complicated continuous approach.

URICA Continuous Staging. The URICA is a continuous approach to assessing readiness for behavior change that with cluster analytic techniques can identify patterns of scores on a set of factors that represent the various stages of change. Previously developed URICA assessment measures typically include four correlated factors or dimensions representing Precontemplation, Contemplation, Action, and Relapse. Items for the URICA to assess parental readiness for facilitation of healthy anxiety management in their children were written to represent these four dimensions. Exploratory and confirmatory analyses conducted on the items written for URICA staging in the present study resulted in a four-factor, correlated model with 5 items per factor. These results were consistent with hypotheses based on previous applications of the URICA staging in other behavior areas. The overall fit for the confirmatory factor model was adequate and

reliability was good, despite a few items with low factor loadings. Once the URICA measures were finalized, cluster analytic procedures were implemented to determine whether there were homogenous groups (clusters) of parents that represented the stages of change based on their profiles of scores on the URICA dimensions. In an application of the URICA staging implemented to assess readiness to desist violence in men in batterer treatment, a six cluster solution emerged, representing two Precontemplation stage profiles, Contemplation, Preparation, Action High Relapse, and Action Low Relapse stage profiles (Levevsque, Gelles, & Velicer, 2000). In the current application, cluster analysis resulted in four interpretable stage clusters. Despite the difference in number, similarities were apparent among the clusters in terms of which stages each cluster seemed to represent. Therefore, the six clusters from the domestic violence application were used to guide interpretation of the present results.

One cluster with high scores on the PC dimension and low scores on all other dimensions seemed to clearly represent individuals in the Precontemplation stage. The second cluster had very low overall means on all dimensions, but the pattern of scores mapped most closely onto the Contemplation stage. The third cluster showed high means on both the Precontemplation and Action dimensions and was labeled the Preparation stage. Finally, the Action stage cluster had high means across all four dimensions, but particularly in the Relapse/Maintenance dimension as well as the Contemplation dimension. Regarding psychometric qualities, the URICA measures created in this study have overall good reliability and validity and, the clusters seemed to represent theoretically relevant groupings. Interpretation of the URICA clusters was complicated because of the exploratory nature of the work presented here and the lack of a

comparison group with similar characteristics. Since this is a new behavioral application with a population that is distinct from previous research samples, this study did not clearly replicate stage cluster solutions found in other behaviors areas. One explanation for the differences between cluster structures found here compared with other applications is that perhaps the measures developed are not adequately assessing all the URICA dimensions and would benefit from further measurement development with a more diverse sample in terms of readiness. It is also likely that the homogenous stage clusters are simply different than in previous applications given that this is a new behavior area and notably different population.

An important consideration when comparing URICA results in this study to the domestic violence literature is that the URICA application for men in batterer treatment is targeted for a group who is already clearly engaging in an unhealthy behavior that could benefit from change. The present study did not include a clinical population, and overall, the sample of parents included in this study reported fairly low anxiety in their children. When considering the child anxiety scores by URICA stage, it is clear that the parents in the Contemplation stage reported particularly low child anxiety. Perhaps the parents in the Contemplation stage may not necessarily need to make changes in their parenting practices given that their child is not demonstrating problematic anxiety, yet these parents are still open to altering parenting behaviors if the need to do so should arise. The parents in the Precontemplation stage on the other hand do report higher levels of child anxiety, suggesting that they may truly not be ready to address their child's anxiety and could benefit from an intervention tailored to their needs. To address these questions, future work will benefit from the inclusion of more "early-stage" parents whose children

are experiencing greater levels of problematic anxiety. It is possible that using a clinical sample and requiring some cut-off for child anxiety level as inclusion criteria may yield very different cluster analytic results that more closely map on to those found in the domestic violence literature.

The relationships between the URICA stages and the TTM constructs of interest including decisional balance and self efficacy are generally consistent with URICA results in other behavioral applications. Even the un-weighted analysis examining the relationship between stage and pros and cons shows the expected increase in pros and decrease in cons from Precontemplation to Action, with a crossover occurring between Contemplation and Preparation. In addition, scores on both confidence scales and ratings of the use of parenting behaviors that facilitate child independence and healthy anxiety management showed expected increases from earlier to later stages of change. Since this study was exploratory in nature and represents the first effort of its type in this content area, the results are promising and suggest that future research is warranted to further examine use of the URICA in this behavior area.

