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RELIABILITY AND VALIDITY STUDY OF THE MOTIVATION FOR FEAR (MOTIF)
SURVEY

A Dissertation

Submitted to the Graduate Faculty of
Louisiana State University
Agricultural and Mechanical College
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requirements for the degree of
Doctor of Philosophy

in

The Department of Psychology

By

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ABSTRACT

The aim of this study was to determine psychometric properties of a newly created, 24-item functional measure of fear and anxiety for typically-developing adults (the Motivation for Fear; MOTIF). Participants initially included 1,277 college students ranging in age from 18-35. Participants were asked to complete the MOTIF, the Questions About Behavioral Function (QABF), the Sensation Seeking Scale- Form V, and the Depression Anxiety Stress Scales (DASS). Analyses were conducted on those scoring above a minimum threshold on a well-normed measure of anxiety (the DASS). An exploratory factor analysis, using scree plot and parallel analysis, as well as oblique rotation was run on the qualifying 583 participants. Scree plot indicated either a 3, 4, or 5 factor solution. Parallel analysis indicated no more than 5 factors. Results converged on a 4-factor simple structure solution with 18 items. The four functions (labeled distress, comfort-seeking, tangible, and escape) explained 43% of the variance. Internal consistency was .739, .809, .636, and .506 for the distress, comfort-seeking, tangible, and escape functions, respectively. Validity assessments were conducted using the QABF, the DASS, and the SSS-V. Results from these analyses revealed preliminary support for convergent validity (i.e., for distress and tangible functions) and discriminant validity was established. Recommendations for improving the psychometrics of this measure include increasing content validity, improving internal consistency, and determining test-retest reliability. Strengths, limitations, clinical implications, and future directions are discussed.

INTRODUCTION

The use of evidence-based practice among clinicians is becoming more common-place. As a result, calls for evidence-based assessment, particularly those that measure underlying functions of behavior, have increased. To date, functional assessments have typically been done with children and individuals with developmental delays. The present study aims to examine the psychometric properties of a newly created functional measure of anxiety for typically developing adults. The history of evidence-based practice and an overview of anxiety (etiologies and assessments) are discussed, followed by a review of existing evidence-based functional measures. Finally, the current study and results are presented.

Evidence-Based Practice

Recently there has been an increased emphasis on the use of evidence-based clinical decision making (also referred to as evidence-based practice, EBP). In fact, it has been argued that EBP has become both commonplace and center stage in the field of clinical psychology (Hunsley, 2007b). The increasing popularity of EBP in psychology is evident based on the number of publications about the topic in recent years, including published guidelines of clinical practice (Sanderson, 2003; Thorn, 2007). In 2006, the American Psychological Association (APA) convened a task force in order to develop a policy regarding evidence-based practice in psychology (APA Presidential Task Force on Evidence-based Practice, 2006). The APA task force is the latest in a series of similar task forces undertaken by the APA and other psychological societies since the 1990's (Sanderson, 2003).

EBP can be applied in many settings and its impact has continued to grow. As an approach, it supports the use of methods that have been shown to have promising results or have been proven to be effective. More specifically, EBP involves the conscientious use of the best

current evidence in making decisions related to assessment, treatment, and patient care (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). This underlying principle of improving quality of care is emphasized in both medical and mental health fields (Spring, 2007). This, coupled with support for short-term economical treatments, has led to EBP to be embraced by policy makers and related health care industries (Barlow, 2005). Indeed, it has even been estimated that by the year 2010, EBP will be a requirement when implementing psychotherapeutic services within health care systems (Norcross, Hedges, & Prochaska, 2002).

Despite the popularity of EBP, some clinicians have not embraced it. Arguments against its use have been based on differences in theoretical approaches, perceived inequities of particular methodologies, and availability of information relevant to the clinical setting. Specifically, EBP has been said to disenfranchise particular theoretical models, such as psychodynamic and humanistic models (Bohart, O'Hara, & Leitner, 1998). Unfortunately, because these theoretical perspectives are not as well-represented in the literature, they may well be under-represented in terms of research. Additionally, EBP has been criticized for relying on randomized clinical trials (RCTs) to the exclusion of other research methodologies (e.g., single subject design), a concern that is over-stated, but does point to the hierarchy of methodologies within EBP that places RCTs near the top (Hamilton, 2005b). Lastly, others have noted that the body of research simply does not cover enough of the relevant and important issues seen in clinical practice (Hunsley, 2007a). While there is always the potential to learn more about various treatments, it is also true that there already exists a vast body of research available on specific treatments (Hamilton 2005a). Of course, the available data may be preliminary or in the form of a single case study, rather than the more internally valid RCT design (Hamilton, 2005a). However, despite a recognized hierarchy, all evidence is included within EBP, not just RCTs.

Furthermore, EBP has been criticized for its apparent disregard of clinical complexities and for taking the “art” out of therapy (Ruscio & Holohan, 2006). This criticism oversimplifies how EBP is used in clinical settings. EBP is not simply a rote exercise in matching clients and treatments; rather, clinical judgment and discernment are critical components of the appropriate use of EBP.

A further criticism of the applicability of EBP is that it is too difficult for clinicians to consistently implement. A key challenge to implementing EBP is that it requires clinicians to be up-to-date on the literature and able to assess the impact and relevance of research (Hunsley, 2007a). This challenge is not insignificant. A recent study that surveyed over 500 clinicians found the majority of them reported using clinical intuition rather than treatments with empirical support when making treatment decisions (Stewart & Chambless, 2007). These clinicians were sent a description of an individual with panic disorder, and half of them also received a research summary of treatments for panic disorder based on available evidence. Those who received the summary were significantly more likely to endorse the use of such treatments and indicate a willingness to use such treatments in the future. In addition to research summaries written in a practical and straightforward manner, personal contact with trusted sources and consensus-building are effective ways to favorably influence clinicians’ opinions of EBP (Fairhurst & Huby, 1998). Findings such as these have prompted proponents of EBP to address how to best disseminate evidence-based information, particularly treatment-specific research (Ollendick & Davis, 2004; Persons, 1995). Stewart and Chambless’s (2007) findings are especially important in that they underscore the need clinicians have for clear and concise descriptions of EBP. Their study showed that when it is disseminated in a brief and clear manner, many clinicians who did not previously identify as preferring EBP actually changed their preference after reading a short summary.

Despite the many advantages of using EBP, it is, of course, not a guarantee for clinical improvement. A well-known evidenced-based treatment for children and adolescents with anxiety is the Coping Cat program (Kendall & Hedtke, 2006). This manualized treatment features 14 to 18 sessions that are distributed over a 12 to 16 week time period. The first half of the treatment deals with teaching new skills; whereas, the latter half focuses on giving the client opportunities to practice these skills (i.e., exposure; Albano & Kendall, 2002). The Coping Cat has been found by independent research labs to significantly reduce anxiety and improve functioning (e.g., Barrett, Dadds, & Rapee, 1996; Mendlowitz, et al.,1999). Despite support from several studies as to its success, a recent review of 12 studies that used the Coping Cat found that approximately 43% of the clients still met criteria for their anxiety disorder diagnosis at the end of the course of treatment (Davis, 2009). This gap points to the need for improvement, even within EBP protocols, and the need for newer approaches for assessing and treating clients.

Evidence based treatment (EBT) and evidenced based assessment (EBA) comprise the two main components of EBP. Although they are both important, it is clear that EBA has received far less attention than EBT (Hunsley & Mash, 2005). This may be due to the focus on outcomes and the desire to provide effective treatments. Attending to the importance of conducting state-of-the-art assessments is often a secondary consideration. Unfortunately, this is a crucial oversight as the appropriate and accurate use of EBT relies on accurate, valid, and reliable diagnosis (Silverman & Ollendick, 2005).

Evidence-Based Treatment

Treatments are evaluated and placed on a hierarchy based on the quality of their evidence. The previously mentioned Coping Cat therapy protocol (Kendall & Hedtke, 2006) is one example of a treatment within the EBP paradigm that is considered an empirically-supported

treatment (EST; Albano & Kendall, 2002). As the name implies, ESTs are specific treatments that have been shown to be effective based on varying degrees of increasingly rigorous empirical support. Chambless and Ollendick (2001) reviewed the determination of ESTs, including how they are operationally defined. The top tier of ESTs is referred to as “well-established” treatments. This label is given when a treatment has consistent empirically-evidenced superiority over another method of treatment or placebo (e.g., medication, pill/psychological placebo, psychotherapeutic approach). When defining whether a treatment is empirically supported, special consideration is given to the methodology used in the relevant research. Key aspects include sample size, whether there was a control group, and whether more than one research lab has shown similar results (Chambless & Ollendick, 2001). A step down from well-established is “probably efficacious,” which refers to treatments that have empirical support, but may have sample sizes that are considered small or perhaps have not been validated by more than one independent research group. Finally, the last tier is referred to as either promising or “experimental” treatments. These treatments have either yet to be tested empirically or have very minimal support (Chambless & Ollendick, 2001).

As previously mentioned, EBP (and ESTs in particular) has been criticized for not representing real-world cases and for not clearly addressing factors such as comorbidity and complexity (Goldfried & Wolfe, 1996; Persons, 1995; Ruscio & Holohan, 2006). This opinion is based, in part, on the way many studies of ESTs are conducted and the therapeutic format. Empirically-supported treatments are often based on a client’s diagnosis (rather than symptom profile) and are manualized. For example, Westen and Morrison (2001) concluded that most RCTs excluded participants who had comorbid diagnoses; a criterion that excluded the majority of individuals. Whether or not an EST that has been shown to be effective in a highly internally

valid context can be successful in a real-world clinical setting is a frequent concern (Hunsley, 2007a). To address this issue, Gaston, Abbott, Rapee, and Neary (2006) looked at whether an EST could be successfully carried out in a non-research environment. The same treatment protocol was applied to two groups of participants with social anxiety: those who were treated by a research group and those who were treated by a private practice. Although all participants met criteria for social anxiety using the Diagnostic and Statistical Manual for Mental Health Disorders, fourth edition text revision (*DSM-IV-TR*, APA, 2000) and used the same treatment procedures, the method of recruitment varied between the two groups. Recruitment for the research group was done through media sources; whereas, the private practice group was referred primarily by general practitioners. Another group difference emerged regarding education and service fees: private practice participants had higher levels of education than those who were treated by the research group, and they paid for their services; whereas, research participants received free treatment. There were no significant differences based on gender, age, or marital status. Results revealed no significant differences between the groups, suggesting that ESTs are generalizable to real-world clinical settings (Gaston et al., 2006).

Evidence-Based Assessment

In its broadest sense, EBA is the process of developing and applying measurement strategies and procedures that have empirical support (Kazdin, 2005). Further, EBA includes the act of obtaining information, the integration of multiple sources (informants and measures), and the application of this information to screening, diagnosis, treatment planning, monitoring, and evaluation (Hunsley & Mash, 2005). A prominent feature of EBA is the determination and evaluation of the psychometric properties of a measure (i.e., reliability and validity); however, less attention is usually given to whether an assessment measure adds to the incremental validity,

diagnostic utility, and treatment utility (Nelson-Gray, 2003). Beyond the psychometrics, another facet of EBA is the validity of clinical judgment as it is used to interpret the information gained from the assessment (Hunsley & Mash, 2005).

One example of EBA is functional assessment. Functional assessment allows the clinician to determine key factors that maintain problematic symptoms. Hunsley (2007b) noted that the ability to determine the function(s) of a behavior is paramount to appropriate treatment-planning. Similarly, Barlow (2005) stated the importance of determining functional relationships when assessing psychopathology and cautioned that briefer measures with sufficient psychometric properties are needed in order to be effective for “front-line clinical settings” (p. 310). Clearly, then, there are many areas in which functional assessments, which are evidence-based, can particularly improve the development of brief, reliable, and valid measures.

Although the consensus is that EBTs receive more attention than EBAs, the need for brief, psychometrically sound EBAs is still evident. In a review of anxiety assessment measures, Antony and Rowa (2005) emphasized the need to address functional behavioral components of maladaptive anxiety, including triggers, avoidance behaviors, and functional impairment in a systemized manner. These areas are often assessed using non-structured methods such as diaries and self-monitoring forms. Unfortunately, without adequate psychometric properties, it is impossible to determine whether these methods are reliable and/or valid for their intended purpose. Heeding the call of Antony and Rowa (2005), this study focused on anxiety, EBA, and the functional aspects of anxious behavior.

ANXIETY

Anxiety is an emotion common to the human experience, which is not surprising when considering its protective nature. When faced with potentially dangerous situations, anxiety tends to induce threat-avoidance behavior. Thus, its usefulness is a clear advantage to one's survival. However, when experienced in the absence of true threat or with inordinate intensity, anxiety can be detrimental. In order to effectively and consistently treat those with excessive and impairing levels of anxiety, researchers must decide upon a definition of anxiety. Yet, despite the fact that anxiety can be easily recognized by many, defining this construct is not as straightforward as it may seem. Older definitions relied on the theorized etiology of anxiety; whereas, newer definitions focus on the emotional experience. For example, research from the 1940's (e.g., Mowrer's early work) utilized the following definition: "Anxiety is regarded as a (conditioned) learned response and is anticipatory and functional. It is protective, sometimes irrational, and a powerful source of motivation (mainly of avoidance behavior" (Rachman 1984, p. 282). This emphasis on the function of anxiety has been replaced with one that focuses on the emotional experience of anxiety. A newer definition by Rachman highlights this departure, "anxiety is the tense, unsettling anticipation of a threatening but vague event; a feeling of uneasy suspense" (Rachman, 2004, p. 3). A more succinct definition of anxiety was offered by Barlow (2002): "a diffuse, objectless apprehension" (p. 7). Fear is distinguished from anxiety in that anxiety is primarily the anticipation of an event; whereas, fear is an emotion experienced during an event. Although the newer definitions de-emphasize function, the notion that anxiety can serve different functions remains.

Clearly anxiety can be an adaptive response; however, when anxiety is no longer adaptive, but rather maladaptive, the potential for clinically significant impairment exists.

