

## Research Paper

# Adaptation of an Adolescent Coping Assessment for Therapeutic Recreation and Outdoor Adventure Settings

Melissa S. Russell  
Mark A. Widmer  
Neil Lundberg  
Peter Ward

**Abstract:** This study addresses the need for sound assessments to measure adolescent coping in therapeutic recreation, wilderness and adventure therapy settings. Although consideration was given to developing a new measure, a well-developed general coping measure exists, and the authors indicated a need to adapt it to specific settings. Therefore, the purpose of this study was to adapt the Response to Stress Questionnaire (RSQ) for use in adventure-based therapeutic settings. Appropriate content was identified and items were adapted to create RSQ Outdoor Adventure Version (RSQ-OAV). These items were then evaluated for representativeness and relevance to provide content validity. An expert panel conducted a blind review by mapping the items based on content areas. The instrument was then administered to subjects to gather evidence supporting the reliability and validity of inferences. The RSQ-OAV provides a foundation for future research and understanding related to outdoor adventure coping skills in therapeutic recreation settings.

**Keywords:** *coping, stress, assessment, therapeutic recreation, wilderness therapy, adventure therapy.*

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Melissa S. Russell is an instructor in the Department of Kinesiology, Sport Management, and Leisure Studies at Grambling State University. Mark Widmer is a professor in the Department of Recreation Management at Brigham Young University. Neil Lundberg is an associate professor in the Department of Recreation Management at Brigham Young University. Peter Ward is an associate professor in the Department of Recreation Management at Brigham Young University. Please send correspondence to Mark Widmer, widmer@byu.edu

Learning to successfully cope with adversity is a key asset adolescents can master to manage stress and become healthy, functioning adults. Researchers suggest a person's ability to handle stress may be more important than the amount of stress in their lives. Youth encounter stress in complex and competitive environments (American Psychological Association, 2008). This stress is often caused by real or perceived psychological, mental, or physical limitations (Lohman & Jarvis, 2000; McEwen, 2000). Clearly, learning to cope with stress is an important skill for adolescents to master. Intentionally facilitating the acquisition of coping skills has the potential to produce a variety of benefits for adolescents. A number of methods have been used to help teens cope with stress (National Institute of Mental Health, 2009).

One strategy to promote the acquisition of coping skills and efficacy is to engage in experiences with high levels of perceived risk and challenge, while moderating actual risk. These experiences can directly increase coping self-efficacy and skills (Bandura, 1977; 1997). Contexts creating high perceptions of risk and challenge can provide an ideal environment for adolescents to experience stress, and practice using coping techniques. Outdoor adventures, such as rock climbing, backpacking, mountain biking, and whitewater rafting can be designed to create high perceptions of risk and challenge while moderating actual risk. Outdoor adventure activities are an area of increasing interest among researchers. For example, researchers have studied the effects of outdoor adventures on adolescent identity development, communication, conflict resolution efficacy, irrational beliefs, and the development of character strengths (e.g., Duerden, Widmer, Taniguchi, & McCoy, 2009; Huff,

Widmer, McCoy, & Hill, 2003; Lundberg, Widmer, McCormick, & Ward, 2006; Schenk, Widmer, Duerden, & Burraston, 2008; Widmer, Taniguchi, & Duerden, 2005; Widmer & Wells, 2002). Increases in positive beliefs accrued during outdoor adventures have also shown to generalize to other life domains after participation in the outdoor activity (Wells, Widmer, & McCoy, 2004; Widmer et al., 2005; Widmer, Duerden, & Taniguchi, 2014). Little research, however, exists examining the use of outdoor adventures to promote positive coping skills and stress responses. Yet, for research in this area to proceed, researchers must be able to measure coping ability in these contexts. Indeed, researchers' ability to study phenomena is limited by the ability to measure these constructs. Consequently, a need exists to develop instruments to measure coping skills in the context of outdoor adventure experiences.

An excellent general measure of adolescent coping is available, called the Response to Stress Questionnaire (RSQ) (Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000). The developers of the RSQ indicate future research should focus on establishing domain specific versions. They began this process by developing a version of the RSQ for use with Navajo adolescents (Wadsworth, Rieckmann, Benson, & Compas, 2004). By adapting the questions to relate to the specific populations and settings, the assessment will produce more effective information with the sample of interest.