Categorical Staging Algorithms. The two categorical staging algorithms for this behavior included both a one-item and three-item set of staging questions asking parents about current behavior and intention related to engaging in the delineated marker behaviors. While the one-item algorithm asked parents if they were engaging in all three marker behaviors in one overarching question, the three-item staging algorithm offered parents the opportunity to respond to separate questions about each of the marker behaviors and whether or not they were engaging in them regularly. As expected, each algorithm resulted in slightly different staging distributions. Employing the one-item

algorithm resulted in the categorization of the great majority of parents into the Maintenance stage of change for facilitation of health anxiety management in their children. It was expected that there might be inconsistencies in parental responding between the two sets of staging questions and that the more lengthy set of three questions might provide a more precise measure of stage.

Employing the three-item set of questions placed a slightly smaller percentage of parents in Precontemplation and Contemplation, but a larger percentage in the Preparation and Action stages, rather than grouping these individuals in Maintenance. When comparing these two un-weighted methods of staging in their relationship to decisional balance, confidence and parenting behaviors, there did not appear to be considerable differences between the two regarding the patterns of measures. Overall, external validation results looked the best when using weighted versions of staging and the pattern of decisional balance by stage was clearest when plotted with the three-item algorithm. Moreover, a cross tab comparison of the one and three-item staging algorithms clearly demonstrated that the three-item set of staging questions resulted in more stage variability. Using the one-item staging algorithm may be the choice staging method if the goal is simplicity of assessment. However, based on the data from this study, including the pattern of relationship between weighted stage and decisional balance and confidence, the three-item algorithm appears to be superior to the one-item algorithm. Moreover, the one-item staging may be over-estimating the number of parents who are actually in the Maintenance stage, suggesting that the three-item staging may also provide greater utility in determining stage of change assignment.

A limitation of this study relates to a notable imbalance in the number of individuals who represent the earlier stages of change across all staging methods. Regardless of which staging method was employed, the stage distribution was skewed toward Action and Maintenance. This overrepresentation of parents in the later stages of readiness may be due to a number of factors. First, sampling bias and self selection bias may be playing a role. Given the reactive recruitment approach used in this study, combined with the lack of monetary incentive for completing the survey, parents who volunteered to fill out the survey online were likely already more motivated, knowledgeable, and/or interested in the topic and potentially more likely to be in a later stage of readiness. Furthermore, the majority of the sample (more than 75%) had some college education or some form of graduate training which may have skewed the sample as well. Parents with higher education levels are likely to be more informed about the issue, have greater access to mental health and other parenting resources, and consequently in later stages of change. Finally, social desirability may have influenced how parents responded to questions. They may have reported engaging in the marker behaviors that foster their child's independence and healthy anxiety management skills more frequently because of concerns about being seen as a "poor" or "ineffective" parent.

It may also be that the stage distribution found in this study is representative of the general population and thus may represent actual population differences in frequencies rather than sampling biases. On the ADI measure of the MASC, a subscale that has been shown to screen for children who may be suffering from pathological and diagnostic levels of anxiety, 16.6% of children had a t score of 60 or higher and 12.2% had a t score of 65 or higher. Although the MASC is not a diagnostic tool, these

percentages are fairly similar though slightly lower than estimated prevalence rates of anxiety disorders among children in the general population (Dadds, Spence, Holland, Barrett, & Laurens, 1997; Vasey & Ollendick, 2000). The similarities between the child anxiety levels in this study and estimated prevalence rates suggests that the sample of parents accessed in this study may be comparable to the general population, at least in terms of child anxiety disorder prevalence. Of course, the MASC is a screening tool for child anxiety as opposed to a diagnostic measure, and future research may benefit from inclusion of a more refined diagnostic tool to determine actual prevalence of anxiety disorders among the children of survey participants.

Given the variability in results based on each of the methods of staging, the data are not sufficiently compelling to conclude that one means of staging is definitively better or more accurate than another. It appears that one limitation of the one-item staging algorithm is that it is overly liberal, placing the great majority of participants into the later stages of change. Both the URICA and three-item staging algorithm seem to more effectively differentiate among the large percentage of people who were staged in Maintenance based on the one-item staging algorithm. However, there is no clear pattern based on relationship between staging decisional balance and confidence scales that would clearly suggest that one staging method surpasses another. One of the benefits of employing a continuous approach to staging such as the URICA is the potential to better represent the views and attitudes of individuals that fall on multiple dimensions of stage. However, this possible benefit of richness in stage assessment must be considered in light of the greater response burden for participants as well as the complexity of scoring the URICA via cluster analysis to determine stage assignment.