Several categories of severe anxiety-related impairment have been identified within the *DSM-IV-TR*. This most recent version of the *DSM* details several anxiety disorders, one of which is more commonly diagnosed in childhood, (i.e., separation anxiety disorder). Two disorders are distinguished by their etiology: anxiety disorder due to a general medical condition and substance-induced anxiety disorder. Lastly, as with all diagnostic classifications within the *DSM*, one diagnosis is reserved for individuals experiencing impairing levels of anxiety, but not meeting specific criteria for another anxiety disorder (i.e., anxiety disorder, not otherwise specified). The remaining anxiety disorders are agoraphobia, panic disorder with or without agoraphobia, generalized anxiety disorder, social phobia (also referred to as social anxiety disorder), specific phobia, obsessive/compulsive disorder, posttraumatic stress disorder, and acute stress disorder.

Unfortunately, people who are suffering from impairing symptoms do not always seek help. Epidemiological studies estimate that between 40-50% of individuals with serious mental impairment do not seek treatment in any given year (Kessler et al., 1998; U.S. National Advisory Mental Health Council, 1993). The main reasons cited for why individuals do not seek treatment include the fact that they did not consider themselves to have a mental illness, that they wished to get better on their own, and lack of access (including affordability and availability; Kessler et al., 2001). Another study reported that, on average, those who did seek treatment for an anxiety or mood related disorder waited 8 years after symptomatic onset (Thompson, Issakidis, & Hunt, 2008).

Etiology of Anxiety Disorders

Understanding where anxiety disorders come from has the potential to aid clinicians and researchers with issues related to assessment and treatment, including how to reduce the delay

and lack of treatment among those who may benefit from therapy. Rachman (1977) summarized three main pathways of anxiety development: classical conditioning, transfer of negative information, and modeling. Learning models of the etiology of anxiety have been at the forefront of providing testable hypotheses for this construct. Important early theorists include Pavlov whose classical conditioning work with dogs led to groundbreaking implications about the development of emotions (e.g., Bitterman, 2006; Clark, 2004). Another prominent theorist, Mowrer, proposed the two-stage theory of anxiety etiology and maintenance (Mowrer, 1956). This theory stated that one may develop anxiety as a result of conditioning; however, maintenance of anxiety was due to negative reinforcement (i.e., via operant learning). That is, the successful avoidance of feared situations negatively reinforces the anxiety and prevents the extinction of the associated fear. A weakness in Mowrer's theory is the presence of fear that is not universally followed by avoidance, and the persistence of avoidance behaviors when there is no fear. Rachman (1984) addressed this problem by proposing that the search for safety signals may also be involved.

Maladaptive anxiety can also develop through the transfer of negative information; a pathway of indirect learning (Rachman, 1977). This notion predicts that exposure to negative comments, stories, and/or fearful experiences will influence one's own attitudes and level of fear regarding similar stimuli. However, the reverse is also predicted: that individuals who have experienced traumatic situations may be resilient to developing a fear and/or phobic response due to prior positive information-transfer (e.g., from their parents or other salient relatives).

Another learning-based model is social learning, (also referred to as observational learning, modeling, or vicarious learning; Bandura, Blanchard, & Ritter, 1969). This theory states that one's behaviors (including emotional responses) are influenced by the observed

behaviors of others. Evidence for this perspective is that individuals report a reduction in fear responses when they watched others interact with a feared stimulus (i.e., a snake); therefore, simply by watching others have positive interactions with the feared stimulus decreased their own levels of fear and anxiety (Bandura et al., 1969).

Learning and behavioral theories of anxiety have received criticism. Mineka and Zinbarg (1996) address several of these points, such as the claim that behavioral models are too simplistic and do not account for important dynamic variables. They consider more contemporary learning models as being better able to account for factors such as temperament, past experiential history, and current contextual factors. For example, previous simplistic models could not address that some fears (e.g., phobias) appeared to be resistant to extinction. As mentioned previously, Mowrer (1956) proposed that a fear persists even if one can successfully avoid contact with it—the avoidance model. Individuals can learn to no longer avoid the feared stimulus, but may continue to experience extreme distress when doing so (Barlow, 2002). To address this problem, Mineka and Zinbarg argue that other factors, such as one's cognitions and temperament are also involved. However, their willingness to embrace alternative factors, such as cognitions, is not shared by all behavioral and learning theorists. Unlike other theorists, cognitive-behavioral theorists emphasize the role of one's underlying cognition in the acquisition of anxiety disorders, such as attention, memory, and interpretive biases (Barlow, 2002; Beck, Emery, & Greenberg, 1985). A more purely cognitive model for the development of anxiety disorders has been proposed by Beck and Clark (1997). This schema-based information processing model distinguishes between automatic and strategic processes and occurs in three stages: one's appraisal of a feared stimulus, the sensation of threat, and the interpretation of the threat stimulus

(the strategic process). They conclude that it is one's distorted information processing which results in maladaptive anxiety.

A variety of biological theories of anxiety exist as well. An intriguing theory was proposed by Seligman (1971). Seligman introduced the notion of biological preparedness, a term that reflects an evolutionary perspective of phobia development. This was the result of observations that many phobias are relevant to the survival of the species, resistant to extinction, and capable of being learned in just one trial. Biological preparedness has also been expanded into a fourth etiological theory, the non-associative account (e.g., as opposed to conditioning, modeling, and negative information all being "associative" accounts).

A further refinement and integration of various proposed etiological pathways can be seen in Barlow's triple vulnerability theory of anxiety disorders (Barlow, 2002). The three diatheses include general genetic, general psychological, and specific psychological risk factors. Genetic influence refers to one's temperament, in particular, behavioral inhibition. General psychological vulnerabilities include the perceptions of lack of control and unpredictability and may lead to cognitive styles that reinforce the development of anxiety disorders (Chorpita & Barlow, 1998). Specific psychological risk factors include learning through modeling and/or information transfer. It also includes the use of maladaptive cognitions that interpret ambiguous situations and physical sensations as dangerous. Therefore, according to Barlow, these three vulnerabilities combined with a stressful event lead to anxiety disorders development.

In sum, classical conditioning, modeling, transfer of negative information, and biological preparedness (i.e., non-associative theory) are considered the four main vehicles for anxiety and phobia development. Cognitive theories of etiology and negative information transfer, proposed by Rachman, focus on one's developed attitudes. In addition to behavioral approaches,

cognitions clearly play an important role in maintaining anxiety and are complementary features of treatment protocols. Any one theory, however, does not account for all forms of etiology. Therefore, in line with Barlow's multidimensional theory it is likely that etiologies of anxiety and phobias are an additive combination of classical conditioning, vicarious learning, negative information transfer and/or nonassociative pathways (Ollendick, King, & Muris, 2002).

Assessment of Anxiety Disorders

Current child, adolescent, and adult anxiety measures range from broad based to diagnostically-specific. Among the child and adolescent measures, forms of assessments include rating scales (parent, teacher, and self-report) and semi-structured interviews. An example of a general broad-based measure of psychopathology is the Child Behavioral Checklist (CBCL; Achenbach 1991). The CBCL (which also has a teacher and adolescent self-report version) includes anxiety as one domain among others such as inattention and social problems.

Broad-based anxiety-specific measures include the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978) and the Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997). The RCMAS is a yes/no rating scale that includes scales on worry, performance anxiety, social problems, and physiological symptoms. It also has a validity scale, which is uncommon among anxiety measures. The validity scale measures respondents' answers to improbable items, such as "I always tell the truth." Relative to other available measures, the normative sample used to score the RCMAS is not current. Although it is often used as a global measure of anxiety, it lacks discriminative validity with constructs such as depression, attention deficits, and hyperactivity (Stark, Kaslow, & Laurent, 1993). Another measure, the MASC, has more recent norms. The MASC includes scales for social anxiety, physical symptoms, harm/avoidance, and

separation/panic. It is more recent and therefore has a more recent normative sample. The MASC, as compared to the RCMAS, has more data that demonstrate its discriminative validity among other constructs (Greco & Morris, 2004). The MASC also includes a validity scale that looks at inconsistencies among similar item pairs.

A rating measure based on the *DSM-IV* is the Screen for Child Anxiety Related Emotional Disorders-Revised (SCARED-R; Birmaher et al., 1997; Muris, Merckelbach, Van Brakel, & Mayer, 1999). The SCARED-R has parent and self-report versions. Seven diagnostic-based scales are scored: generalized anxiety disorder, social phobia, separation anxiety disorder, panic disorder, obsessive-compulsive disorder, traumatic stress disorder, and specific phobias. The SCARED was found to have high internal consistency (Essau, Muris, & Ederer, 2002), strong convergent validity (Muris, Merckelbach, Ollendick, King, & Bogie, 2002) and good test-retest reliability (Boyd, Ginsburg, Lambert, Cooley, & Campbell, 2003).

In addition to self-report measures, anxiety can be assessed via diagnostic interviews. The Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV) is a semi-structured interview with both child and parent versions (ADIS-C/P; Silverman & Albano, 1996). The ADIS-C/P have been shown to have robust psychometric properties, including sensitivity to therapeutic change (Kendall et al., 1997), excellent interrater reliability (Lyneham, Abbott, & Rapee, 2007), and concurrent validity for social phobia, separation anxiety, and panic disorder (Wood, Piacentini, Bergman, McCracken, & Barrios, 2002). It is considered the “gold standard” assessment tool for anxiety disorders among youth (Greco & Morris, 2004).

Interviews are also used when assessing anxiety in adults. Two commonly used interviews are the Anxiety Disorders Interview Schedule (ADIS-IV; Di Nardo, Brown, & Barlow, 1994) and the Structured Clinical Interview for DSM-IV (SCID-IV; First, Spitzer,

Gibbon, & Williams, 1996). These semi-structured interviews, although superior to unstructured clinical interviews, can be prohibitive in their time-intensiveness and are rarely used outside of a research setting (Antony & Rowa, 2005). Less time-consuming measures for adults include self-report measures such as the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988), and the Spielberger State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The BAI was found to have good psychometric properties (i.e., internal consistency, test-retest reliability, convergent and discriminant validity; Fydrich, Dowdall, & Chambless, 1992). In a sample of older adults with generalized anxiety disorder, Stanley, Novy, Bourland, Beck and Averill (2001) found the STAI to have good internal consistency and convergent validity, but lacked adequate divergent (discriminant) validity with regard to depression and had less than adequate test-retest reliability. The test-retest time interval ranged from 5 to 20 weeks, but was 10 weeks for the majority of the participants (72%; Stanley et al., 2001). Barnes, Harp, and Jung (2002) conducted a meta-analytic reliability generalization study of the STAI. They concluded that internal consistency and test-retest had acceptable reliability coefficients. They also found that state anxiety scores had lower test-retest scores than trait anxiety scores, as would be expected given the temporal instability of the state anxiety construct.

Determining which self-report to use can be difficult. For example, when comparing the BAI and STAI among elderly patients yielded favorable results for the BAI and mixed results for the STAI (Kabacoff, Segal, Hersen, & Van Hasselt, 1997). Namely, Kabacoff and colleagues found variable performances between the trait and state anxiety scores: trait scores had better discriminant validity than the state scores. Also, when using both the BAI and STAI, the combined measures were no more accurate at diagnostic assignment than the BAI alone (Kabacoff et al., 1997).

While the etiology of anxiety disorders is fairly well understood and current assessments have aided clinicians and researchers in identifying problems with anxiety and diagnosing anxiety disorders, little has been done to advance the understanding of the maintenance of anxiety following Mowrer's original two-factor theory, thus highlighting a need for research in this area. However, one area where understanding the maintaining or "functional" variables of psychopathology has excelled has been with the intellectually disabled. Despite the lack of research on maintenance and functions of anxiety, other areas have advanced the field with their work on maintenance and functions of problematic behaviors. For example, much has been learned on how to treat problematic behaviors among individuals with intellectual disabilities and children. Therefore, this literature will be briefly reviewed to better inform the current assessment of a functionally-based measure of anxiety.

FUNCTIONAL BEHAVIORAL ASSESSMENT

Functional behavioral assessment (FBA) has high clinical utility. The purpose of FBA is to allow the clinician to test hypotheses about potential maintaining factors (or functions) of problematic behaviors. An advantage of FBA is that it can be used for treatment-planning for individuals who may be unable to provide accurate information themselves. For this reason, FBA has been particularly useful in developing treatments for intellectually disabled (ID) individuals. The vast majority of research using FBA has accordingly focused on ID children and adults and often deals with how to reduce self-injurious and other severe behaviors (Matson & Minshawi, 2007). An emerging area is the use of FBA among typically developing children (Lewis & Sugai, 1996). The latter group has been particularly influenced by the federally mandated Individuals with Disabilities Education Act (IDEA) that requires schools to perform such assessments on children with disabilities (e.g., ADHD) who are facing disciplinary actions (Sugai et al., 2000).

When conducting a FBA, it is not necessary to assume that there is only one function for a particular target behavior; however, it may be easier to identify a primary function when implementing treatment (Kates-McElrath, Agnew, Axelrod, & Bloh, 2007). Despite the numerous functions human behavior may serve, for the purposes of simplification and treatment development, they have been reduced to a handful of categories. The most common categories involve an individual behaving a certain way to access attention (either positive or negative attention), to escape from demands (e.g., if a child does not want to take a test, he may learn that if he yells loud enough, his teacher will place him in the hallway or take him to the principal's office), to access tangibles (e.g., a child with her parent at the grocery store throws a tantrum in order to gain access to candy), to create sensory/physical stimulation (e.g., an individual acts in a

manner that is physically pleasurable, or engages in a behavior that lessens the negative effects of a physical sensation; sometimes this is also referred to as “automatic”) and to be nonsocial (the individual prefers to be alone; Kates-McElrath et al., 2007). The latter category shares similarities with the escape function in that individuals who prefer to be alone may be escaping social situations that they find particularly difficult.