This instrument could be adapted to measure adolescent coping in outdoor adventure experiences, helping the field meet a need for outcome assessment in this area. Over the past decade, the Outdoor Behavioral Healthcare Council (OBH) and the National Association of Therapeutic Schools and Programs

(NATSAP) has focused on sponsoring research to provide evidence of the efficacy of wilderness and adventure therapy programs (see <https://obhcouncil.com/research/> and <http://natsap.org/research/>). The Youth Outcome Questionnaire (Y-OQ) has been and continues to be widely used (Wells, Burlingame, Lambert, Hoag, & Hope, 1996). The Y-OQ, however, is a general outcome measure for tracking progress in treatment. It is not designed specifically for therapeutic recreation and adventure therapy settings. The availability of assessments developed specifically for outcomes targeted by programs would facilitate research and outcome assessment. Our ability to understand any phenomena, however, is limited by our ability to measure the phenomena.

Assessments designed to measure coping skills among adolescents in wilderness and adventure therapy settings will further our ability to expand our understanding of the effectiveness of the programs. Adventure therapy is an effective treatment option offered in facility-based settings (Dattilo, 2000) and in adventure therapy programs located in the wilderness. Research in this area can benefit adolescents in developing better responses to stress and also clinicians in understanding and addressing these stress responses. Therefore, the purpose of this study is to respond to the need for a measure of stress and coping in therapeutic recreation settings using adventure experiences by adapting the Responses to Stress Questionnaire (RSQ) to focus on measuring adolescents' response to stress in the domain of wilderness and adventure therapy settings.

## Review of Literature

### Stress

Stress is ubiquitous and impossible to avoid (Finnicum & Zeiger, 1998). Over \$100 billion are spent annually on illnesses related to stress (Finnicum & Zeiger). Today, individuals experience multiple stressors occurring at once and therefore, more negative consequences are present (Bredar, 2008). Stress is defined as "a real or interpreted threat to the physiological or psychological integrity of an individual that results in physiological and/or behavioral responses" (McEwen, 2000, pp. 508–509).

In 2008, the American Psychological Association (APA) examined stress nationwide. The researchers discovered higher stress than any other previous year, with 30% of the sample rating their stress as extreme. Interestingly, 81% of the participants stated they manage their stress very well or somewhat well, even though in the research physical and emotional effects demonstrate otherwise (APA, 2008).

**Adolescent stress.** The acquisition of effective coping skills is a key task of successful adolescent development, leading to healthy adult functioning. Relationships, work, rearing children, housework, and other demands each day cause large amounts of stress for adults (Iwasaki & Schneider, 2003). Many adults believe adolescents' lives are relatively stress free compared to their own stress. Adolescents, however, identify stress as a critical problem in their lives (Goldstein, 1988). Some stressors include "being made fun of by others, not being asked to a birthday party, being the last person selected for the team" (Goldstein, p. 367). School performance, social situations, peer pressures, conflict at home, and many other common factors can create stress in the lives of adolescents. Recently bullying has

been identified as a significant adolescent stressor and a factor in school violence (Carney, 2008). These and other stressors affect the ability to adapt and cope, even for the most resilient (Johnson, 1986).

Major life changes resulting in uncertainty and stressful situations are a primary source of adolescent stress (Cook & Furstenberg, 2002; Lohman & Jarvis, 2000). These transitions represent “social, academic, cognitive, physiological, and physical changes” (Stroud et al., 2009, p. 47). Compas, Davis, and Forsyth (1985) categorize causes of adolescent stress into three groups: major life transformations, chronically stressful circumstances, and everyday hassles. Examples of everyday hassles include family problems, school ability, and peer relationships (Compas et al., 1985).

Adolescents also experience stress outside of normal daily events; many of these stress factors continue to rise. For example, parental divorce is a risk factor in the lives of over one million children each year (Fagan & Rector, 2000). Children of divorce often experience high levels of conflict, financial distress, and other psychological issues producing tremendous stress. Beyond marital conflict among parents, family conflict is another primary contributor to adolescent stress (Lohman & Jarvis, 2000) especially between parent and adolescents (Montemayor, 1983). Natural developmental factors around school, entrance exams, occupational and career choices can be major sources of stress. With respect to bullying, research suggests for some adolescents bullying is a significant source of stress and in extreme cases appears to lead to suicide (Stanglin & Welch, 2013). Unresolved stress can be physically and psychologically detrimental to the adolescent (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001). Clearly,

the ability to cope with stress is an essential skill for adolescents (Goldstein, 1988).