Given the mixed results presented here, choosing which method of staging to use in an intervention will ultimately depend on future measurement development endeavors. However, considering only the current findings, the weighted three-item staging and URICA appear comparable in terms of staging distribution and functional relationship to other TTM constructs of interest. Taking the complexity of the URICA as well as the difficulty clearly interpreting the clusters from a theoretical standpoint, the three-item staging seems best at this point. However, given the limits of the sample in terms of insufficient heterogeneity in readiness for the behaviors, it may be premature to abandon the URICA approach at this time. The stage measures themselves are strong in terms of confirmatory model fit, reliability, and validity, so in the next phase of research evaluating the staging methods will require the inclusion of more participants who are in the early stages for anxiety management with their children. Though the sample recruited for this study may very well reflect a population distribution of stage, inclusion of a less skewed distribution of stage is advisable before drawing conclusions about which method of staging to use in intervention development.

Decisional Balance Inventory

Previous measure development endeavors applying the Transtheoretical Model across multiple health behaviors and diverse samples have demonstrated consistent findings of two correlated but largely independent decisional balance constructs; the pros and cons of a behavior change. This same factor structure was found to be present in the TTM application of parenting behaviors influencing child anxiety management. Exploratory and confirmatory analyses supported that a two factor, uncorrelated model best represented the decisional balance data collected in this sample. The pros scale

developed in this study contains items that primarily represent both short and long-term benefits to the child as a result of parent modeling/teaching. The items retained in the final pros scale did not clearly differentiate benefits for the parent or for others in the child's life. On the other hand, the cons scale appears to be slightly more balanced with regard to content as it is comprised of items that clearly represent downsides for the parent as well as the child. In future work, the pros scale may be expanded to encompass distinct benefits to the parents as well as the child. Furthermore, both scales may benefit from increased breadth through inclusion of pros and cons items for others (e.g. teachers, caretakers, friends).

As predicted, A Multivariate Analysis of Variance (MANOVA) conducted on the pros and cons scales revealed that individuals in different stages of readiness to engage in parenting behaviors that facilitate healthy anxiety management in their children differed significantly in their weighing of the pros and cons of engaging in the marker behaviors. Overall, parents in the earlier stages of change rated the cons as more important and the pros as less important in their decision to engage in the marker behaviors. Alternatively, individuals in later stages of readiness rated the pros as more important and the cons as less important in influencing their parenting behaviors.

As previously discussed, in multiple other behavioral applications of the TTM, a characteristic crossover pattern occurs between the pros and cons of behavior change (Hall & Rossi, 2008). This crossover typically takes place between the Contemplation and Preparation stages as the pros increase and the cons decrease between Precontemplation and Action. This crossover pattern is visible in the graphical representations of the pros and cons across stage of change using all methods, in both

weighted and un-weighted analyses. The crossover occurs between Contemplation and Preparation, as predicted when using the URICA staging, yet later than expected when using the un-weighted categorical methods. Moreover, the magnitude of change across stage was larger than expected (.2-.8 standard deviation larger for pros and .1-.6 standard deviations larger for cons) across all staging methods. One likely explanation for these differences in this behavioral application is the variability in staging methods and lack of heterogeneity in parental readiness to facilitate healthy anxiety management in their children. When stage distribution is highly skewed such as in the present sample, this alters the evaluation of the other TTM constructs by stage because the mean of the distribution is driven by the largest group. A very small percentage of parents were categorized into the Precontemplation and Contemplation stages, and this measurement sample underrepresented the views of these individuals, potentially altering the functional relationship between the decisional balance scale and stage of change.

A sample with a greater percentage of participants in the pre-action stages may yield even more typical patterns with regard to pros and stage of change. In an effort to explore the validity of this hypothesis and to account for the overwhelmingly large number of parents in Maintenance, the decisional balance external validation analyses were also conducted using a weighted version of stage of change. Weighting the results is an attempt to address the disparity in sample sizes between stage groupings and reduce the effect of the Maintenance group, allowing the other stage groups to have increased impact on results. As expected, the weighted analyses demonstrated a crossover pattern between Contemplation and Preparation almost identical to those seen in other behavior areas. This suggests that a more equal distribution of participants in stage of change may have

resulted in a more typical representation of the decisional balance data. However, regardless of weighting, the relationship among these decisional balance variables is consistent with previous research across more than 48 health behaviors (Hall & Rossi, 2008) and results are promising in terms of the effective application of this construct to parental readiness for facilitation of healthy anxiety management in their children.

Self-efficacy Inventory

In other health behavior content areas such as smoking cessation, sun exposure, and exercise adoption, confidence or self efficacy has typically emerged as one factor, with a hierarchical structure (Rossi & Redding, 2001). However in this study the measure for parental confidence related to facilitating healthy anxiety management in their children emerged as a two-factor, correlated scale. Despite being highly correlated, these separate factors each appeared to represent conceptually distinct types of confidence. The first factor was comprised of items that addressed confidence to engage in parenting behaviors that effectively help children manage anxiety in situations where the child may be distressed and/or is behaving in a way that makes it more challenging to practice the maker behaviors. The second factor seemed to capture self-efficacy related to parental emotions such as difficulty with implementation of the behaviors if the parent is feeling stressed/anxious (somewhat independently of child behavior or distress).