Modes of Assessment

FBA includes three primary modes of assessment: direct, descriptive, and indirect (Davey & Lignugaris-Kraft, 2005; Johnston & O’Neill, 2001). Direct assessment is referred to as experimental functional analysis (EFA) and/or analogue assessment. EFA employs a multi-element design where consequential variables are experimentally manipulated across several controlled settings. Descriptive assessment is when raters observe the individual in a naturalistic setting and record information about the behavior in question. Finally, indirect assessment includes the use of rating scales, typically given to care-givers or teachers to complete.

Direct Assessment

A significant strength of EFA is the ability to experimentally manipulate various conditions in order to measure changes in the target behavior. A seminal study that instigated much of the support for use of EFA among ID individuals was by Iwata, Dorsey, Slifer, Bauman, and Richman (1982/1994). Nine developmentally-disabled individuals engaging in self-injurious behavior(s) (SIB) ranging in age from 1 ½ to 17 years were included. Most participants were male and profoundly intellectually disabled; however, two participants had developmental delay and mild to moderate intellectual disability, respectively. The experimental conditions included conditions with and without play materials, conditions conducted under high and low experimental demands, and conditions manipulating the presence, absence, and contingent

application of social attention. Six individuals contingently varied their rate of SIB in the experimental condition, leading investigators to speculate that various treatment hypotheses could be reliably developed and implemented. A subsequent study by Iwata, Pace, and colleagues (1994) presented the results of using EFA to develop treatments. They collected information on 152 primarily profoundly intellectually disabled individuals with SIB and used EFA to identify the underlying function(s), develop treatments to address those functions, and measure treatment outcomes. Most participants (95%) had an identifiable primary function. The remaining 5% did not have an identifiable primary function, but had several functions that contributed to the maladaptive behavior. Treatments were designed based on the identified primary function of the problematic behavior. Examples included noncontingent access to tangibles and/or attention, removal of aversive stimuli (e.g., loud noise), extinction, and differential reinforcement. Results of this study support the use of EFA in determining effective treatments for SIB (Iwata, Pace, et al., 1994).

Despite a preference by some researchers to use EFA (e.g., Iwata, Dorsey, et al. 1982/1994), it is not without its drawbacks. First and foremost it is an extremely time-intensive method of assessment, which often precludes its use in settings other than those that are dedicated to such services (Dunlap et al. 1993). For example, Iwata, Pace, and colleagues (1994) reported a range of 8-22 assessment sessions and a length of 2 to 16.5 hours per participant. In this study the average participant had 26 sessions and spent 6 ½ hours in assessment. Another drawback is that results from EFA are limited to what was observed during those particular intervals, which may or may not reflect the typical frequency or circumstances of the target behavior on average (Sprague & Horner, 1999). Finally, the use of EFA has almost exclusively been utilized with the intellectually disabled and typically relies upon the patient's inability to

determine and manipulate the contingencies in place (Anderson, English, & Hedrick, 2006; Stage, 2000). For example, the assumption is that an aggressive child hits a therapist due to the manipulations of experimental variables and not simply because the child is astute enough to realize he can hit without consequences. EFA typically requires several iterations of the various conditions; therefore, the degree to which typically developing individuals would likely recognize the session conditions and then alter their behavior accordingly is likely a salient threat to the integrity of this protocol among non-ID individuals. In addition, EFA can be problematic in situations in which the target behavior is only rarely occasioned (although it may be very intense in that instance). These drawbacks have led researchers to develop other, less time-intensive, measures of functions of behavior, including descriptive and indirect forms of assessment.

Descriptive Assessment

Descriptive assessments are an alternative way to assess functions of behaviors and involve observing individuals in naturalistic settings. This allows clinicians to track frequencies and other variables that co-exist with the expression of the target behavior(s) (Iwata, Vollmer, Zarcone, & Rodgers, 1993). An advantage of this approach is that it has high ecological validity; however, a caution is that observed co-occurring factors may not represent causal relationships. Thus, the data may be difficult to interpret. Lastly, this approach requires extensive training and is also time-intensive; however, it is not seen as time-consuming as direct assessment (Sturme, 1994). An example of descriptive assessments includes the Antecedent-Behavior-Consequence recordings (Bijou, Peterson, & Ault, 1968) which require the observer to record behaviors, their observable antecedents, and consequences. Another example is the Structured Descriptive

Assessment (Anderson & Long, 2002) which manipulates different antecedents, but does not attempt to control consequences.

Indirect Assessment

Direct and descriptive assessment share a major draw-back to their use, namely, they are resource and time intensive. By contrast, indirect measures are rating scales completed by caregivers, teachers, or in some cases, the individuals themselves. Advantages of indirect measures include the brevity and ease of administration (Matson & Minshawi, 2007). This time-saving feature of indirect measures is especially important and makes them very practical to use in a wide variety of settings. Additionally, respondents are presumably reporting how the individual behaves across multiple instances of the target behavior(s), thus, potentially yielding data that represent more typical behavior, rather than being confined to a particular point in time (Johnston & O'Neill, 2001). This property makes these instruments ideal for less-frequent problematic behaviors which may not be displayed during a typical observation or formal EFA. A disadvantage, however, is that this method relies on responders to accurately report on the behaviors in question, which are removed in time and location from the actual behaviors in question (Johnston & O'Neill, 2001). Further, as with all rating scales, one does not know how the respondents interpret the language on the questionnaire. Despite these limitations, and given their benefits, indirect measures are more often employed than direct assessments.

There are several examples of indirect FBA measures. Some measures, such as the Functional Assessment Interview (FAI; O'Neill et al., 1997), combine interview and observational components, but have no published psychometric data. This unfortunately is the case for several indirect FBA measures (Sturmev, 1994). The measures that follow were

selected to represent the most commonly used indirect FBA used among ID individuals.

Psychometric data (as available) are included.

Questions About Behavioral Function (QABF; Matson, Bamburg, Cherry, & Paclawskyj, 1999). The QABF is a 25-item questionnaire about various functions of problematic behaviors (e.g., self-injurious behaviors) that was developed to be used primarily with intellectually disabled adults. The respondent specifies which behavior they are describing at the top of the page and proceeds to answer the 25 items with that particular behavior in mind. Scores on the QABF are totaled for each of the functions (i.e., attention, access to tangibles, escape from demand, nonsocial, and sensory). The highest scores indicate which areas are the primary functions. An exploratory factor analysis was conducted in order to evaluate the heterogeneity of the QABF. In replication of the original factor analysis done by Matson and colleagues (1996), five factors were generated which corresponded to the QABF subscales and accounted for 76% of the total variance (Paclawskyj, Matson, Rush, Smalls, & Vollmer, 2000).

Much data exist for this widely used measure of behavioral functions. Coefficient alpha was used to assess internal reliability and found to be .60 for the total scale and high for the QABF subscales (subscale range .90 - .93; Paclawskyj et al., 2000). Paclawskyj and colleagues assessed test-retest reliability of the QABF using a sample of 34 intellectually disabled adults. The interval between administrations was 1-3 weeks and the informants were direct care aids at developmental centers. Pearson product-moment correlation coefficients on subscale and total scores that ranged from .79 to .99, high scores on the Spearman-rank-order for the majority of item statistics, total percentage agreement with most exceeding .80 (i.e., 96% of the items), adequate kappa values (i.e., 83% of values falling within .64 to 1.0), and acceptable Cohen's Kappa values ranging from .79 - .99 (Paclawskyj et al., 2000).

An internal reliability study with 243 participants yielded high rates of consistency (i.e., coefficient alpha for each subscale ranged from .90 to .92) and lower rates for the test as a whole (i.e., .60). Internal consistency was also assessed using the Spearman-Brown correlation coefficient which was corrected for uneven length and yielded a statistic of .60. These statistics measure the homogeneity of the scale as a whole, therefore, values of .60 are not surprising given the multi-scalar nature of the QABF (Paclawskyj et al., 2000). Another reliability study found similar rates of test-retest scores on the QABF using the Pearson correlation coefficient. Shogren and Rojahn (2003) assessed the internal consistency of the QABF and found adequate values for four of the five subscales (ranging from .82 to .88) but lower scores for the physical subscale.

Evidence of validity for the QABF includes a study on convergent validity that compared scores on the QABF to EFA as described by Iwata, Dorsey, and colleagues (1982/1994), and the Motivation Assessment Scale (MAS; Durand & Crimmins, 1988) on a sample of 13 intellectually disabled adults (Paclawskyj, Matson, Rush, Smalls, & Vollmer, 2001). Results indicated that when assessing relatively high-occurring behaviors, the QABF correlated higher with analogue data than the MAS (69.2% agreement versus 53.8%). The QABF and MAS had 61.5% agreement, indicating that they measure similar constructs (Paclawskyj et al., 2001). Similarly, Shogren and Rojahn (2003) found the QABF to be correlated with the MAS, indicating convergent validity for the measure.

Questions About Behavioral Function-Mental Illness (QABF-MI; Singh, Matson, Lancioni, Singh, Adkins, McKeegan, et al. 2006). The QABF-MI is a modification of the QABF that was designed to assess functions of behaviors among severely mentally ill individuals as reported by direct care staff. Wording of the original QABF was altered when

necessary in order to be applicable to this population. It has been used with in-patients at psychiatric units with diagnoses of schizophrenia, depression, and/or anxiety to assess such maladaptive behaviors as property destruction and personal violence. The QABF-MI, similar to the QABF, assesses five functions: physical discomfort, social attention, tangible reinforcement, escape, and nonsocial reinforcement.

Results from reliability studies of the QABF-MI indicated similar factor structure to the QABF (Singh et al., 2006). Singh and colleagues conducted an exploratory factor analysis with data from 135 inpatients whose direct care staff completed the QABF-MI. This analysis yielded five factors, mirroring those in the QABF: physical discomfort, social attention, tangible reinforcement, escape, and nonsocial reinforcement.

Motivation Assessment Scale (MAS; Durand & Crimmins, 1988). The MAS is a 16-item report that was designed to assess functions of self-injurious behaviors for intellectually disabled children. Teachers, parents and/or clinicians complete the questionnaire using a 7-point scale. Results indicate whether these behaviors primarily serve one (or more) of four functions: sensory consequences, escape, attention, and access to tangibles.

Using a sample of 35 teachers, Durand and Crimmins (1988) obtained ratings on 50 intellectually disabled children using the MAS. Interrater reliability was calculated by comparing ratings of teachers and teacher aides and test-retest reliability was assessed using a 30-day interval. Pearson correlation coefficients for interrater reliability of the raw scores and mean scores ranged from .66 to .95, $p < .001$. Functions were assigned ranks and Spearman rank-order correlation coefficients ranged from .82 to .99, $p < .001$. Pearson correlation coefficients for test-retest reliability ranged from .89 to .99, $p < .001$, for raw scores, and .92 to .98 for mean scores ($p < .001$). Kearney, Cook, Chapman, and Bensaheb (2006) conducted a confirmatory

factor analysis of the MAS. They found support for three functions (attention, escape, and tangible), but not the sensory function.

Zarcone, Rodgers, Iwata, Rourke, and Dorsey (1991) criticized the use of correlations by Durand and Crimmins (1988) as being an imprecise way of calculating inter-rater agreement. In their replication study, Zarcone and colleagues applied a more stringent statistic, namely, percentage of exact agreement. With this analysis, inter-rater agreement of the function of self-injurious behaviors was only 29%. The obtained results were lower than anticipated, leading them to caution users of the MAS when interpreting results. The most frequent disagreements among functions of behavior were between sensory and tangible reinforcements. This surprised researchers due to the relative disparate nature of these two functions (i.e., sensory is implied when there is the absence of an observable reinforce, whereas tangible is the presence of a preferred item). The researchers suggest that the MAS may not necessarily accurately inform clinicians who are attempting to develop treatment strategies.

Overall, the QABF appears to be the most widely used and psychometrically sound of the indirect FBA instruments. The QABF and MAS, however, are designed primarily for intellectually disabled individuals. To date, there appear to be no such instruments that aim to identify behavior functions of less-severe symptomatology among adults and few psychometrically sound attempts in children.

Functional Anxiety Assessment

Although a variety of questionnaires and interviews exist for the evidence-based assessment of anxiety (for a review see Silverman & Ollendick, 2005), almost no current commonly-used measures of anxiety disorders include a functional component. Previously noted studies have highlighted the need for evidence-based anxiety assessments for adults that address

the continuum of anxiety symptoms rather than the diagnostic-specific approach (Antony & Rowa, 2005), and the need for briefer structured interviews and behavioral assessments with measurable psychometric properties (Barlow, 2005). The use of functional evaluations, in regard to behavior, is practically absent from the anxiety assessment field. A single exception is the School Refusal Assessment Scale (SRAS; Kearney & Silverman, 1993). The SRAS is a 16-item scale with a Likert-type scale of 0-6 (never to always) that has three forms (parent-report, child-report, and teacher-report). The scale measures whether school refusal behavior is due primarily to one of four functions: two negatively-reinforced functions (escape from aversive emotional states and escape from aversive social situations) and two positively-reinforced functions (access to preferred activities outside of school and increased attention; Kearney, 2002a). The SRAS offers clinicians the ability to test hypotheses about why children and adolescents refuse to attend school, a necessary component when planning treatment. Kearney and Silverman (1993) documented adequate test-retest reliability of the SRAS over a 7-14 day interval ($r = .68$ child and $r = .78$ parent). The SRAS has also been found to have adequate concurrent and construct validity (Kearney 2002b); although surprisingly, it has not been validated against another functional instrument or functional assessment (i.e., its reported validity comes from associations with other anxiety measures).

Unfortunately, a similar anxiety measure that is more broadly focused does not currently exist, even though the ability to identify one's motivation for engaging in maladaptive anxious behaviors carries clear benefits for treatment planning utility. Functionally based measures in the area of anxiety and fear hold large potential for providing unique and valid information which could lead to more accurately based treatments, briefer courses of therapy, and quicker

relief of distressing symptoms to clients. These clinical benefits clearly warrant the development of functional-based measures, as well as the evaluation of their psychometric properties.