### **Outcomes of adolescent stress.**

Outcomes of adolescent stress include several psychological determinates; for example, problems with school adjustment (Rice, Kang, Weaver, & Howell, 2008), school performance (Flook & Fuligni, 2008; Fontana & Dovidio, 1984), delinquency (Caldwell & Smith, 2006; Craig, 2007), drug use (Byrne & Mazanov, 1999), depression (Olsson, 1998), suicide (Fordwood, Asarnow, Huizar, & Reise, 2007), anorexia nervosa (Misra, Miller, Almazan, Worley, Herzog, & Kliban-ski, 2005), and maladjustment (Hampel, 2007). Stress causes and escalates several mental disorders. The National Institute of Mental Health (NIMH, 2009) found one in 10 children suffer from a mental illness. The findings also indicate half of mental illnesses are initiated by 14 years of age. The NIMH emphasized the importance of early intervention during the onset of mental illness. Otherwise, overcoming the illness becomes more difficult, and the likelihood of other illnesses ensuing in adulthood is greater (NIMH).

Stress is manifested in several different ways. Stress can produce negative physiological, behavioral, and psychological outcomes. Although stress cannot be avoided, “the degree and manner in which we experience stress, and ways in which we cope with stress, strongly influence how we live our lives” (Iwasaki & Schneider, 2003, p. 108). The ability to cope with stress is essential for promoting and maintaining positive outcomes in life.

### **Coping**

A general report, *Stress in America*, from the American Psychological Association (2008) includes many techniques

people use to cope with stress. For example, 52% of people reported listening to music as a coping mechanism for stress. Other mechanisms included exercise (47%), reading (44%), spending time with family/friends (41%), viewing media for two or more hours per day (41%), and napping (38%). Eighteen percent reported drinking alcohol and 16% smoke to manage stress. Eight percent say they do nothing to manage stress (APA). When asked about the most effective techniques for managing stress, 77% indicated prayer is the most effective technique followed by exercise (65%) and sports participation (63%) (APA). This line of research provides important information for understanding how adults cope with stress. Most coping literature, however, focuses on adults and generalizes results to adolescents. For example, in the therapeutic recreation literature, papers addressing theory and coping skills programming appear to address adult coping skills, which may or may not generalize to adolescents (Carruthers & Hood, 2002a; 2002b).

The literature shows a somewhat dynamic development of the conceptualization of coping throughout the years. No uniform or explicit definition for adolescent coping, however, existed (Compas et al., 2001). Identifying future directions for research was also challenging. In the rare cases where researchers defined coping, they did so from an adult perspective (Compas et al.). Defining adolescent coping is critical in order to establish progress within research.

The primary coherent effort to define adolescent coping began with Compas, Worsham, Ey, and Howell (1996). They worked to conceptualize and clarify the construct of coping and stress for adolescents. Compas et al. developed a specific definition of a construct around adoles-

cent coping, indicating coping involves “conscious volitional efforts to regulate emotion, cognition, behavior, physiology, and the environment in response to stressful events or circumstances” (p. 89). This definition served as the conceptual foundation for the Response to Stress Questionnaire (RSQ) (Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000). The RSQ measures a broad range of coping responses to stress specific to adolescents.

The RSQ was developed in order to investigate various responses and coping strategies used by adolescents. Connor-Smith et al. (2001) use a multidimensional model to assess both voluntary and involuntary responses. They identify four specific domains of adolescent coping. These domains include engagement responses (directed toward a stressor or a reaction to a stressor), disengagement responses (typically considered avoidance), primary control coping strategies (attempts to alter the stressor or a response to a stressor), and secondary control coping strategies (considered adaptations to a stressor).

Conner-Smith and colleagues (2000) argue the four domains are interconnected with each other and also with voluntary/involuntary responses to stress, suggesting five factors with which adolescent coping can be measured. The five factors are 1) primary control engagement coping, 2) secondary control engagement coping, 3) disengagement coping, 4) involuntary engagement, and 5) involuntary disengagement.

The five factors are linked to sub-categories in order to effectively distinguish behaviors to coping stress responses, as shown later in Figures 1 and 2. For example, primary control engagement coping is distinguished by problem solving, emotional regulation, and emotional ex-

pression. Secondary control engagement coping includes subcategories of acceptance, distraction, cognitive restructuring, and positive thinking. Denial, avoidance, and wishful thinking all represent disengagement coping while involuntary engagement included rumination, intrusive thoughts, emotional arousal, physiological arousal, and impulsive action. Lastly, the involuntary disengagement factor included subcategories of emotional numbing, inaction, escape, and cognitive interference.