In their 2001 meta-analysis examining self efficacy in 25 studies across 10 health behaviors, Rossi and Redding found that self-efficacy increased significantly across stages of change for almost every one of these studies. In the present measurement development study these results were replicated through external validation analyses. Both confidence scales demonstrated expected relationships with stage such that parental

confidence level on both scales increased from Precontemplation to Action and Maintenance. More specifically, an ANOVA conducted to examine confidence related to child behavior across the stages of change revealed that individuals in Precontemplation and Contemplation had lower confidence than parents in the Action and Maintenance stages. In addition, parents in the Preparation stage reported lower levels of confidence related to child behavior than those in the Maintenance stage. The confidence scale related to difficult parental feelings showed a similar linear increase from the earlier to later stages. However, the only statistically significant difference in confidence related to parental feelings was between the Preparation and Maintenance stages.

Based on results from this sample, it appears that parents may be fairly confident overall, regardless of stage of readiness, in their ability to engage in the marker parenting behaviors that facilitate health anxiety management in their children when they are struggling with their own difficult feelings such as anxiety and stress. Confidence to engage in these parenting behaviors seems to be more dependent on stage when considering the child's emotional and behavioral reactions in anxiety-provoking situations. Parents may feel more able to control and/or overcome their own emotional challenges, but feel less confident that they can consistently implement and practice certain behaviors when their child is in distress or acting in a way that makes things more challenging. Of course, this may be different if the parent is suffering from problematic levels of anxiety themselves, which may make it more difficult to manage their own emotions. This hypothesis can be investigated in future studies by gathering a more stage-balanced sample of parents who more equally represent the views of individuals in the pre-action stages and including an measure assessing parent anxiety level. Depending

on findings from this work, stage-based interventions can then be developed that target each of these confidence factors separately, offering specific strategies for each type of confidence. It is also possible that future research might reveal the need to place greater emphasis on increasing confidence related to child behavior rather than confidence related to parental emotions. Finally, in future refinement or adaptation of the confidence measure it will be important to ensure that the measures are adequately representing confidence items that are important in parental facilitation of health anxiety management in their children.

Parenting Behaviors Inventory

The criterion-related validity of scales can be evaluated through tests of predictive and/or concurrent validity; establishing how strongly related the scale is to some well-established, important criterion. Historically, psychometrically sound measures of parenting have had negligible construct validity, limiting availability of “gold standard” comparisons (Wood, 2006), and complicating the ability to establish criterion-related validity in this way. Given the lack of well-established measures of the parenting behaviors of interest for this research area, the Parenting Behaviors Inventory was developed as a tool for assessing criterion-related validity of the newly created TTM scales using a behavioral outcome measure.

Items for the Parenting Behaviors Inventory were originally written to represent both positive and negative parenting behaviors that affect the degree to which a parent encourages reasonable amounts of independence in their child, how a child copes with novel situations and anxiety and the likelihood of whether that child might develop troublesome levels of anxiety. Exploratory and confirmatory analyses resulted in the

creation of a one-factor, 10-item scale representing a variety of positive or healthy parenting behaviors thought to facilitate healthy anxiety management in children. During item development, very few items were written to represent negative parenting behaviors (e.g., I allowed my child to avoid something he/she was afraid of) and consequently, the negative parenting behavior items were not sufficiently represented in the item pool to allow for the potential development of an independent second factor. The few existing negative parenting behavior items loaded poorly with the positive parenting behavior items, and were eliminated from the final scale. Thus the final scale reflects parental behaviors that would be expected to facilitate healthy coping with anxiety in children and does not include behaviors that are likely to exacerbate anxiety levels in children.

Although the Parenting Behaviors Inventory had good reliability and validity, the high internal consistency of the scale suggested that there is likely some redundancy in the item content and potentially a lack of breadth of construct. The scale may be limited by a lack of representation of behaviors that parents engage in that exacerbate child anxiety. Ideally, a parenting behaviors inventory with at least these two, and potentially multiple dimensions might be of greater utility in establishing concurrent validity. Future refinement of the parenting behaviors measure will involve inclusion of items that capture behaviors parents may implement in situations where their child shows anxiety that are less helpful in promoting healthy coping and potentially even detrimental to the child's ability to manage anxiety in a healthy manner. There may also be other important dimensions of parent behavior that should be considered in future research. For example, in order to provide a more comprehensive and objective assessment of how parents behave across a range of situations where their child experiences an anxious response, it

may be useful to provide a more in-depth scale asking specific questions about specific situations. Another rater of parenting behavior such as the other parent, the child, or another observer would also be beneficial in establishing criterion-related validity. This may not be possible during these first stages of measurement development but will likely become more important in later phases of intervention development and pilot testing.