Need for More Functional Measures of Anxiety

It is clear that deriving the functional aspects of behavior has proven to be useful in treatment development for individuals experiencing severe disabilities and psychopathologies; which has been an important addition to the field of EBA. As such, there is a rich tradition of using FBA for ID children and adults. The Individuals with Disabilities Education Act (IDEA) mandate has created an emerging trend to use such measures for school-aged children. Even so, anxiety-based functional assessments are exceedingly rare. However, it has yet to be determined whether such functional measures could lead to better treatments (e.g., more ideographic approaches and more effective outcomes) among typically developing adults who display symptoms of anxiety and fear outside of school refusal.

To address this concern, Davis developed the Motivation for Fear (MOTIF; Davis, unpublished manuscript). The MOTIF was originally based off of the QABF (with permission) and designed to be administered as a semi-structured interview that assessed various functions of anxious behaviors. Face validity was established by having an internationally recognized functional analysis expert and a separate internationally recognized anxiety and phobia expert review and comment upon the new and modified items. This measure is currently being studied with children. Although initially developed to be given as an interview, the author has given permission to use this instrument in a self-report capacity. The measure readily lends itself to this modification in use by virtue of its straightforward language and Likert-type scale response choices. With this modification, the reported results apply specifically to the self-report format rather than the clinical interview administration.

RATIONALE

The purpose of the present study was to examine the factor structure and determine the reliability and validity of adult self-reports of the Motivation for Fear questionnaire (MOTIF), a questionnaire designed to determine underlying functions of anxious and fear-related behaviors. Traditionally, functional measures have been applied to individuals with developmental disabilities, and/or children, and have been used more commonly to assess challenging behaviors, including aggressive behaviors and self-injurious behaviors. Using a functional measure to assess fear and anxious-related behaviors is a new application of this form of assessment, with the noted exception of the School Refusal Assessment Scale (Kearney & Silverman, 1993). Although few functional measures exist for typically-developing adults, behavioral techniques are commonly used, such as the variety of behavioral assessment techniques that are used to assess fear behaviors. These techniques are particularly useful when treating individuals with phobias. Additionally, questionnaires exist that assess fear-related behaviors, but these questionnaires do not attempt to organize the questions around potential functions of behaviors. For example, the Fear Survey Schedule for Children-R (Ollendick, 1983) and its revision, the Fear Survey Schedule for Children-II (Gullone & King, 1992), measure types of fears (e.g., death and danger, the unknown, failure and criticism, animals, and medical fears) and intensity, but not functions of fear. The MOTIF self-report for adults is an extension of the existing methods of assessing anxious and fear-related behaviors, and an innovation in that it applies functional knowledge of behavior to a population and a topic that is not typically included in existing functional measures. Given the uniqueness of this measure, a clear understanding of the psychometric properties is warranted.

METHOD

Participants

A total of 1,331 students attempted to complete the questionnaires on-line. The data were examined for duplicate and incomplete entries, of which 54 were found. This resulted in 1,277 complete, non-duplicate entries. The following sections describe the parameters used with regard to participant inclusionary criteria and the selection of the final sample of 583 people included in analyses.

Analysis Criterion

Because the primary purpose of this study was to determine the psychometric properties of a measure of functions of anxiety and fear-related behaviors (the MOTIF), it was important to ensure participants included in the analyses reported the presence of anxiety-related symptoms and behaviors. Therefore, after participants completed the questionnaires, but before the data were analyzed, an inclusionary criterion was applied using a well-normed measure of anxiety: the Depression, Anxiety, and Stress Scales, (DASS; Costello & Comrey, 1967; please see the measures section for a more detailed description of this measure). This criterion was based on a review of studies using the DASS, which revealed the following data across diverse samples.

Clinic based samples that have used the DASS included outpatient and inpatient settings. Outpatients settings were used by Clara, Cox, and Enns, (2001) and Brown, Chorpita, Korotitsch, and Barlow, (1997). Clara et al. reported results from 439 outpatients with anxiety and/or depressive disorders. Brown et al. recruited 437 participants from an anxiety clinic which included some individuals with comorbid depressive disorders. Clara and colleagues reported mean subscale scores on the DASS to be 12.76 (anxiety; $SD = 8.89$), 22.16 (depression, $SD = 11.99$), and 21.18 (stress, $SD = 10.65$). Brown and colleagues found mean scores to be 10.90

(anxiety, $SD = 8.12$), 10.65 (depression, $SD = 9.80$), and 21.10 (stress; $SD = 11.15$). A study that used an inpatient sample (Page, Hooke, and Morrison, 2007) recruited 124 participants with a depressive disorder. Their mean scores on the DASS were 17.85 (anxiety, $SD = 10.00$), 24.15 (depression, $SD = 11.97$), and 23.07 (stress, $SD = 11.15$). Among studies using community samples, there were samples of college students (Lovibond & Lovibond, 1995), students and non-students (Crawford & Henry, 2003), and a workplace study (Nieuwenhuijsen, de Boer, Verbeek, Blonk & van Dijk, 2003). Lovibond and Lovibond (1995) reported the following mean scores from 717 college students: 5.23 (anxiety, $SD = 4.83$), 7.19 (depression, $SD = 6.54$), and 10.54 (stress, $SD = 6.95$). Crawford and Henry (2003) reported the following mean scores based on a sample of 1,771 individuals: 3.56 (anxiety, $SD = 5.39$), 5.55 (depression, $SD = 7.48$), and 9.27 (stress, $SD = 8.04$). Lastly, Nieuwenhuijsen and colleagues (2003) reported results from 192 employees in an occupational setting which used the DASS to determine whether depression and anxiety levels were associated with employee absenteeism. After comparing information obtained via clinical diagnostic interviews and two self-reports of anxiety and depressive symptoms, they suggested using a cut-off score of 5 on the anxiety scale and a 12 on the depression scale in order to maximize the sensitivity of the DASS (Nieuwenhuijsen, et al., 2003).

These studies revealed differences among the mean scores depending on the sample characteristics; clinical samples had means on the anxiety scale ranging from 10 to 17, whereas the community samples had means close to 4 and 5. Based on these findings, and in line with the recommendation from Nieuwenhuijsen and colleagues (2003), this community sample study used a cut off of 5 on the anxiety scale as the data analysis inclusionary criterion.

Of the 1,227, 585 met the DASS cut-off criterion of 5 or higher on the anxiety subscale.

Two participants in the group of 585 did not complete the MOTIF, therefore, analyses on the

MOTIF were based on the sample of 583 participants. Table 1 contains demographic information on the total sample (n=1,277), selected sample (n=585), and unselected sample (n=692). The selected and unselected groups' demographic traits were compared to determine whether significant differences existed. Differences were found on sex and income levels. Selected participants were more likely to be female and have lower levels of income (see Table 2).

Targeted Number of Participants

The number of participants needed to conduct the planned analyses was determined based on the literature. In order to conduct a factor analysis, the recommended ratios of participants to items ranged from a minimum of 3:1 (Velicer & Fava, 1998) to a minimum of 5:1 to 10:1 (Gorsuch, 1983). Other recommendations suggested a total number of participants (i.e., 150; Guadagnoli and Velicer, 1988, to 300; Comrey & Lee, 1992; Tabachnick & Fidell, 2001). Based on these suggestions, this study aimed to recruit a minimum of 300 participants, which is approximately a 10:1 to 12:1 ratio of participants to items of the MOTIF.

Selected Age Range of Participants

A neglected population with regard to functionally-based measures, namely typically-developing adults, was evaluated. Participants had to be between the ages of 18-35 years, inclusive. This age limit was set based on the anxiety literature, specifically, the average age of onset for anxiety-based disorders. According to Falk, Yi, and Hilton (2008), the mean age of onset of anxiety disorders varies from 14-33 years old, on average, with specific and social phobias being associated with younger ages (i.e., 14 and 15 respectively) and panic disorder with agoraphobia, panic disorder, and general anxiety disorder being associated with later onset (i.e., 28, 32, and 33 respectively). Although the MOTIF is not a diagnostic instrument, using age of

Table 1

Participant Demographics of Full, Selected, and Unselected Samples

	Full N=1,277	Selected n=585	Unselected n=692
Sex			
Male	25.3%	20.9%	28.9%
Female	74.7%	79.1%	71.1%
Age			
Range	18-35	18-35	18-33
Mean (<i>SD</i>)	20.5 (1.98)	20.5 (2.1)	20.5 (1.91)
Race/Ethnicity			
African-American	11.6%	11.0%	12.1%
Asian-American	4.0%	5.1%	3.0%
Caucasian	78.8%	78.7%	78.8%
Latino/a	2.6%	2.6%	2.6%
Other	2.2%	1.9%	2.5%
Family Income			
Less than \$25,000	17.2%	19.6%	15.3%
\$25,000-49,999	17.2%	15.7%	18.5%
\$50,000-99,999	31.8%	34.9%	29.2%
\$100,000 and up	33.8%	29.8%	37.0%
Marital Status			
Single	97.4%	97.3%	97.5%
Married	2.0%	2.1%	1.9%
Legally Separated	0.2%	0.3%	0%
Divorced	0.1%	0.2%	0%
Class Year			
Freshman	20.6%	21.9%	19.5%
Sophomore	30.5%	29.9%	30.9%
Junior	20.7%	19.7%	21.5%
Senior	26.7%	27.0%	26.4%
Graduate Student	0.2%	0.2%	0.3%
Other	1.3%	1.4%	1.3%
GPA			
1.0-1.9	2.7%	3.1%	2.3%
2.0-2.4	9.7%	10.8%	8.8%
2.5-2.9	27.9%	28.7%	27.2%
3.0-3.4	31.7%	32.5%	31.1%
3.5-4.0	27.9%	25.0%	30.3%

Table 2

Comparing Demographic Characteristics Between Selected (n=585) and Unselected Participants (n=692)

	X^2 value	t test	p Value
Sex	10.407		.001
Age		.06	.952
Race/Ethnicity	4.349		.361
Annual Household Income	12.537		.006
Marital Status	3.593		.309
Class Year	1.747		.883
GPA	5.714		.222

Note. Selected participants were those with a DASS anxiety score of 5 or higher. Analyses for the MOTIF were based on 583 participants rather than 585 because 2 were omitted due to missing MOTIF data.

onset information is a useful way to select an appropriate age range for individuals who may be experiencing anxiety and fear-related symptoms. The minimum age for this study was 18 due to the fact that this version of the MOTIF was designed to be used with adults. As previously mentioned, evidence suggests including participants up to 33 years of age in order to include the upper end of the typical age-of-onset for anxiety disorders. In order to allow for some variance about the mean, the upper age limit for this sample was set at 35, just two years beyond the oldest mean age of onset for anxiety disorders (Falk, et al., 2008).

Sex of Participants

It is widely reported that women have higher prevalence rates of anxiety symptoms and disorders as compared to men (e.g., Barlow, 2002), yet researchers in this field do not routinely restrict their participants based on sex. Therefore, no a priori criterion was set based on the sex of the participants.

Recruitment and Compensation

Participants were recruited from a university setting where the study was advertised on a university-wide forum for psychology experiments. Participating students were offered extra credit for their participation which was calculated using the current standards in the Department of Psychology at Louisiana State University. Credits allotted were determined by the amount of time needed to complete the materials, which was estimated to be approximately 45 minutes in all. Credit was only given to those who completed all forms. No other incentives were offered.

Procedure

The format of the study was a confidential on-line survey. Participants were asked to complete the questionnaires at their convenience. They were given access to the on-line survey which they completed after establishing a username and password. They were allowed to stop

the study at any time, save their responses, and continue later. All individuals completed an electronic informed consent prior to beginning the study (a procedure that has been approved by the IRB for previous studies done by this research lab). Also, a debriefing screen appeared at the end of the study. This study was reviewed and approved by the IRB at Louisiana State University. See Appendix B for a copy of the Informed Consent.

Measures

Demographic Questionnaire

A demographic questionnaire was given that included questions about age, marital status, previous diagnoses, whether they have received treatment for anxiety disorders, and parental occupation and education level. See Appendix C.

MOTIF

As described previously, the MOTIF is a 24-item questionnaire that addresses behavioral functions for fear and anxiety (Davis, unpublished manuscript). The MOTIF was adapted from the QABF and has had its item content reviewed and commented on by the primary author of the QABF as well as another internationally renowned expert in anxiety and phobia. It was designed to measure several potential functions of anxious or fearful behavior: attention, escape, fear, negative reinforcement, soothing behaviors, and tangible reinforcement. Although originally designed to be a semi-structured interview, its format easily lends itself to a self-report questionnaire (see Appendix D).

QABF

The QABF (Matson et al., 1999) is a 25 item questionnaire that was designed to assess functions of behavior of intellectually disabled individuals. Please see pp. 22-23 for a detailed review of the psychometric properties of the QABF. With the author's permission, the QABF

was used online with a non-intellectually disabled sample in order to compare its results with those of the MOTIF. In order to accommodate the non-standard application of this measure, participants were told to read each item as it referred to their own behavior. Also, they were instructed to think of something they do when they are afraid. Some possible examples were given including smoke a cigarette, take a walk, call a friend, and eat. They were told to think of one behavior and answer all of the items as they relate to that specific behavior. See Appendix E.

DASS

The Depression, Anxiety, and Stress Scales (DASS; Costello & Comrey, 1967) is a 42-item self-report questionnaire about depressive, anxious, and stress-related symptoms that uses a 4-point Likert-type scale. Each item is rated based on the severity and frequency it was experienced over the past week. Each scale (depression, anxiety, and stress) consists of 14 items that have internal consistencies of 0.91, 0.84, and 0.90 respectively (Lovibond & Lovibond, 1995). See Appendix F.

SSS-V

The Sensation Seeking Scale-Form V (SSS-V; Zuckerman, Eysenck, & Eysenck, 1978) is a 20-item questionnaire that asks questions about thrill-seeking behaviors. It is comprised of four scales (thrill and adventure seeking, experience seeking, disinhibition, and boredom susceptibility) and a total score with internal consistencies of 0.77, 0.61, 0.74, 0.57, and 0.84 respectively. Literature has shown this construct to be uncorrelated with anxiety, thus it will be analyzed for evidence of divergent validity with the MOTIF (e.g., Litman & Spielberger, 2003). See Appendix G.