From a theoretical perspective, the model and associated measure (RSQ) used and developed by Connor-Smith et al., (2000) has excellent explanatory and predictive power. The RSQ provides a strong measurement foundation for research on adolescent coping. Connor-Smith et al., suggest future research on coping should examine social and economic contexts and be linked with intervention research. They suggest the development of domain specific coping skills will lead to a better understanding of coping and also provide a foundation from which measurement instruments can be constructed. For example, researchers studying Navajo adolescents used the RSQ; however, it was necessary to supplement the questions with additional information related to various scenarios not included in the original questionnaire. Adapting the questionnaire to relate more to Navajo adolescents was effective for producing increased reliability and validity (Wadsworth, Rieckmann, Benson, & Compas, 2004). Outdoor adventure is another crucial area where adolescents exhibit stress and would benefit from an adapted RSQ to demonstrate what is occurring.

## Outdoor Adventure

Outdoor adventure activities include both physical and psychosocial stress (Bunting, Tolson, Kuhn, Suarez, & Williams, 2000). The outdoor environment creates many demands, challenges, and risks (Bunting et al.). Rappelling for the first time, rafting down a Class IV rapid, starting a fire in the rain, and maintaining group morale while carrying a 50-pound pack for a week are just a few of the demands of participating in outdoor activities. Stress increases once interaction is initiated in a new environment or situation (Bijlsma & Loeschcke, 2005). In these situations, adolescents are forced to use active coping, instead of other alternatives, such as avoiding or accepting. Clarke's (2006) study suggests using active coping in a controllable situation is positively related to less externalizing problems and leads to enhanced social ability in adolescents. When the situation is out of the adolescents' control other approaches should be used.

Outdoor activities contribute to emotional, social, physical, and spiritual benefits (Finnicum & Zeiger, 1998). Several outdoor youth programs have seen these benefits of fostering growth, leadership, and education (Russell & Farnum, 2004). Programs have also produced higher self-efficacy (Propst & Koesler, 1998), lowered recidivism rates in adolescents with at-risk behaviors (Wilson & Lipsey, 2000), improved self-concept and leadership qualities (Hattie, Marsh, Neill, & Richards, 1997), identity development (Duerden et al., 2009), and increased internal locus of control (Hans, 2000). In addition to these benefits, the unique nature of outdoor adventure provides a context to help adolescents learn to face stressful situations and develop effective coping strategies. Guiding a raft through a class III rapid is a scary and stressful

proposition for an inexperienced adolescent. Yet, with the proper training and equipment, youth as young as 12 and 13 years old can learn to guide successfully. The process of learning provides meaningful opportunities to develop coping skills. Mountain biking, rock climbing, and canyoneering are other examples of outdoor adventures where youth may face stressful situations and learn to cope effectively and have increased coping efficacy. The experience and increased efficacy is likely to help youth cope effectively in other life areas as they move into adulthood, thus providing a potential significant benefit.

Clearly leisure programs can provide benefits including empowerment, instilling a positive outlook on life, and learning effective skills to cope with constraints and challenges (Iwasaki & Schneider, 2003). Although the literature discusses these benefits, little research exists on how adolescents respond to stress in outdoor adventure situations (Hutchinson, Baldwin, & Oh, 2006). In order to increase our understanding of the effectiveness of this type of programming to promote coping skills, sound measurement tools are needed. As the outdoor adventure and adventure/wilderness therapy industry continues to grow, and becomes more clinically focused, it is imperative scholars effectively measure how these activities and programs are helping adolescents develop the ability to cope with stress.

### **Assessment**

Addressing the need for refined measurements in research is essential for advancement in adolescent coping (Compas et al., 2001). The need exists for accurate and standardized measurements for building strong links within the coping research. A sound research instru-

ment may have practical applications in therapeutic recreation and wilderness and adventure therapy programs focused on promoting coping skills among adolescents.

**Existing measurements.** The majority of stress and coping measures were developed for adults; few measurements exist for adolescents. The few measures developed for adolescent stress and coping lack credibility due to poor reliability and validity (Leong & Oehler Stinnett, 1993; Stake, 1986).

Currently, Connor-Smith et al. (2000) have a well-developed measurement called the Response to Stress Questionnaire (RSQ) for assessing coping and involuntary stress responses in adolescents for social situations. Connor-Smith et al., stress the importance of measurements assessing coping and stress within specific domains. Developing assessments for each domain (e.g., engagement responses, disengagement responses, primary control coping strategies, and secondary control coping strategies) will provide a deeper level of understanding and be more reliable for inferences. To increase the reliability and validity of this instrument for outdoor adventure activities, the measurement was adapted to stressors experienced specifically in the outdoors by adolescents in adventure therapy programs.