Despite these limitations, the Parenting Behaviors Inventory represents an important effort to develop and validate a measure of parenting behaviors that are specifically related to parental influence over how their children learn to manage anxiety and cope in novel and anxiety-provoking situations. The hypothesis that frequency of use of these positive parenting behaviors would vary by stage of change such that parents in the earlier stages would endorse engaging in these parenting behaviors less frequently while parents in later stages would report frequent use of the majority of the positive parenting behaviors was confirmed in this study. Use of positive parenting behaviors showed a significant upward trend from Precontemplation to Maintenance, and parents in Precontemplation and Contemplation endorsed use of these behaviors less frequently than individuals in Action and Maintenance. These findings suggest the Parenting Behaviors Inventory does capture a range of important positive parenting behaviors that are clearly related to stage of change and important to include in future measurement or intervention development work.

Measures of Child Anxiety

External validity of the TTM measures developed in this study was also evaluated by examining the relationship between the stage of readiness, decisional balance, and self-efficacy measures with a well-established measure of child anxiety. The MASC-

Parent Version was chosen for this aim because of established validity as a screening tool for child anxiety, breadth of content, comprehensive assessment of multiple dimensions of anxiety and for its relative brevity. Although the MASC contains subscales related to specific types of anxiety (e.g. social anxiety, panic disorder), the scale was used in this study as a global measure of parent-rated child anxiety level rather than looking at each subscale in relation to the newly created measures. The one exception was the use of the ADI as an individual variable, a subscale typically used as a screener for children who are more likely to meet criteria for an anxiety disorder diagnosis.

As expected, the overall MASC scores were significantly correlated with the pros, cons, and confidence scales. Less was known a priori about how level of child anxiety would be related to stage of change, although it was suspected that parents who were not regularly practicing the marker behaviors for parent facilitation of healthy anxiety management would report higher overall levels of anxiety in their children. Results from the external validation phase of this project confirmed that overall MASC scores and ADI subscale scores were significantly related to stage of change, yet inconsistently depending upon staging method. When using the categorical staging, parents in the Contemplation stage of change reported higher ADI scores for their children than parents in the Maintenance stage. In addition, for total MASC score, parents in Contemplation reported higher overall anxiety in their children than individuals in both Precontemplation and Maintenance. Interestingly, parents in the URICA Contemplation stage reported very low overall child anxiety scores.

It is difficult to draw specific conclusions with regard to child anxiety as it is related to stage of change given a number of factors. First, child anxiety level was

differentially related to stage depending upon the staging method used. As previously noted, when using the URICA staging, parents in the Contemplation stage reported very low child anxiety compared with other stages. However, when using the one-item categorical staging, parents in the Contemplation stage reported the highest level of child anxiety compared with other stages. Second, the relatively small number of parents in Precontemplation and Contemplation whose views were represented in this sample limits the generalizeability. Finally, the MASC is a screening tool, rather than a diagnostic measure and is entirely reliant on parent-reported child anxiety, allowing for a considerable degree of bias and possibly lack of reliability in terms of the actual level of anxiety experienced by the child.

However, even given these limitations, one explanation for the lower levels of overall child anxiety reported by parents in the categorical Precontemplation stage and URICA Contemplation stage is that parents whose children have lower levels of anxiety are less likely to engage in the marker behaviors because they are infrequently presented with opportunities to use them. For example, if a child is not anxious in novel situations and/or rarely, if ever, engages in avoidance behaviors because of fear and worry, then their parents may have limited opportunity to practice the strategies outlined in this study. Hence, these parents may not need to make stage-relevant behavior changes or require any intervention given that anxiety is not an issue for their child. These results raise the question as to whether there are groups of parents within the Precontemplation stage (for the one and three-item staging) and Contemplation stage (for the URICA staging) who are in this stage but may not necessarily need to make any changes in their parenting because their child is not experiencing anxiety.