RESULTS

Determining Factorability of the Dataset

There are several ways one can determine whether a given dataset is appropriate to factor analyze. One technique is to inspect the correlation matrix for the presence of correlations that exceed .30 (Tabachnick & Fidell, 2001). It is not recommended that one proceed with factor analysis if there are no correlations that meet this criterion. Another method is Bartlett's test of sphericity: when statistically significant, this indicates it is appropriate to proceed (Tabachnick & Fidell, 2001). Finally, a high value (i.e., one that is above .50) on the Kaiser-Meyer-Olkin measure of sampling supports the notion that the dataset is appropriate to factor analyze (Dziuban & Shirkey, 1974). In all instances, support to factor analyze these data was confirmed. Evidence for the presence of correlations above .30 can be seen in Table 3. Bartlett's test of sphericity was 3241.58, $p < .001$ and the Kaiser-Meyer-Olkin measure of sampling adequacy was .852.

Exploratory Factor Analysis

Exploratory factor analysis was selected based on recommendations of testing newly developed measures, even if the scale development was theory-driven (e.g., Thompson, 2004; Worthington & Whittaker, 2006). Factor analysis was used rather than principal components analysis based on the exclusion of unique variance with factor analysis. The goal was to find the common factors (in this case, common "functions"), and not to analyze the entire variance of the items. Principal components analysis, which identifies linear combinations among factors that retain as much information as possible, considers the total variance (unique and shared variance; Park, Dailey, & Lemus, 2002), and has been referred to as technically not a "true" factor analytic method (Kahn, 2006). With regard to extraction, it has been argued that the use of the

Table 3

Inter-Item Correlations of the MOTIF (n=24 items)

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	.189	.200	.025	.113	.108	.114	.029	.093	.066	.155	.135	-.03	.089	.176	.166	.069	.070	.090	.086	.080	.099	.075	.106
2		.313	.199	.149	.580	.110	.236	.283	.097	.175	.217	.082	.442	.119	.059	.142	.097	.077	.383	.211	.149	.182	.461
3			.208	-.01	.180	.134	.147	.152	.044	.040	.011	-.01	.155	.084	.018	-.01	.043	.101	.098	.110	.134	-.01	.146
4				.172	.152	.083	.146	.193	.237	.071	.025	.164	.148	.069	-.01	.082	.058	.115	.135	.250	.178	.052	.104
5					.221	.082	.130	.100	.214	.301	.227	.111	.252	.098	.233	.275	.226	.107	.229	.138	.082	.310	.268
6						.169	.244	.208	.124	.194	.191	.117	.436	.125	.053	.142	.203	.037	.406	.166	.154	.222	.476
7							.353	.267	.132	.043	.107	.139	.027	.115	.082	.126	.135	.273	.194	.104	-.01	-.01	.144
8								.390	.196	.093	.190	.134	.153	.211	.102	.187	.193	.293	.277	.236	.077	.070	.226
9									.225	.096	.102	.085	.144	.189	.060	.140	.124	.251	.295	.241	.149	.090	.200
10										.307	.184	.098	.102	.155	.184	.241	.251	.186	.194	.252	.144	.170	.161
11											.423	.189	.258	.202	.298	.250	.313	.079	.257	.193	.295	.440	.276
12												.169	.216	.363	.326	.246	.421	.133	.234	.149	.128	.298	.255
13													.148	.071	.144	.183	.157	.204	.253	.169	.103	.153	.165
14														.175	.193	.156	.181	.042	.376	.188	.244	.284	.536
15															.311	.204	.242	.204	.153	.209	.199	.209	.202
16																.369	.293	.078	.105	.110	.135	.302	.179
17																	.333	.178	.176	.158	.145	.232	.236
18																		.237	.293	.189	.089	.270	.363
19																			.286	.253	.012	.031	.121
20																				.343	.196	.220	.512
21																					.331	.208	.254
22																						.347	.263
23																							.324

Note. Values exceeding .30 are in bold

eigenvalue greater or equal to 1 is only appropriate for principal components analysis (Comrey & Lee, 1992; Kahn, 2006), therefore this criterion was not used in the current study. Several researchers recommend parallel analysis (e.g., Zwick & Velicer, 1986) as the best factor retention method, followed by scree plot analysis; however, the latter option is more variable. Parallel analysis entails generating a random data matrix with the same parameters as the actual data which is factor analyzed and is used to set an upper limit on the number of factors one should extract (Horn, 1965). The randomly generated eigenvalues are then paired with those of the actual data. Actual eigenvalues that exceed the paired eigenvalue from the randomly generated matrix are extracted (Thompson & Daniel, 1996). Thus, this study used two methods: scree plot visual analysis and parallel analysis. Although it was not predicted a priori that the subscales of the MOTIF would be correlated, theoretically it was possible for them to be correlated (i.e., a person could have more than one function). Therefore, an oblique rotation method (i.e., promax) was selected to allow the consideration of both outcomes (correlated and uncorrelated factors).

All 24 items of the MOTIF were factor analyzed. The scree plot indicated a 3, 4, or 5 factor solution (see Figure 1). Parallel analysis (based on four randomly generated datasets) indicated a maximum of 5 factors to be retained (results are presented in Table 4). Given the scree plot and parallel analysis results, subsequent factor analyses with promax oblique rotation were done to determine whether a 3-factor, 4-factor, or 5-factor solution were superior regarding simple structure and interpretability. Oblique rotations produce pattern and structure matrices. It is recommended that one use the pattern matrix (which uses partial correlations and is not affected by factor overlap) rather than the structure matrix (which uses zero-order correlations) for interpreting which variables load onto the factors and the strength of the correlation

(Tabachnick & Fidell, 2001). Simple structure, a goal in factor analysis, is achieved when variables correlate highly with only one factor (Thompson, 2004). Defining what is a “high” loading is not always agreed upon, however, descriptions proposed by Norman and Striener (1994) were used in this study: a minimum of .40 is necessary, loadings between .40 and .60 are moderate, and those above .60 are strong.

Pattern and structure matrices for each of the following solutions (5-, 4-, and 3-factors) are presented in Tables 5, 6, and 7, respectively. The first solution tested was the 5-factor solution. This solution did not yield 5 fully interpretable factors (the 5th factor was based on only one item). A 4-factor solution was tested and yielded 4 interpretable factors. A 3-factor solution was tested, which contained the same first three factors in the 4-factor solution, but omitted the 4th factor (one that was considered interpretable). Given these results, the best fit was deemed to be the 4-factor solution. The total amount of variance being explained by the 4 factors is 43.3%. This is below the desired minimum of 50% and indicates the need for an increase in content validity (e.g., more items that cover a broader area of the content being measured). Internal consistency was measured for each factor. The first two factors had coefficient alphas above .70, whereas the remaining factors did not. The next section addresses labeling the factors. Table 8 presents the best fitting items (those .40 and higher) for each factor, factor labels, factor loadings, and internal consistency levels. Table 9 reports the factor correlation matrix (in all cases, MOTIF factors were positively correlated with each other).

Table 4

Comparison of Eigenvalues from the Original Factor Analysis and Four Randomly-Generated Datasets

Factor	Original Dataset	Parallel Analysis of Randomly-Generated Datasets			
		1	2	3	4
1	5.353	1.399	1.354	1.365	1.367
2	1.986	1.289	1.314	1.300	1.318
3	1.753	1.280	1.258	1.261	1.296
4	1.302	1.229	1.214	1.216	1.252
5	1.275	1.199	1.147	1.186	1.187
6	1.042	1.158	1.142	1.152	1.161
7	.937	1.133	1.123	1.139	1.146
8	.878	1.125	1.103	1.124	1.106
9	.862	1.094	1.090	1.095	1.070
10	.827	1.071	1.042	1.077	1.062
11	.775	1.037	1.021	1.063	1.026
12	.728	.990	1.015	1.005	.982
13	.675	.982	.991	.970	.960
14	.654	.952	.955	.952	.938
15	.619	.931	.935	.931	.924
16	.600	.900	.933	.915	.905
17	.567	.876	.893	.880	.893
18	.543	.860	.860	.858	.870
19	.526	.799	.840	.824	.822
20	.480	.794	.813	.801	.818
21	.461	.772	.787	.770	.781
22	.444	.752	.753	.747	.743
23	.389	.701	.725	.702	.701
24	.322	.677	.692	.665	.670

Scree Plot

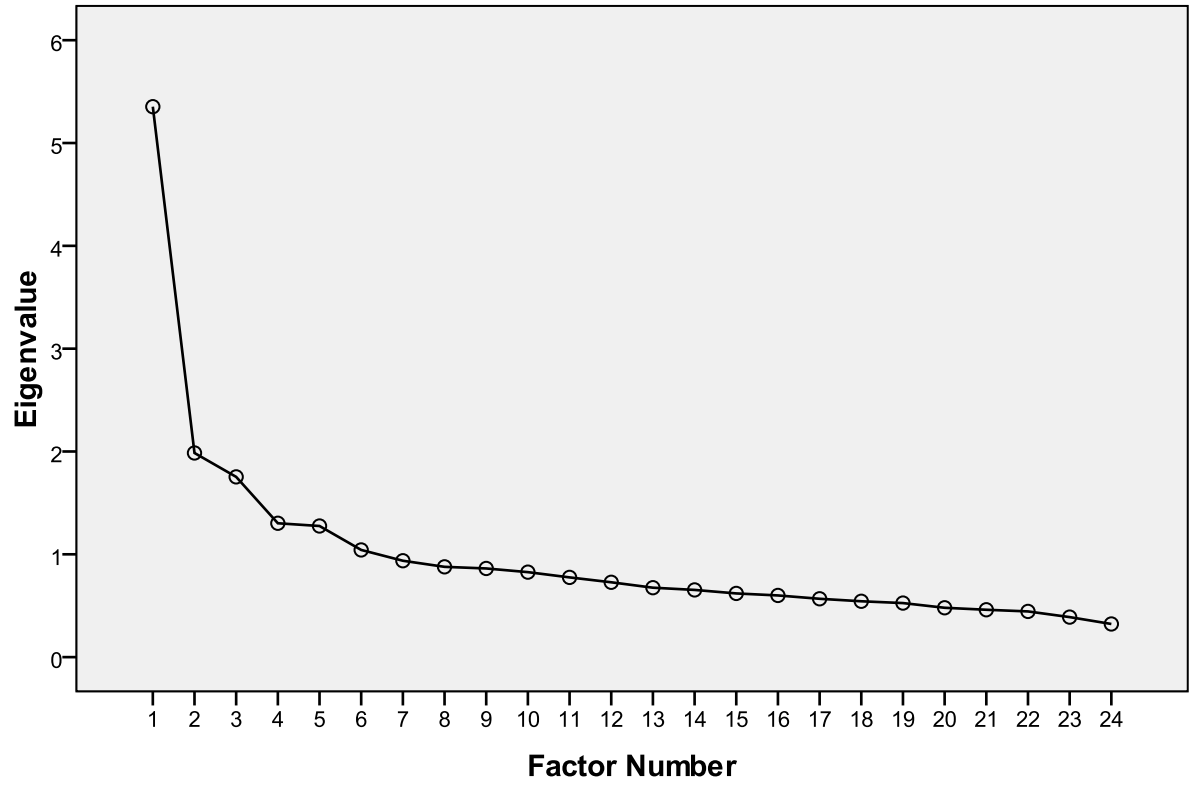


Figure 1. Scree plot for the original factor analysis.

Table 5

Pattern and Structure Matrices for the 5-Factor Solution

MOTIF Item #	Pattern Matrix					Structure Matrix				
	Factor ^a 1	2	3	4	5	Factor 1	2	3	4	5
1	.245				.381	.189	.148	.103	.116	.328
2		.755			.276	.182	.724	.277	.327	.303
3	-.115	.156	.133	.164	.405		.248	.202	.198	.411
4	-.169		.167	.421			.221	.257	.392	
5	.324	.164				.426	.319	.169	.280	-.149
6		.771				.245	.713	.267	.294	
7			.525	-.110		.132	.176	.506		
8			.557			.218	.314	.599	.241	
9			.453	.192	.128	.157	.308	.517	.329	.110
10	.225	-.128	.223	.259		.360	.190	.321	.374	
11	.545		-.136	.190		.617	.333		.436	-.108
12	.665			-.155		.611	.304	.220	.217	
13	.101		.169	.104	-.207	.263	.210	.256	.253	-.242
14		.636	-.158			.354	.649	.129	.388	
15	.458	-.102	.166		.252	.436	.192	.266	.258	.145
16	.701	-.114			.148	.582	.148	.117	.190	
17	.466		.153			.499	.232	.271	.251	-.133
18	.536		.193	-.146		.573	.309	.329	.230	-.195
19		-.144	.571			.219	.138	.559	.208	
20		.482	.248		-.190	.357	.618	.463	.436	-.200
21			.215	.534		.285	.313	.368	.574	
22			-.187	.641	.112	.306	.285		.599	
23	.453	.133	-.249	.239		.566	.359		.453	-.153
24	.147	.683				.446	.731	.286	.416	-.102

Note. Items with an absolute value below .10 are not shown.

^a Items loading .40 or higher are in bold.

Table 6

Pattern and Structure Matrices for the 4-Factor Solution

MOTIF Item #	Pattern Matrix Factor ^a				Structure Matrix Factor			
	1	2	3	4	1	2	3	4
1	.108				.179	.179	.118	.144
2	-.147	.787			.222	.743	.269	.340
3	-.217	.254	.145	.163		.283	.219	.224
4	-.157		.166	.410		.222	.253	.400
5	.377	.119			.437	.294	.131	.251
6		.774			.284	.725	.239	.280
7			.515	-.103	.142	.179	.512	
8		.111	.548		.236	.313	.598	.236
9		.107	.449	.197	.176	.315	.520	.338
10	.262	-.136	.215	.245	.369	.170	.301	.362
11	.567		-.136	.175	.624	.310		.413
12	.636			-.149	.607	.292	.190	.198
13	.202		.148		.275	.175	.218	.217
14	.123	.615	-.152		.387	.647		.369
15	.373		.166		.422	.203	.257	.263
16	.641	-.109			.559	.143		.181
17	.505		.144		.502	.207	.240	.224
18	.601		.179	-.158	.581	.276	.287	.189
19	.141	-.141	.548		.230	.120	.549	.193
20	.124	.412	.223		.395	.573	.404	.392
21			.207	.508	.306	.296	.344	.564
22			-.175	.618	.319	.284		.605
23	.493		-.247	.218	.576	.333		.426
24	.218	.625			.483	.707	.234	.381

Note. Items with an absolute value below .10 are not shown.