Therefore, the purpose of this study was to provide a better assessment of adolescent reaction to and coping with stress in outdoor adventure activities. The study adapted an existing measure of coping skills to measure adolescent coping in therapeutic recreation and outdoor adventure contexts. Evidence about reliability and structural validity was gathered. It is hoped this instrument will provide a foundation for scholars and practitioners to better understand adolescent stress re-

sponse and coping, while providing an improved, reliable, and valid measurement tool.

## Methods

The RSQ adaptation first identified key stressors in wilderness and adventure therapy. We then adapted items and reviewed the items for content validity. The new “RSQ-OAV” was then administered to a sample and analyzed to examine the reliability of inferences and structural validity, as described in greater detail below.

### Instrumentation

The adaptation of the RSQ to the RSQ-OAV, after obtaining permission from an original author, began with exploratory research to identify key outdoor stressors in adventure therapy contexts. To adapt the RSQ to therapeutic recreation and wilderness adventure contexts, 35 adolescents in an adventure therapy program were asked to identify key stressors in the outdoor adventure experiences. They were then asked to rate stressors. Fifty-six stressors were identified in this process. Of these 56 stressors, the 10 with the highest ratings were integrated into the original RSQ domains to represent stress in adventure settings. These stressors included “frustration with others in the group,” “being out of their comfort zone,” “peers refusing to complete activities,” “preparing and cooking food,” “thinking about reuniting with parents,” “fear of getting injury,” “equipment failure,” “physical challenge,” “outdoor activities,” and “weather.”

The items in the RSQ-OAV were designed to focus on the construct of interest, “responses to stress,” however, a number of items provide examples of more than one stressful context. Although these may appear to be double

barreled, this format is patterned after the original instrument and we argue no additional error variation is introduced by these examples, as each item is focused on a stressful context within the outdoors adventure examples provided. Therefore, while questions may appear on the face to be double barreled, they are in actuality providing examples of stressors in an effort to provide contexts for adolescents to think about their individual stress response and coping strategy. Again, we give various examples to set the stage for the adolescent’s specific response to ensure increased reliability. Alpha reliability estimates provide evidence supporting our claim that the additional examples do not appear to introduce error variation compromising internal consistency.

Once the items were adapted, a panel consisting of wilderness and adventure therapy and test construction experts reviewed the items for content-related evidence of validity (Sylvester et al., 2001). This panel used an item map from the original RSQ to organize and evaluate the item pool. Based on definition of the construct and key stressors, the expert panel examined items for representativeness, relevance, wording, readability, clarity and to ensure items were not double barreled (Messick, 1989; Sylvester et al., p. 22).

The RSQ-OAV consists of 59 items using a combination of Likert scales, checklists, and open-ended questions (see Table 1). The first question is used to frame the following questions by presenting a checklist of the top 10 outdoor stressors. The respondents use the checklist to identify the stressors they experience in the program. Then participants reflect on these stressors and describe their responses and coping mechanisms as they answer the remaining questions. After this initial question, the question-

**Table 1***Examples of Adaptation of RSQ to RSQ-Outdoor Adventure Version (RSQ-OAV) Questions*


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RSQ	12. I get really jumpy when I'm having problems getting along with other kids.
RSQ-OAV	12. I get really jumpy when I'm frustrated with the group or have difficulty with an activity or problem.
RSQ	26. When I have problems with other kids, I feel it in my body.
RSQ-OAV	26. When I am out of my comfort zone or am frustrated with other kids in my program, I feel it in my body.
RSQ	30. I think about happy things to take my mind off the problem or how I'm feeling.
RSQ-OAV	30. I think about happy things to take my mind off the bad weather, scary activities, or problems with group members.
RSQ	40. When I have problems with other kids I can't stop thinking about what I did or said.
RSQ-OAV	40. When I have problems with the adventure activity or other kids in my group I can't stop thinking about what I did or said.
RSQ	55. When a rough situation with other kids happens, I can get so upset that I can't remember what happened or what I did.
RSQ-OAV	55. When a kid in my program refuses to complete an activity and holds back the group, I can get so upset that I can't remember what happened or what I did.

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naire primarily uses a Likert scale ranging from 1-4 to describe the amount of stress involved (i.e., 1 being no stress and 4 being a lot of stress) in various outdoor situations. Incorporated within the scaled items are additional checklists and open-ended questions. For example, one scaled item asks participants to think of different strategies to address their problems and afterward, in an open ended question, invites them to write a plan. Other checklists are used in a similar fashion to frame responses.