Limitations and future directions

The results of this study were largely consistent with previous measure development studies applying the TTM to other content areas. However, some limitations to this study should also be noted. Results of this study are limited by the cross-sectional nature of the data gathered. Ideally, longitudinal research would be required to further examine the staging algorithm and its relationship to actual parenting behaviors as well as child anxiety level and child behavior in anxiety provoking situations. Although the Parenting Behaviors Inventory developed in this study provides some external measure of parenting behaviors, it is limited in scope for a few reasons. First, as previously mentioned, a more comprehensive scale representing multiple domains of parenting behavior such as negative parenting behaviors thought to exacerbate child anxiety should likely be included. Second, this measure relies entirely on parent self report, and may be biased by parental interpretation of what they are doing as well as social desirability. Future research would be strengthened by the inclusion of more objective measures of parental behavior and interactions with children such as additional raters of parent behavior and/or child anxiety level. Moreover, inclusion of a measure of parental anxiety in addition to child anxiety will be important for future research endeavors. The relationship between parent anxiety level and the newly developed constructs will likely contribute valuable information and potentially provide an additional intervention target.

The demographic makeup of the sample of parents included and the implications for the study is an essential discussion point when considering the results presented here. The majority of the participants included in this study were highly educated, including

46% of parents reporting have a graduate education and reported an annual household income well above the national average. Given the method of recruitment through the internet, word of mouth, and various listservs, it is

Future refinement and adaptation of these measures will likely benefit from accessing a more balanced sample in terms of stage distribution with a greater percentage of individuals in the Precontemplation, Contemplation, and Preparation stages.

Recruiting a sample with a large percentage of parents in early stages of change might involve oversampling more clinical populations with the aim of including more parents who (1) have a child with pathological and elevated levels of anxiety, (2) are not currently engaging in the marker behaviors, and (3) do not currently have their child in treatment for anxiety. This would access parents who are most likely to engage in the problematic parenting behaviors that necessitate an intervention and would more likely be classified into the pre-action stages of change. Although parents of children in treatment are a potential target population as well, these individuals may already be more prepared to make changes in their parenting than those parents who have not recognized that their child is struggling with anxiety and sought out treatment.

Finally, the current study did not include efforts to develop scales to measure the processes of change, constructs considered to be important in an individual's transition among stages. Future measurement development work will need to focus not only on refining the measures already created here, but on developing items and measures for the processes of change as well. Furthermore, while the sample was sufficient for measurement development purposes, a larger and more diverse sample would strengthen

any generalizations about the use of the Transtheoretical model applied to parent facilitation of healthy anxiety management in their children on a population level.

Currently, the Transtheoretical Model is being used to develop expert system interventions that are tailored at the individual level (Velicer, Prochaska, & Redding, 2006) for diverse populations, in diverse settings, via a multitude of communication channels. These expert systems have the capacity to address varying degrees of behavior change readiness by providing individually tailored feedback in the form of printed reports, telephone recordings, or real-time feedback on the computer screen. This feedback is based on each individual's combination of responses on questions regarding stage, weighing of the pros and cons of the behavior, and confidence among other Transtheoretical constructs. The development of valid and reliable measures for assessment is essential to creating effective interventions of this type to facilitate behavior change.

In summary, this study provides empirical support for use of the TTM applied to parent facilitation of healthy anxiety management in their children. The TTM and behavioral measures developed in this study provide an excellent starting point for refinement and development of assessment and intervention materials that can potentially be used both in treatment settings when parents present with their children for anxiety treatment as well as for prevention purposes with a non-clinical population. Stage-matched and appropriately tailored interventions have the potential to address varying degrees of readiness to practice effective parenting behaviors, and hence are more likely to be effective with a variety of populations. In future intervention research, the construct validity of these scales can be further tested through experimental manipulation,

where participants assigned to the intervention condition would be expected to show an increased valuation of the pros, decreased concern about the cons, and increased self-efficacy while participants in the control group would not (Redding, Maddock & Rossi, 2006). Further research is needed to refine the current measures as well as to extend the present research to develop and pilot entire TTM interventions for child anxiety management and prevention.

Table 1. Demographics for Total Sample

Variable	Total (N=596)	
	%	N
Gender		
Male	18.5%	95
Female	81.5%	418
Ethnicity		
American Indian/Alaskan Native	1.4%	7
Asian/Pac. Islander	2.3%	12
Black, not Hispanic	5.3%	27
Hispanic	5.9%	30
White, not Hispanic	86.2%	442
Other	2.1%	11
Multi-Racial	2.7%	14
Education Level		
Less than High School	.8%	4
High School Graduate	3.3%	17
Some College	23%	118
College Graduate	29.6%	152
Graduate Training	43.3%	222
Household Income		
Under 15,000	4.5%	23
15,000-29,999	5.3%	27
30,000-39,999	6.2%	32
40,000-59,999	11.7%	60
60,000-79,999	15%	77
80,000+	57.3%	294