^a Items loading .40 or higher are in bold.

Table 7

Pattern and Structure Matrices for the 3-Factor Solution

MOTIF Item #	Pattern Matrix Factor ^a			Structure Matrix Factor		
	1	2	3	1	2	3
1	.114	.103		.184	.180	.137
2	-.157	.791		.242	.738	.296
3	-.185	.314	.186		.294	.237
4		.184	.235	.134	.254	.291
5	.391	.111		.442	.295	.168
6		.721		.294	.700	.260
7			.505	.138	.158	.490
8			.567	.243	.301	.603
9		.165	.504	.198	.324	.546
10	.328		.256	.387	.191	.346
11	.645		-.115	.636	.330	.127
12	.584			.587	.276	.221
13	.220		.163	.283	.180	.244
14	.150	.636	-.146	.404	.654	.137
15	.386		.180	.426	.206	.295
16	.632	-.157		.549	.136	.134
17	.493		.135	.499	.200	.272
18	.535		.144	.560	.258	.307
19	.111	-.148	.572	.235	.113	.555
20	.125	.425	.245	.411	.574	.442
21	.175	.148	.286	.343	.336	.400
22	.258	.219		.349	.327	.126
23	.588	.155	-.215	.589	.357	
24	.209	.603		.493	.699	.279

Note. Items with an absolute value below .10 are not shown.

^a Items loading .40 or higher are in bold.

Interpreting and Labeling Factors

The first factor contains six items that share a theme of having difficulty coping independently in fearful situations (e.g., “how often do you become afraid if...alone,” “have difficulty calming down by yourself,” and “have trouble handling fear without assistance”). This factor is a partial combination of items from the original fear and soothing functions. A commonality they share is how distressed one feels when afraid, thus, this factor is labeled “distress.” The second factor has five items that share a theme of comfort and attention seeking (e.g., key phrases include “get attention from a loved one,” “have someone comfort you,” “talk to a friend or loved one,” and “get help from another person”). It is an amalgamation of items originally written for the attention and soothing functions, thus, the label for this factor is “comfort-seeking.”

The third factor comprised four items about receiving something of value (i.e., there is some instrumental reward that occurs). Two of these items refer to specific gains (“preferred seating” and “an item someone else has”) and the other two focus on “getting one’s own way” and becoming the “focus of the situation.” This factor is similar to the original conceptualization of a “tangible” function, thus this label was retained. Finally, the fourth factor shares the theme of leaving a situation, which can be classified as an “escape” function. These items originate from the escape and negative reinforcement functions, which were hypothesized to be correlated with one another.

It is necessary to establish reliability before assessing validity. For this reason, one would not typically continue assessing the validity of the tangible and escape functions (due to their low Cronbach’s alpha scores). Because this study was exploratory in nature and examined an application of a functional measure with a population not typically used, validity analyses were

Table 8

MOTIF Functions, Items, Internal Consistency, and Factor Loadings

Function (coefficient alpha reliability)		Loading
Distress (.739)		
16	say bad things will happen before or while afraid	.641
12 ^a	have difficulty calming down by yourself	.636
18	have trouble handling your fear without assistance	.601
11	become afraid if you encounter the situation alone	.567
17	behave afraid because of the way your body feels (pounding heart, etc.)	.505
23	become afraid when you are in the feared situation	.493
Comfort-seeking (.809)		
2 ^a	get attention from a loved one or friend (or that of another person)	.787
6 ^a	have someone comfort you	.774
24 ^a	get help from another person	.625
14 ^a	talk to a friend or loved one (in either a good or bad way)	.615
20 ^a	get someone to protect you	.412
Tangible (.636)		
8 ^a	become the focus of the situation or activity	.548
19 ^a	get preferred seating or positioning	.548
7 ^a	get an item someone else has	.515
9 ^a	get your own way	.449
Escape (.506)		
22	appear to feel better after successfully leaving or avoiding the feared situation	.618
21 ^a	get to leave places or people you do not like	.508
4 ^a	get to leave the situation	.410

Note. Each item begins with "How often do you..."

^a Ends with "...during or after being afraid?"

Table 9

MOTIF 4-Factor Correlation Matrix

	Distress (1)	Comfort Seeking (2)	Tangible (3)	Escape (4)
(1)		.446	.238	.473
(2)			.320	.487
(3)				.274

conducted on all functions of the MOTIF for informational purposes.

Validity Analyses

The aim of these analyses was to examine the convergent and discriminant validity of the MOTIF. This was done by comparing scores on the MOTIF to scores on the QABF (Matson et al., 1999), DASS (Costello & Comrey, 1967), and the SSS-V (Zuckerman, Eysenck, & Eysenck, 1978).

Convergent Validity with the QABF

As previously noted, the QABF is not a self-report measure but was used in this manner for the present study. To ensure that participants were rating a behavior that related to the MOTIF, they were instructed to think of a behavior they engage in when afraid and answer the items based on that behavior. A wide range of behaviors were reported, including turning on the lights, watching TV, jogging, nail biting, leaving the situation, fighting, screaming, crying, cleaning the house, calling someone, smoking, playing games, drinking alcohol, eating, and trying to sleep.

Meaningful QABF profiles are ones that endorse one or two primary functions, therefore, only participants who met this criterion were included in this convergent analysis. Of the 583 participants, 379 did not indicate a primary function. The primary functions of the remaining 204 were as follows: tangible n=12, attention n=14, escape n=32, nonsocial n=50, and physical n=113. The numbers add up to more than 204 because 17 participants had 2 functions. To determine whether these samples (i.e., interpretable versus uninterpretable QABF profiles) differed regarding demographic variables and MOTIF scores, chi-square analyses and *t*-tests were run. Participants with an interpretable QABF profile were more racially diverse and had lower scores on the MOTIF tangible function (see Table 10).

The high frequency of the physical function is interesting and could be because fear and anxiety often produce physiological symptoms. Also, some of these items used expressions of feeling “ill,” “in pain,” and “not feeling well” which could be interpreted psychologically, as well as physically. The low rates of attention and tangible as primary functions may either reflect a true infrequency of these functions, or may be related to the self-report use of the QABF. For example, the attention function requires responses to questions such as the individual does the behavior “to draw attention to self,” “to get a reaction,” and “seems to be saying ‘come see me,’” which may result in under-endorsement due to social desirability effects. Items for the tangible function may be under-endorsed for a similar reason in that it requires one to admit to engaging in a behavior when one wants something; a form of manipulation that could be embarrassing to report. Further, making self-report ratings about one’s own motivations for behaviors requires a certain amount of insight, which is likely to vary across participants. The escape function could be argued to also measure social desirability, but perhaps to a lesser degree; it may be less embarrassing to discuss doing something to get out of a situation, rather than to get an item, or for attention. Finally, the non-social function is a report of doing the behavior even when alone, when there is nothing else to do; this was the second highest reported function.

Because not all functions of the MOTIF match perfectly with those from the QABF, there were limits to the degree to which convergent validity with the QABF could be assessed. Two functions on each of the measures share the same name and general features (i.e., tangible and escape) and were predicted to be positively correlated. A positive correlation was also predicted for comfort-seeking and the conceptually similar attention function. At first glance, the MOTIF distress function appears to be most similar to the QABF physical function due to reports of being uncomfortable and in pain. However, the QABF asks if one does a behavior because they

Table 10

Comparing Demographic Characteristics and MOTIF Functions of Participants with and without Interpretable QABF Profiles

	X^2 value	t test	p Value
Sex	.330		.556
Age		1.071	.285
Race/Ethnicity ^a	13.441		.020
Annual Household Income	15.015		.059
Marital Status	3.490		.479
Class Year	1.133		.951
GPA	8.41		.135
MOTIF-Distress		.556	.578
MOTIF-Comfort Seeking		-.575	.565
MOTIF-Tangible ^b		-4.197	<.001
MOTIF-Escape		-.721	.471

Note. Analyses compared 204 participants with interpretable QABF profiles and 379 without such profiles.

^aParticipants with interpretable QABF profiles were more racially diverse (i.e., higher percentages of African Americans, Asian Americans, and Latino/Hispanic ethnicities) as compared to those without interpretable QABF profiles. ^bThe mean MOTIF Tangible score for participants with interpretable QABF profiles ($M = 5.58$; $SD = 1.57$) was lower than those without an interpretable QABF profile ($M = 6.20$; $SD = 1.73$).

are in pain, whereas the MOTIF assesses how much distress one is in, especially when alone. The added component of “when alone” for the distress function is a dissimilarity that may lead to a low convergence between these two functions, therefore, no a priori predictions were made for the distress function. Lastly, no a priori predictions were made regarding the non-social function of the QABF due to the lack of a comparable function in the MOTIF.

Of the three predicted relationships, only one was supported: tangible functions from each measure were positively correlated ($r = .292, p < .001$). Table 11 presents the correlational results from these two measures. In an effort to understand why the other two predictions were not supported, details of the items were examined and some differences were noted. For example, the MOTIF asks what one does in a singular context (i.e., a feared situation), and the QABF frames the questions more about “why” or “in what context” does the person do a particular behavior. Even though, in this case, participants were directed to consider a behavior they do in a feared situation to increase the similarity of contexts across both measures, the wording may have been too dissimilar to result in more congruent responses between the two measures. For example, questions for the attention function of the QABF ask, in short, is the person motivated to do this because they get attention, whereas questions for the comfort-seeking function of the MOTIF ask what the person does when afraid (i.e., how do they respond? Do they seek comfort from others?). Therefore, it appears that the QABF captures a motivation for a behavior in several contexts and the MOTIF measures how one responds when afraid. These differences, although seemingly subtle, may help explain why a positive relationship was not found.

One exception to these differences is the tangible function. When comparing the two measures, one can see that these items have wording that is much more aligned. For example, a

Table 11

Correlations of the QABF and MOTIF

QABF Functions	MOTIF Functions			
	Distress (1)	Comfort Seeking (2)	Tangible (3)	Escape (4)
Attention n=14	.018	-.051	.145*	-.123*
Escape n=32	-.169**	-.078	-.093	.001
Non-Social n=50	.047	-.135*	-.010	-.049
Physical n=113	.055	.196**	-.135*	.088
Tangible n=12	-.016	-.030	.292***	-.011

Note. One-tailed.

*** $p < .001$

** $p < .01$

* $p < .05$

question from the QABF “does the person engage in this behavior to get access to items...” compares closely with one from the MOTIF “how often do you do this to get an item someone else has.” This may also help explain why this was the only prediction to be confirmed.

Some unexpected correlations emerged from this analysis. MOTIF comfort-seeking was positively correlated with the QABF physical function, $r = .196, p = .002$, and MOTIF distress was negatively correlated with the QABF escape function, $r = -.169, p = .008$. The former finding suggests the possibility that pain (as rated by the physical function) may motivate people to reduce their discomfort by seeking help from others. However, by this reasoning, escape could also be a way in which one reduces discomfort and this function was not positively related to comfort-seeking. Thus, more research is needed to understand whether this relationship is a reliable one, and if so, why this would be the case for comfort-seeking but not escape. The latter unexpected correlation could illustrate an increased sense that there is no escape when one’s distress when alone is high. If this is true, it resembles a sense of helplessness and could be linked with depressive thinking and symptoms. Because the DASS also measures depressive symptoms, a post-hoc examination of the relationship between the depression scale of the DASS and the distress function of the MOTIF reveals a significant positive correlation ($r = .178, p < .001$). Although this seems to indicate preliminary support, more evidence is needed to understand how the distress function is related to depressive symptoms.

Convergent Validity with the DASS

Given the nature of the functions identified by the MOTIF (distress, comfort-seeking, tangible, and escape) it was predicted that scores from distress would be positively correlated with stress scores from the DASS. Predictions based on the comfort-seeking, tangible, and escape functions were not made because it is not necessarily the case that these functions would

be correlated with high or low scores of reported stress. That is, one could respond by seeking attention, escaping or getting access to tangible reward when experiencing any amount of stress (low or high). The anxiety subscale was not used as a dependent measure due to the fact that it was used as a selection criterion for these analyses, however, these results should be interpreted with caution due to the high correlations within the DASS scales (all three DASS subscales had inter-correlations ranging from .55 to .65, with $p < .001$). Results indicated that distress was significantly correlated with the DASS stress scale ($r = .314, p < .001$). Further, none of the other MOTIF functions were significantly correlated with the DASS stress scale. Results for comfort-seeking, tangible, and escape were $r = .025, p = .554, r = .062, p = .134,$ and $r = .027, p = .521,$ respectively.

Discriminant Validity with the SSS-V

The total score of the SSS-V was evaluated against function scores on the MOTIF. It was predicted that scores on the MOTIF would not positively correlate with scores on the SSS-V. Correlational analysis confirmed this hypothesis: MOTIF function scores were not positively correlated with the SSS-V total scores. Results for distress, comfort-seeking, tangible and escape were $r = -.157, p < .001, r = -.042, p = .315, r = .059, p = .155,$ and $r = -.010, p = .817,$ respectively.

DISCUSSION

Factor analysis of the MOTIF resulted in a 4-factor simple structure with 18 items that reflected distress, comfort-seeking, tangible, and escape functions. The percentage of variance explained by the 4-factor structure did not surpass 50% and internal consistency results were mixed (distress and comfort-seeking were above the .70 standard, whereas tangible and escape were not). Comparisons with the QABF provided preliminary support for convergent validity (specifically with regard to the tangible function) but did not confirm predicted hypotheses for the comfort-seeking or escape functions. Differences in wording between the two measures were proposed as a partial explanation for the lack of consistent results. Preliminary support for convergent validity for the distress function was shown with the DASS (i.e., a positive correlation with the DASS stress scale). Lastly, discriminant validity with the SSS-V confirmed that none of the MOTIF functions were positively correlated with the sensation seeking measure.