Additional checklists address emotional regulation strategies (i.e., writing in journal, complaining, talking with staff, etc.), and how respondents display physiological responses (i.e., heart races, breathing increases, butterflies in stom-

ach, etc.), control actions (i.e., can't stop eating, doing dangerous things, rebel, etc.), and demonstrate inward emotions (i.e., anger, sadness, anxiety, etc.). All items address variables of involuntary stress responses and voluntary coping; these responses help practitioners to better serve adolescents within their program and also may provide researchers a foundation to evaluate the effectiveness of adventure/wilderness programs.

### **Data Collection**

Subsequent to the examination of content validity, the RSQ-OAV was formatted into a paper and pencil questionnaire. A purposive sampling procedure was used in an effort to gather data from a wide range of adolescent functioning

(Babbie, 2007). The RSQ-OAV was administered to students in a traditional high school and an alternative high school, as well as in an adventure/wilderness therapy program ( $N=144$ ). Participants completed the questionnaire in 20 to 30 minutes. The questionnaires were collected and the data were entered into SPSS v.20 and cleaned in preparation for analysis.

## Data Analysis

Results were analyzed to evaluate the reliability and validity of inferences of the measure. Like previous studies with coping, the assessment was tested against itself for discriminate and convergent evidence of validity (Connor-Smith et al., 2000). For example, the questions related to primary control should all correlate with each other (convergent validity) and not correlate with the secondary control items (discriminate validity).

Specifically, data for the RSQ-OAV were analyzed in two steps. First, alpha reliability estimates were calculated for the RSQ-OAV. The estimate was calculated for the whole sample. Alpha-if-item deleted analysis was performed to identify any items that introduced higher levels of error variation. Conner-Smith et al. (2001), in initial studies of the RSQ, report internal consistency estimates using Cronbach's Alpha (Cronbach, 1990) for the five factors ranging from .63-.85 (Mean ( $\alpha$ ) = .75). Test-retest reliability estimates ranged from .69-.81 (mean  $r$  = .77) when administered 1-2 weeks apart. Structural validity of the model was tested for adequate fit using confirmatory factor analysis, resulting in a CFI = .92 and RMSEA = .09.

In order to examine evidence supporting construct-related evidence of validity, a confirmatory factor analysis was used to determine if the latent structure of

the instrument was in harmony with the theorized domains. As recommended by Kline (2005), a variety of conservative model fit indices were examined to evaluate overall factor structure fit. Tests of factor structure first used the chi-square test. With such a large sample size, a non-significant chi-square statistic is unlikely (Kline) and a significant chi-square test is typically not used to reject a model. To account for the large sample size, a  $\chi^2 / df$  ratio was examined. Second, the comparative fit index (CFI) was considered to evaluate the model's absolute or parsimonious fit relative to the null or hypothetical model. For CFI, an index score of .95 or greater is desired for good model fit. Last, the root mean square error of approximation (RMSEA) was considered to assess fit based on the magnitude of the residuals. Using RMSEA, an index score of .08 or less is desired for good model fit.

## Results

### Demographics

Sociodemographic data were collected from the adolescents to identify the underlying characteristics of the sample. The sample ( $N = 144$ ) consisted of 78 (54%) males and 66 (46%) females aged between 13 and 17 years old ( $M = 15.54$ ,  $SD = 1.33$ ) drawn from three different schools/programs: a public high school (49%); a private therapeutic high school (42%); and an adventure therapy program (9%). The majority of the participants were White (49.3%) or Asian/Pacific Islander (36.1%).

### Instrument Characteristics

The RSQ-OAV had a total of 59 questions, excluding demographic questions. The items were all based on the original model of the RSQ and incorporated in-

formation about stress responses and coping behaviors (see Table 1). On average, the adolescents took between 20-30 minutes to complete the questionnaire.

### Reliability

Conner-Smith et al. (2001), in initial studies of the RSQ, report internal consistency estimates using Cronbach's Alpha (Cronbach, 1990) for the five factors ranging from .63-.85 (mean ( $\alpha$ ) = .75). Test-retest reliability estimates ranged from .69-.81 (mean  $r$  = .77) when administered 1–2 weeks apart. The RSQ-OAV reliability analysis resulted in an internal consistency estimate of  $\alpha$  = .91 ( $n$ =144) providing strong evidence of internal consistency after adapting the original instrument to wilderness and adventure settings.