Variable	Total (N=296)	
	Mean (<i>sd</i>)	N
Child Anxiety (MASC Total)	89.06 (15.72)	296
Child Anxiety (ADI Total)	24.9 (3.86)	296

Table 2. Means and Standard Deviations of Decisional Balance, Confidence, Parenting Behaviors, and Child Anxiety by Demographic Variables

			Pros	Cons	Conf1	Conf2	Behavior	MASC
Gender								
Male	Mean		22.98	13.03	9.14	7.61	34.69	89.93
	<i>sd</i>		-6.3	-5.0	-3.2	-2.6	-9.4	-17.3
Female	Mean		25.12	13.41	9.84	8.04	37.49	88.86
	<i>sd</i>		-4.4	-4.7	-2.5	-2.6	-7.8	-15.4
Education								
High School	Mean		24.56	16.11	9.63	8.25	35.1	91.5
	<i>sd</i>		-4.72	-5.4	-3.1	-3.2	-8.2	-23.5
Some College	Mean		24.84	15.66	9.48	8.17	38.42	93.08
	<i>sd</i>		-4.79	-5.3	-2.7	-2.6	-7.2	-18.8
College Degree	Mean		24.16	14.33	9.19	7.62	36.31	91.75
	<i>sd</i>		-4.72	-4.4	-2.7	-2.5	-8.7	-16.2
Graduate Training	Mean		25.02	11.54	10.18	8.07	36.9	85.36
	<i>sd</i>		-5	-4.0	-2.5	-2.6	-8.2	-12.3
Income								
<15,000	Mean		23.14	15.86	9.46	7.85	39.88	87.69
	<i>sd</i>		-6.61	-6.4	-2.8	-2.3	-6.1	-19.0
\$15-30,000	Mean		25.25	17.38	10.8	7.87	37.12	93.07
	<i>sd</i>		-3.73	-5.5	-2.5	-3.0	-8.7	-16.9
\$30-40,000	Mean		24.76	14.59	8.19	7.13	34.18	93.69
	<i>sd</i>		-4.04	-4.2	-2.4	-2.9	-7.7	-18.4
\$40-60,000	Mean		24.48	15.93	9.03	7.24	36.58	97.97
	<i>sd</i>		-5.04	-4.5	-2.9	-2.5	-7.5	-15.3
\$60-80,000	Mean		23.59	13.65	8.94	7.82	36.19	91.02
	<i>sd</i>		-5.32	-4.6	-2.8	-2.5	-9.5	-15.7
>\$80,000	Mean		25.11	12.1	10.15	8.25	37.27	85.8
	<i>sd</i>		-4.69	-4.3	-2.5	-2.6	-8.1	-14.3

Table 3. Exploratory Factor Loadings and Reliability Analysis for URICA Staging

Item Content	PC Factor	C Factor	A Factor	R Factor
I don't think these strategies would work to help my child handle anxiety better	.73			
There's no way I could use all of these strategies with my child	.70			
I don't think I need to use these strategies to help my child manage anxiety	.65			
I won't force my child to do anything he/she is afraid of	.49			
I don't want to make my child face his/her fears if he/she doesn't feel ready	.48			
I'm wondering if using more effective anxiety management strategies would be help my child to be less anxious		.83		
It might be good to make some changes in the things I do to help my child manage anxiety in a healthier way		.83		
I think my child might be happier and less anxious if I used more effective strategies to help him/her manage anxiety		.80		
I might need to do some things differently to be more effective at helping my child manage anxiety		.79		
I'm wondering if I need to do more to help my child handle anxiety better		.67		
I am actively using these strategies when my child encounters things that are new and scary			.86	
I am currently using these strategies to effectively help my child manage anxiety in a healthy way			.80	

Table 3 Continued. Exploratory Factor Loadings and Reliability Analysis for URICA Staging

Item Content	PC Factor	C Factor	A Factor	R Factor
I'm working hard to encourage my child to approach the things he/she is scared of			.79	
I am doing things to better help my child manage his/her anxiety, not just thinking about it.			.75	
I am effectively helping my child manage his/her anxiety			.52	
I am making an effort to use some of these strategies, but sometimes it is just too hard				.69
Even though I am using effective strategies to help my child manage anxiety, they don't always seem to work				.66
Even though I am using the strategies listed above, it is frustrating because they sometimes make things more stressful				.65
I am trying to use effective strategies to help my child manage anxiety, but my child is unwilling				.63
I have made some changes to better help my child cope with anxiety but would like some help to maintain them				.57