Functional Assessments of Anxiety

The need for functional assessments of anxiety that are evidenced-based is clear (Antony & Rowa, 2005; Barlow, 2005). In order to address this need, steps toward the improvement of this functional anxiety measure should begin with further item development and another review by experts in the fields of anxiety and function-based assessments. The creation of additional items will enhance content validity of the construct and increase the chance of finding a simple structure solution that explains a majority of the variance. One suggestion to increase content validity of a measure is to have 5 or 6 items per expected factor (Fabrigar, Wegener, MacCallum, & Strahan, 1999). Therefore, the addition of items for tangible and escape could likely improve the content validity of these functions.

In its current form, the MOTIF is scaled with three choices; it is possible that more options may yield more interpretable results. Any decisions in this regard must take into consideration the participant's ability to make meaningful discriminations between the choices, the goal of increasing variability, and whether these issues could also be addressed with the addition of new items (DeVellis, 2003).

Implications for Clinical Utility

The distress function of the MOTIF (which appears to measure problems coping with fear when alone) has the potential to indicate several clinically important issues. These variables include, but are not necessarily limited to social support, social skills deficits, self-efficacy in the face of fearful situations, treatment fidelity, and preferred therapy format.

High scores on the distress function may be related to a lack of supportive social relationships and the presence of social skills deficits. Should this relationship be confirmed in future research, knowledge of one's distress function rating may indicate that social relationships are an area requiring focus in therapy, and perhaps a particular therapeutic approach designed to treat these issues. One approach for people who have difficulties creating adaptive social relationships is social problem solving (SPS; Nezu, Nezu & McMurrin, 2009). Social problem solving emphasizes learning how to successfully navigate day-to-day social interactions, particularly when distressed, as well as more specific social roles. One component of this approach is to help clients reframe their perceptions of a situation from one that is negative (e.g., seeing the problem as insurmountable and having pessimistic expectations) to one that views the situation more optimistically, (e.g., as a challenge).

Behavioral activation may also help develop social skills as well as build up one's sense of self-efficacy, especially in fearful situations. This therapeutic approach reduces distress by

increasing activities that are pleasurable and activities where the individual feels a sense of mastery (Kalata & Naugle, 2009). Further, avoidance behaviors are identified and new strategies developed. Like social problem solving, behavioral activation addresses social deficits and helps individuals develop more appropriate social initiation strategies. Although frequently used with individuals experiencing depression, this therapy has been used with individuals with anxiety (Hopko, Robertson, & Lejuez, 2006), and may be indicated for individuals with comorbid depression.

If it can be shown that high ratings on the distress function are linked to poor social adjustment in general, it is possible that these individuals may be at an increased risk for early treatment dropout. Studies on PTSD found that, whereas symptom intensity did not predict dropout (Taylor, 2004; Van Minnen, Arntz, & Keijsers, 2002), poor social adjustment did (Riggs, Rukstalis, Volpicelli, Kalmanson, & Foa, 2003). It is possible that therapy for these individuals is more challenging because it demands improvement in multiple areas (i.e., not only overcoming anxiety, but working on social relationships, which may be particularly difficult). Others, however, have reported contradictory findings with similar constructs. Mohr and colleagues (1990) considered social isolation in context with unhappiness and anxiety as a measure of general distress with depressed adults. Individuals high on this dysphoric construct were more likely to stay in therapy, rather than be at-risk for early treatment dropout. Clearly, more work is needed to better understand how these factors interact with treatment fidelity issues, and to assess how the distress function relates to these concepts.

In addition to helping a clinician focus on particular skills, it is possible that knowing one's level of distress from the MOTIF could help determine a particular format of therapy. Beutler, Clarkin, and Bongar (2000) found that depressed individuals experiencing high levels of distress

benefitted more from a group format, an approach that focused on interpersonal issues, and the inclusion of family members and significant others in therapy. Further, group therapy is recommended for adults experiencing panic disorder and agoraphobia if they exhibit poor assertiveness, social anxiety, relationships characterized by dependency, and reported childhood separation anxiety (Belfer, Munzo, Schachter, & Levendusky, 1995).

Contrary to the distress function, the comfort-seeking function may be correlated with adaptive coping skills (i.e., a high score on this function indicates one actively seeks help when afraid). If it can be shown that this function corresponds with adaptive coping skills, it may predict the need for fewer treatment sessions, and/or the ability to use strategies that require a higher level of social skills in therapy. In partial support of this, Moos (1990) found that long-term therapy was contraindicated for depressed individuals reporting high levels of social support availability and contact. More needs to be done to determine how much comfort-seeking is related to social support contact and optimal therapy outcomes.

The tangible function seems to reflect instrumental use of coping and can point the clinician in the right direction when assessing functions of fear behaviors. A high score on this function could indicate the need for a more detailed assessment of how individuals are being tangibly reinforced for their fear behaviors. For example, to what extent, under which conditions, with which individuals, etc. With this information, the clinician can focus on reducing or eliminating such rewards in order to potentially reduce the fear behaviors. Similarly, the escape function allows the clinician to determine to what extent the client is avoiding feared situations. Exposure based therapy can aid in treating avoidance behaviors, as well as the previously mentioned behavioral activation therapy, which also assesses avoidance behaviors.

Strengths and Limitations

Strengths of this study included its use of a fairly large sample, the criterion of a minimum cut-off of reported levels of anxiety-related symptoms (as measured by a well-normed anxiety measure), and the inclusion of additional measures aimed to assess convergent and discriminant validity. Despite these strengths, this study sampled college students, often labeled a convenience sample, which limits its external validity. Another limitation is that this study relied on single informants and a single method of data collection (e.g., self-report on-line surveys). Although the minimum cut-off required for inclusion in the factor analysis ensured the presence of anxiety symptoms, as reported by participants, this restricted the sample, which could affect the results of the factor analysis. Further, a well-normed measure (the QABF) was used in a non-typical manner, which could hamper the conclusions drawn from the convergent analysis. Also, rating a behavior one does when afraid (as directed for this study on the QABF) differs to some degree from reporting what one does when one is afraid (i.e., the MOTIF). This study's comparison of these two types of ratings may have not adequately assessed the relationship of these functional measures. Lastly, factor analysis results were not optimal in that less than 50% of the variance was accounted for, and alpha coefficient levels were not over .70 for two functions (tangible and escape). Therefore, psychometric improvements in these areas are needed to increase the viability of this measure.

Directions for Future Research

Future research could improve upon these limitations by improving content validity through the addition of new items (particularly for the tangible and escape functions), increasing external validity by recruiting community samples that are not solely comprised of college students, determining test-retest reliability, and building converging evidence of this measure by

involving multiple methods of data collection, per the recommendations of Campbell and Fiske (1959). The inclusion of a social desirability measure would also allow one to measure this potential factor. Lastly, regarding the potential clinical utility of this measure, it is recommended that future research seek to verify whether the functions contain therapeutically meaningful information. This includes verifying to what extent the distress function may indicate particular types of therapy, including a social adjustment measure to test the assertion that comfort-seeking measures social functioning more broadly than the context of feared situations, testing whether the tangible function reliably indicates strategies to reduce rewards for feared behavior, and to what extent the escape function informs clinicians regarding the use of exposure therapy.

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APPENDIX A. LIST OF ABBREVIATIONS

The following is a list of abbreviations used in the document.

ADHD	Attention-Deficit/Hyperactivity Disorder
ADIS-C/P	Anxiety Disorders Interview Schedule- child and parent versions
ADIS-IV	Anxiety Disorders Interview Schedule for DSM-IV
APA	American Psychological Association
CBCL	Child Behavior Checklist
DASS	Depression, Anxiety, and Stress Scales
DSM-IV-TR	Diagnostic and Statistical Manual for Mental Health Disorders, 4 th edition, Text Revision
EBA	Evidence Based Assessment
EBP	Evidence Based Practice
EBT	Evidence Based Treatment
EFA	Experimental Functional Analysis
EST	Empirically Supported Treatments
FBA	Functional Behavioral Assessment
ID	Intellectually Disabled
IDEA	Individuals with Disabilities Education Act
MAS	Motivation Assessment Scale
MASC	Multidimensional Anxiety Scale for Children
MOTIF	Motivation for Fear
PTSD	Post-Traumatic Stress Disorder
QABF	Questions About Behavioral Function
QABF-MI	Questions About Behavioral Function-Mental Illness
RCMAS	Revised Children's Manifest Anxiety Scale
RCT	Randomized Clinical Trials
SCARED-R	Screen for Child Anxiety Related Emotional Disorders-Revised
SCID-IV	Structured Clinical Interview for DSM-IV
SIB	Self-Injurious Behavior
SRAS	School Refusal Assessment Scale
SSS-V	Sensation Seeking Scale- Form V

APPENDIX B. INFORMED CONSENT- YOUNG ADULT

Louisiana State University Informed Consent for Participants in Research Projects Involving Human Subjects

1. **Study Title:** Reliability and Validity of the MOTIF
2. **Performance Sites:** Data will be collected by completing an on-line survey.
3. **Names and Telephone Numbers of Investigators:** The following investigators are available for questions about this study, M-F, 8:00 a.m.-4:30 p.m:

Thompson Davis, Ph.D. and Marie Nebel-Schwalm, M. A. (225) 578-1494
4. **Purpose of the Study:** The overall purpose of this study is to evaluate a newly created measure of anxiety in young adults.
5. **Subjects:** Individuals 18 years of age and older, with and without fears or anxiety, are invited to participate. The maximum number of participants will be 2000.
6. **Procedures and Duration of Participation:** You will be asked to complete a self-report questionnaire on-line. These questionnaires will involve you answering questions about general levels of anxiety and worry. Filling out these questionnaires should take about 60 minutes.
7. **Benefits:** There are no direct benefits to participants; however, information gained from this study will provide valuable data regarding worry and anxiety and will aid us in understanding the prevalence and nature of worry and their relations to other variables of interest.
8. **Risks:** Participation in this study is not expected to have risks, other than those associated with filling out questionnaires about your self.
9. **Right to Refuse:** Participation in this study is voluntary and you may change your mind and withdraw from the study at any time without penalty or loss of any benefit to which you are otherwise entitled. Simply close your browser window.
10. **Privacy:** All the information that you provide will be confidential and access to your data will be restricted to the primary investigators and their research staff. Your data, along with that of others, will be stored in a secure location. Some identifying information will be collected to assign you extra credit. Data will be kept secure and confidential unless release is legally compelled.
11. **Compensation:** For your participation in this study, you will receive the equivalent of one hour of extra credit in any one course that offers extra credit for participation in psychological experiments. Contact your course instructor regarding alternative means of obtaining extra credit. If your course does not offer extra credit, you should understand that no compensation is provided.
12. **Freedom to Withdraw:** You are free to withdraw from the study at any time by closing the web page. If you choose to withdraw you will not be penalized.

The study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators by email or phone. If I have questions about subjects' rights or other concerns, I can contact Robert C. Mathews, Chairman, LSU Institutional Review

Board, 225-578-8692. I agree to participate in the study described above and acknowledge the researchers' obligation to provide me with a copy of this consent form if signed by me (please click "Print" above on your browser's toolbar if you desire a copy).

If you have any questions regarding your participation in this study or this informed consent document, please do not hesitate to email Marie Nebel-Schwalm (mariesns@lsu.edu). By clicking the submit button you are giving your consent to participate in this study. You may withdraw at any time by closing your browser window.

APPENDIX C. DEMOGRAPHIC QUESTIONNAIRE

Demographic Questionnaire

Date: _____

Name: _____ **Age:** _____

Date of Birth: _____ **Sex:** Female Male

What Class? ___ Freshman ___ Sophomore ___ Junior ___ Senior

Race: Caucasian Hispanic African American Asian Other: _____

Telephone: (home) _____ **Best Times to Call:** _____

(cell) _____ **Best Times to Call:** _____

Marital Status: (circle one)

Single Married Separated Remarried Engaged Divorced Widowed

Current Grade Point Average: _____

Have you ever been retained or failed a grade in school? ___ Yes ___ No

If yes, which grade(s)? _____

Income: What is the total **annual** family household income? (If your parents contribute at all financially to tuition, rent, books, food, bills, etc., include the TOTAL income including your parents.)

___ \$0-4,999/year ___ \$15,000-24, 999/year ___ \$50,000-74,999/year

___ \$5,000-9,999/year ___ \$25,000-34,999/year ___ \$75,000-99,999/year

___ \$10,000-14,999/year ___ \$35,000-48,999/year ___ \$100,000 and up/year

About your mother	About your father
Job Title: (e.g., 3 rd grade teacher, construction foreman, retail sales clerk)	Job Title: (e.g., 3 rd grade teacher, construction foreman, retail sales clerk)
Place of Employment: (e.g., Private Elementary School, Construction Company, Large retail chain)	Place of Employment: (e.g., Private Elementary School, Construction Company, Large retail chain)
<p>How far did your mother go in school? (check all that apply)</p> <p><input type="checkbox"/> less than 8th grade</p> <p><input type="checkbox"/> completed 8th grade</p> <p><input type="checkbox"/> completed 9th grade</p> <p><input type="checkbox"/> partial high school education (10th or 11th grade)</p> <p><input type="checkbox"/> graduated from high school</p> <p><input type="checkbox"/> received GED: age at time of GED _____</p> <p><input type="checkbox"/> graduated from trade school or business school. Describe type of trade or business school: _____</p> <p><input type="checkbox"/> attended 2-year college or specialized training program</p> <p><input type="checkbox"/> graduated from 2-year college or specialized training program</p> <p><input type="checkbox"/> attended 4-year university/college</p> <p><input type="checkbox"/> graduated from 4-year university/college (BA, BS)</p> <p><input type="checkbox"/> completed graduate school (MA, MS, PhD)</p> <p><input type="checkbox"/> completed professional degree (JD, MD)</p>	<p>How far did you father go in school? (check all that apply)</p> <p><input type="checkbox"/> less than 8th grade</p> <p><input type="checkbox"/> completed 8th grade</p> <p><input type="checkbox"/> completed 9th grade</p> <p><input type="checkbox"/> partial high school education (10th or 11th grade)</p> <p><input type="checkbox"/> graduated from high school</p> <p><input type="checkbox"/> received GED: age at time of GED _____</p> <p><input type="checkbox"/> graduated from trade school or business school Describe type of trade or business school: _____</p> <p><input type="checkbox"/> attended 2-year college or specialized training program</p> <p><input type="checkbox"/> graduated from 2-year college or specialized training program</p> <p><input type="checkbox"/> attended 4-year university/college</p> <p><input type="checkbox"/> graduated from 4-year university/college (BA, BS)</p> <p><input type="checkbox"/> completed graduate school (MA, MS, PhD)</p> <p><input type="checkbox"/> completed professional degree (JD, MD)</p>

APPENDIX D. MOTIVATION FOR FEAR

• © Thompson E. Davis III, Ph.D. 1

MotiF - A

MOTIVATION FOR FEAR INTERVIEW - ADULT

Client Information

Name: DOB: _____ / _____ / _____ Age: _____ years

Race: Caucasian • African American • Asian • Hispanic • Other Gender: male • female

Today's Date: _____ / _____ / _____

Directions:

Read each question to the client. Mark the number in the answer column that best describes how often each item occurs when he/she becomes afraid.