### Confirmatory Factor Analyses

In the original work by Conner-Smith et al. (2001), structural validity of the model was tested for adequate fit using confirmatory factor analysis, re-

sulting in a CFI = .92 and RMSEA = .09. The current study replicated this analysis with Maximum-likelihood confirmatory factor analyses (CFA) using Amos 18 to test the hypothesized model of voluntary and involuntary responses to stress. The assessment was analyzed in separate tests for the voluntary and involuntary portions (see Figures 1 and 2). The researchers began testing the voluntary coping responses, including Engagement Coping and Disengagement Coping. Primary and Secondary Control are two sub-groups measured under the Engagement Coping variable. Primary Control Engagement included items on problem solving, emotional expression, and emotional regulation. Secondary Control Engagement included items on cognitive restructuring, positive thinking, acceptance, and distraction. Disengagement Coping included denial, avoidance, and wishful thinking. Engagement and disengagement were allowed to correlate with each other.

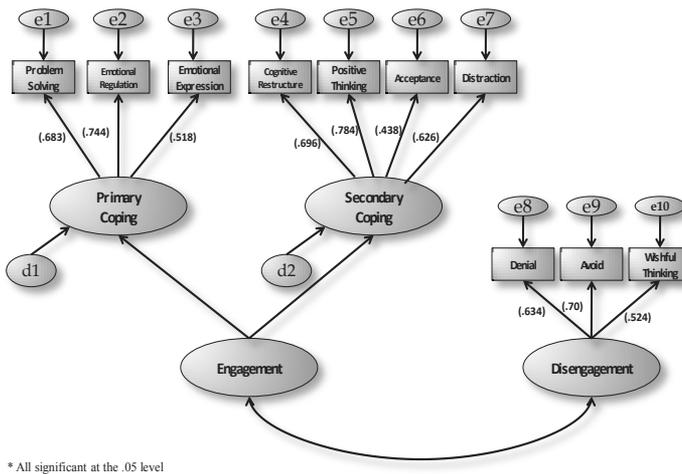
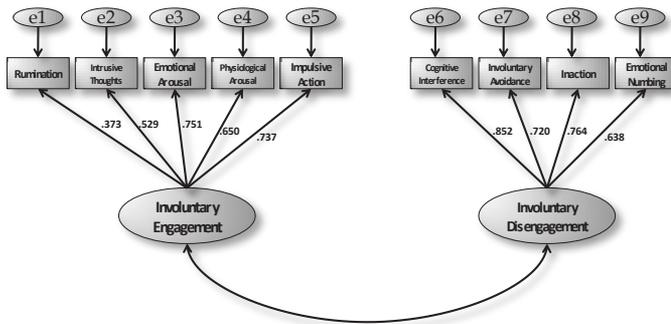


Figure 1. Factor Analysis: Voluntary Coping



\* All significant at the .05 level

**Figure 2. Factor Analysis: Involuntary Coping**

Results of the model testing indicated that all factors strongly positively loaded with the corresponding latent variable. The model presented in Figure 1 was an adequate fit to the data for the outdoor adventure version of the RSQ ( $\chi^2(32, N = 144) = 51.163, p < .017, CFI = .94, RMSEA = .065$ ). Although other modifications could have been made or other correlating error terms added, these modifications would not have added to the overall structure of the model or validated the theory. Therefore, no modifications were made.

**Involuntary responses to stress.** A two-factor model was analyzed for involuntary responses to stress. The model included involuntary engagement and involuntary disengagement. Involuntary engagement consisted of rumination, intrusive thoughts, emotional arousal, physiologic arousal, and impulsive action. Involuntary disengagement included cognitive interference, involuntary avoidance, inaction, and emotional numbing (see Figure 2). This model was an adequate fit to the data ( $\chi^2(36.37, N =$

$144) = 36.373, p < .085, CFI = .98, RMSEA = .53$ ).

## Discussion

The results of this study represent a successful attempt to develop a domain specific coping measure for adolescents focusing on the therapeutic use of wilderness and adventure settings. The RSQ-OAV has 59 questions and takes 20 to 30 minutes to complete. Items were adapted successfully from the original RSQ and included responses consisting of Likert scales and checklists. Adolescents identified stressful situations on a checklist and responded to these scenarios on Likert scales on the RSQ-OAV. Other checklists are used to further identify specific responses to stress and coping strategies. The RSQ-OAV demonstrated a strong internal consistency. In addition, the assessment demonstrated appropriate factorial validity, with all items loading appropriately and strongly within the hypothesized five-factor structure. The results of this study indicate initial success in the development of the RSQ-OAV.