Note. PC $\alpha = .73$, C $\alpha = .88$, A $\alpha = .88$, R $\alpha = .75$

Table 4. Exploratory Factor Loadings and Reliability Analysis for Decisional Balance

Item Content	Pros Loading ($\alpha = .89$)	Cons Loading ($\alpha = .83$)
My child would be better able to face fearful situations	.851	-.139
My child would be less anxious in the long run	.835	-.007
I would be setting a good example for my child	.829	.037
I would be teaching my child to manage fear and worry in a healthy way	.824	-.176
I would give my child the message that I believe he/she can handle things even when they are	.809	-.111
My child would not miss out on things because of anxiety, fears, and worries	.733	.261
My child might become extremely upset if asked to face his/her fears	-.016	.827
My child is too fragile to handle a high level of anxiety	-.036	.820
It is embarrassing when my child gets upset in public because I am asking him/her to do	-.099	.737
If I make my child do things he/she doesn't want to, my child might be angry with me	-.137	.674
It makes me upset to watch my child feeling afraid	.099	.662
Other kids might tease my child for getting upset when doing something he/she is afraid of	.024	.653

Table 5. Exploratory Factor Loadings and Reliability Analysis for Confidence

Confidence	Factor 1 Loading ($\alpha = .89$)	Factor 2 Loading ($\alpha = .82$)
When my child refuses to do things because of fear	.902	.233
When my child is fearful in public	.873	.227
When my child is crying or throwing a temper tantrum because he/she doesn't want to do something he/she is afraid of	.845	.211
When I don't know how to show my child healthy ways to	.145	.849
When I feel a lot of anxiety	.259	.844
When I am already stressed out	.250	.796

Table 6. Exploratory Factor Loadings and Reliability Analysis for Parenting Behaviors Inventory

Parenting Behavior Inventory	Factor Loading ($\alpha = .91$)
Let my child know that anxiety is normal and natural to feel	.810
Talked to my child about what to do when he/she is anxious	.782
Strongly encouraged my child to do something he/she was afraid of	.764
Told my child how I coped with things I used to be afraid of	.744
Talked with my child to help him/her see the good sides of things that	.740
Told my child I am sure that he/she can cope with his/her anxiety	.738
Helped my child to think about new experiences as exciting and positive, not scary	.738

Table 7. Correlations Among URICA Factors

	Precontemplation	Contemplation	Action	Relapse
Precontemplation	1	-.07*	-.65**	.40**
Contemplation		1	.01*	.84**
Action			1	-.04*
Relapse				1

** $p < 0.01$; * $p < 0.05$

Table 8. Correlations Among Decisional Balance, Confidence, Parenting Behaviors, and Child Anxiety Scales

	Pros	Cons	Conf 1	Conf 2	Behavior	MASC
Pros	1	.039	.345**	.027	.480**	.144*
Cons	.039	1	-.307**	-.141*	-.103	.402**
Confidence 1			1	.490**	.388**	-.250**
Confidence 2				1	.325**	-.146*
Behavior					1	.019
MASC Total						1

** $p < 0.01$; * $p < 0.05$

Table 9. Crosstabs Comparing Stage Distribution for One-Item, Three-Item, and URICA Staging

		Three-Item Stage				
		PC	C	PR	A	M
On-Item Stage	PC	11	3	4	2	4
	C	3	7	4	1	0
	PR	0	0	14	8	1
	A	0	1	8	9	4
	M	0	2	57	29	130

		URICA Stage			
		PC	C	PR	A
One-Item Stage	PC	10	0	4	10
	C	6	0	8	1
	PR	3	0	15	5
	A	1	1	17	3
	M	1	1	100	116

		URICA Stage			
		PC	C	PR	A
Three-Item Stage	PC	10	0	2	2
	C	6	1	4	2
	PR	3	0	50	34
	A	1	0	34	13
	M	1	1	54	83

Figure 1. Confirmatory URICA Structural Model

Indices of Fit

$\chi^2(164) = 474.33, p < .001$

CFI = .82

AASR = .09

Figure 2. Confirmatory Decisional Balance Structural Model

Indices of Fit

$\chi^2(54) = 100.65, p < .001$

CFI = .95

AASR = .06

Figure 3. Confirmatory Confidence Structural Model

Indices of Fit

$\chi^2 (8) = 12.27, p > .05$

CFI = .99

AASR = .02

Figure 4. Confirmatory Parenting Behaviors Structural Model

Indices of Fit

$\chi^2 (35) = 133.04, p < .001$

CFI = .90

AASR = .04

Figure 5. URICA Four Cluster Solution

Figure 6. URICA External Validation

Figure 7. One-Item Staging External Validation

Figure 8. Three-Item Staging External Validation

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