QUESTIONS	ANSWER COLUMN		
1. How often do you get a preferred item or food (e.g., ice cream, soda to calm down) during or after being afraid?	rarely 1	some 2	a lot 3
2. How often do you get attention from a loved one or friend (or that of another person) during or after being afraid?	rarely 1	some 2	a lot 3
3. How often do you get to do activities you like better during or after being afraid?	rarely 1	some 2	a lot 3
4. How often do you get to leave the situation during or after being afraid?	rarely 1	some 2	a lot 3
5. How often do you behave afraid because you are scared?	rarely 1	some 2	a lot 3
6. How often do you have someone comfort you during or after being afraid?	rarely 1	some 2	a lot 3
7. How often do you get an item someone else has during or after being afraid?	rarely 1	some 2	a lot 3
8. How often do you become the focus of the situation or activity during or after being afraid?	rarely 1	some 2	a lot 3
9. How often do you get your own way during or after being afraid?	rarely 1	some 2	a lot 3
10. How often do you get to avoid the situation because you might get afraid?	rarely 1	some 2	a lot 3
11. How often do you become afraid if you encounter the situation alone?	rarely 1	some 2	a lot 3
12. How often do you have difficulty calming down by yourself during or after being afraid?	rarely 1	some 2	a lot 3
13. How often do you get a safety item (flashlight, baseball bat, etc.) during or after being afraid?	rarely 1	some 2	a lot 3
14. How often do you talk to a friend or loved one (in either a good or bad way) during or after being afraid?	rarely 1	some 2	a lot 3

15.	How often do you avoid or postpone activities, chores, or assignments during or after being afraid?	rarely 1	some 2	a lot 3
16.	How often do you say bad things will happen either before or while afraid?	rarely 1	some 2	a lot 3
17.	How often do you behave afraid because of the way your body feels (pounding heart, etc.)?	rarely 1	some 2	a lot 3
18.	How often do you have trouble handling your fear without assistance?	rarely 1	some 2	a lot 3
19.	How often do you get preferred seating or positioning during or after being afraid?	rarely 1	some 2	a lot 3
20.	How often do you get someone to protect you during or after being afraid?	rarely 1	some 2	a lot 3
21.	How often do you get to leave places or people you do not like during or after being afraid?	rarely 1	some 2	a lot 3
22.	How often do you appear to feel better after successfully leaving or avoiding the feared situation?	rarely 1	some 2	a lot 3
23.	How often do you become afraid when you are in the feared situation?	rarely 1	some 2	a lot 3
24.	How often do you get help from another person during or after being afraid?	rarely 1	some 2	a lot 3

SCORING

FUNCTION RAW SCORES

TANGIBLE
ATTENTION
ESCAPE FROM DEMANDS
FEAR
NEGATIVE REINFORCEMENT
SOOTHING

APPENDIX E. QUESTIONS ABOUT BEHAVIORAL FUNCTION

QUESTIONS ABOUT BEHAVIORAL FUNCTION (QABF)

Client's name and residence: _____ Date: _____

Name of person completing QABF: _____

Target Behavior: _____

Rate how often the CLIENT demonstrates the behaviors in situations where they might occur.

Be sure to rate how often each behavior occurs, not what you think a good answer would be.

X	0	1	2	3
Does not apply	Never	Rarely	Some	Often

- _____ 1 Engages in behavior to get attention.
- _____ 2 Engages in behavior to escape work or learning situations.
- _____ 3 Engages in behavior as a form of "self-stimulation."
- _____ 4 Engages in behavior because he/she is in pain.
- _____ 5 Engages in behavior to get access to items such as preferred toys, food, or beverages.
- _____ 6 Engages in behavior because he/she likes to be reprimanded.
- _____ 7 Engages in behavior when asked to do something (get dressed, brush teeth, work, etc.).
- _____ 8 Engages in behavior even if he/she thinks no one is in the room.
- _____ 9 Engages in behavior more frequently when he/she is ill.
- _____ 10 Engages in behavior when you take something away from him/her.
- _____ 11 Engages in behavior to draw attention to him/herself.
- _____ 12 Engages in behavior when he/she does not want to do something.
- _____ 13 Engages in behavior because there is nothing else to do.
- _____ 14 Engages in behavior when there is something bothering him/her physically.
- _____ 15 Engages in behavior when you have something he/she wants.
- _____ 16 Engages in behavior to try to get a reaction from you.
- _____ 17 Engages in behavior to try to get people to leave him/her alone.
- _____ 18 Engages in behavior in a highly repetitive manner, ignoring his/her surroundings.
- _____ 19 Engages in behavior because he/she is physically uncomfortable.
- _____ 20 Engages in behavior when a peer has something he/she wants.
- _____ 21 Does he/she seem to be saying "come see me" or "look at me" when engaging in the behavior?
- _____ 22 Does he/she seem to be saying "leave me alone" or "stop asking me to do this" when engaging in the behavior?
- _____ 23 Does he/she seem to enjoy the behavior, even if no one is around?
- _____ 24 Does the behavior seem to indicate to you that he/she is not feeling well?
- _____ 25 Does he/she seem to be saying "give me that (toy item, food item)" when engaging in the behavior?

APPENDIX F. DEPRESSION ANXIETY AND STRESS SCALES

DASS

Please read each statement and circle a number (0, 1, 2, or 3) that indicates how much the statement applied to you over the PAST WEEK. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all

1 Applied to me to some degree, or some of the time

2 Applied to me to a considerable degree, or a good part of time

3 Applied to me very much, or most of the time

1	I found myself getting upset by quite trivial things	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (e.g., excessively rapid breathing; breathlessness in the absence of physical exertion)	0	1	2	3
5	I just couldn't seem to get going	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I had a feeling of shakiness (e.g., legs going to give way)	0	1	2	3
8	I found it difficult to relax	0	1	2	3
9	I found myself in situations that made me so anxious I was most relieved when they ended	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting upset rather easily	0	1	2	3
12	I felt that I was using a lot of nervous energy	0	1	2	3
13	I felt sad and depressed	0	1	2	3
14	I found myself getting impatient when I was delayed in an way (eg, elevators, traffic lights, being kept waiting)	0	1	2	3
15	I had a feeling of faintness	0	1	2	3
16	I felt that I had lost interest in just about everything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I perspired noticeably (e.g., hands sweaty) in the absence of high temperatures or physical exertion	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life wasn't worthwhile	0	1	2	3
22	I found it hard to wind down	0	1	2	3
23	I had difficulty in swallowing	0	1	2	3
24	I couldn't seem to get any enjoyment out of the things I did	0	1	2	3

25	I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	0	1	2	3
26	I felt down-hearted and blue	0	1	2	3
27	I found that I was very irritable	0	1	2	3
28	I felt I was close to panic	0	1	2	3
29	I found it hard to calm down after something upset me	0	1	2	3
30	I feared that I would be "thrown" by some trivial but unfamiliar task	0	1	2	3
31	I was unable to become enthusiastic about anything	0	1	2	3
32	I found it difficult to tolerate interruptions to what I was doing	0	1	2	3
33	I was in a state of nervous tension	0	1	2	3
34	I felt I was pretty worthless	0	1	2	3
35	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
36	I felt terrified	0	1	2	3
37	I could see nothing in the future to be hopeful about	0	1	2	3
38	I felt that life was meaningless	0	1	2	3
39	I found myself getting agitated	0	1	2	3
40	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
41	I experienced trembling (e.g., in the hands)	0	1	2	3
42	I found it difficult to work up the initiative to do things	0	1	2	3

APPENDIX G. SENSATION SEEKING FORM V
SSS Form V

Directions: Each item has two choices: A or B. Please indicate which of the choices most describes your likes or the way you feel. In some cases you may find items in which both choices describe your likes or feelings. Please choose the one which **better** describes your likes or feelings. In some cases you may find items in which you do not like either choice. In these cases mark the choice you **dislike least**. Do not leave any items blank. We are interested only in your likes or feelings, **not** in how others feel about these things or how one is supposed to feel. Be frank and give your honest appraisal of yourself.

- 1 A. I like "wild" uninhibited parties.
B. I prefer quiet parties with good conversation.
- 2 A. There are some movies I enjoy seeing a second or even third time.
B. I can't stand watching a movie that I've seen before.
- 3 A. I often wish I could be a mountain climber.
B. I can't understand people who risk their necks climbing mountains.
- 4 A. I dislike all body odors.
B. I like some of the earthy body smells.
- 5 A. I get bored seeing the same old faces.
B. I like the comfortable familiarity of everyday friends.
- 6 A. I like to explore a strange city or section of town by myself, even if it means getting lost.
B. I prefer a guide when I am in a place I don't know well.
- 7 A. I dislike people who do or say things just to shock or upset others.
B. When you can predict almost everything a person will do and say he or she must be a bore.
- 8 A. I usually don't enjoy a movie or play where I can predict what will happen in advance.
B. I don't mind watching a movie or play where I can predict what will happen in advance.
- 9 A. I have tried marijuana or would like to.
B. I would never smoke marijuana.
- 10 A. I would not like to try any drug which might produce strange and dangerous effects on me.
B. I would like to try some of the drugs that produce hallucinations.
- 11 A. A sensible person avoids activities that are dangerous.
B. I sometimes like to do things that are a little frightening.
- 12 A. I dislike "swingers" (people who are uninhibited and free about sex).
B. I enjoy the company of real "swingers."
- 13 A. I find that stimulants make me uncomfortable.
B. I often like to get high (drinking liquor or smoking marijuana).
- 14 A. I like to try new foods that I have never tasted before.
B. I order the dishes with which I am familiar so as to avoid disappointment and unpleasantness.
- 15 A. I enjoy looking at home movies, videos, or travel slides.
B. Looking at someone's home movies, videos, or travel slides bores me tremendously.
- 16 A. I would like to take up the sport of water skiing.
B. I would not like to take up water skiing.
- 17 A. I would like to try surfboard riding.
B. I would not like to try surfboard riding.
- 18 A. I would like to take off on a trip with no preplanned or definite routes, or timetable.
B. When I go on a trip I like to plan my route and timetable fairly carefully.
- 19 A. I prefer the "down to earth" kinds of people as friends.

- B. I would like to make friends in some of the "far-out" groups like artists or "punks."
- 20 A. I would not like to learn to fly an airplane.
B. I would like to learn to fly an airplane.
- 21 A. I prefer the surface of the water to the depths.
B. I would like to go scuba diving.
- 22 A. I would like to meet some persons who are homosexual (men or women).
B. I stay away from anyone I suspect of being "gay" or "lesbian."
- 23 A. I would like to try parachute jumping.
B. I would never want to try jumping out of a plane, with or without a parachute.
- 24 A. I prefer friends who are excitingly unpredictable.
B. I prefer friends who are reliable and predictable.
- 25 A. I am not interested in experience for its own sake.
B. I like to have new and exciting experiences and sensations even if they are a little frightening, unconventional, or illegal.
- 26 A. The essence of good art is in its clarity, symmetry of form, and harmony of colors.
B. I often find beauty in the "clashing" colors and irregular forms of modern paintings.
- 27 A. I enjoy spending time in the familiar surroundings of home.
B. I get very restless if I have to stay around home for any length of time.
- 28 A. I like to dive off the high board.
B. I don't like the feeling I get standing on the high board (or I don't go near it at all).
- 29 A. I like to date persons who are physically exciting.
B. I like to date persons who share my values.
- 30 A. Heavy drinking usually ruins a party because some people get loud and boisterous.
B. Keeping the drinks full is the key to a good party.
- 31 A. The worst social sin is to be rude.
B. The worst social sin is to be a bore.
- 32 A. A person should have considerable sexual experience before marriage.
B. It's better if two married persons begin their sexual experience with each other.
- 33 A. Even if I had the money, I would not care to associate with flighty rich persons in the "jet set."
B. I could conceive of myself seeking pleasures around the world with the "jet set."
- 34 A. I like people who are sharp and witty even if they do sometimes insult others.
B. I dislike people who have their fun at the expense of hurting the feelings of others.
- 35 A. There is altogether too much portrayal of sex in movies.
B. I enjoy watching many of the "sexy" scenes in movies.
- 36 A. I feel best after taking a couple of drinks.
B. Something is wrong with people who need liquor to feel good.
- 37 A. People should dress according to some standard of taste, neatness, and style.
B. People should dress in individual ways even if the effects are sometimes strange.
- 38 A. Sailing long distances in small sailing crafts is foolhardy.
B. I would like to sail a long distance in a small but seaworthy sailing craft.
- 39 A. I have no patience with dull or boring persons.
B. I find something interesting in almost every person I talk to.
- 40 A. Skiing down a high mountain slope is a good way to end up on crutches.
B. I think I would enjoy the sensations of skiing very fast down a high mountain slope.

VITA

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