Stress receives attention from several fields of research. Scholars are concerned with the increasing negative effects of stress, especially in the areas of emotion, health, and behavior (Lohman & Jarvis, 2000; McEwen, 2000). Adolescents are among those struggling with stress and the negative consequences. High levels of stress and inability to cope produces psychological distress among many adolescents (Compas et al., 2001). The ability to measure stress in adolescents is important to both research and practice. Compas et al., suggests few if any reliable and valid assessments of adolescent coping are available to researchers and practitioners.

Until now, no reliable and valid assessment existed to measure coping in the outdoor adventure setting. The RSQ-OAV may allow practitioners and researchers to gain greater understanding of coping and adventure/wilderness interventions, and the impact the programs have on participants. The inherent physical demands and risk involved in outdoor adventures allow adolescents to experience heightened stress and provide opportunities to learn meaningful coping strategies. Measuring the effectiveness of these programs to enhance adolescent coping will allow researchers and practitioners to build theory in this area and develop more effective programming. The RSQ-OAV could potentially compare traditional coping skills programs with wilderness/adventure programs by using both the RSQ in traditional settings and the RSQ-OAV in wilderness/adventure program settings.

Several practical implications exist for the RSQ-OAV. The RSQ-OAV is applicable for practitioners to use in outdoor therapeutic recreation settings as well as wilderness and adventure therapy programs. The questionnaire is related

directly to the practices and stresses in the outdoors. A concerted effort should be made to develop norms. The current study included a sample representing middle-class White youth from the western United States, and youth representing Asian-Pacific Islanders. Normative data should be gathered to represent other groups including Latino youth, Black or African American youth and adolescents from other areas of the United States and even other countries.

After developing norms for program participants, the RSQ-OAV could be used to identify the level of coping skills and structure programs accordingly. Program participants who demonstrate high levels of coping skills can be grouped with individuals who demonstrate low levels of coping skills. This would allow staff to identify appropriate coping behavior in the high functioning individuals as a source of vicarious experience (Bandura, 1997). For individuals with low coping ability, this modeling provides important efficacy information and an example of effective coping.

The RSQ-OAV could also be used as an outcome measure to evaluate program effectiveness at promoting coping skills. By using a pre-post design, agencies can determine to what extent the participants' ability to cope with stress has changed. More specifically, researchers and practitioners can potentially use pre-post measures or repeated designs to examine specific contexts or situations in therapeutic recreation and wilderness and adventure therapy contexts. The RSQ-OAV may allow researchers to determine if some therapeutic recreation programs and experiences are more effective than other experiences at promoting coping skills. The RSQ-OAV has the potential to allow both researchers and practitioners to begin to address these kinds of questions

and potentially develop more effective programming to promote coping skills in adventure based outdoor therapeutic recreation programs. The data may also be a source of information regarding a program's efficacy for parents seeking placement for their children.

By identifying program participants with low coping skills, therapeutic recreation specialists can develop more individualized programming within wilderness/adventure contexts. Individualized programming can enhance the overall program effectiveness.

One additional application for the RSQ-OAV is the role it could play in the positive youth development movement. Currently the area of positive youth development is receiving a great deal of attention. Researchers are moving away from deficit or pathology models, to focus instead on programs and environments that promote healthy development (Witt & Caldwell, 2005; Larson, 2000). The adaptation of this instrument could help initiate the study of stress/coping in the positive youth development movement.

### **Limitations and Recommendations for Future Research**

This study provides initial reliability and factorial validity information about the RSQ-OAV. Although the RSQ-OAV demonstrates positive results, more reliability and validity studies are needed to gather further evidence regarding the soundness of inferences made from the instrument. While more results are being established, the RSQ-OAV is already established on a foundation of the RSQ assessment. The RSQ has sound validity and reliability and the initial study of the RSQ-OAV has also demonstrated reliability and validity. Therefore, prac-

tioners are able to use the RSQ-OAV currently while more studies are being performed. In addition to more reliability and validity studies, larger and more diverse samples will provide key normative data to help practitioners interpret scores.

The researchers did not perform criterion-related validity studies, or direct tests of construct validity, such as known group studies. Future studies may address these issues. Further reliability evidence may employ test-retest or split half methods. This initial research is limited to 13- to 17-year-old adolescents in high school, treatment centers, and wilderness adventure programs. It may also be useful to specifically evaluate the use of multiple stressor examples in items. It does not appear to introduce error variation, but the wording is indeed similar to double barreled questions. Although the sample represents substantial diversity, Latino and Black/African American groups are underrepresented, thus limiting the generalizability of findings to these groups. Consequently, data should be gathered to determine if norms vary across race and other demographic variables such as age, gender, and socioeconomic status. The establishment of norms may also help practitioners determine if specific clients struggle with the ability to cope with stress.

### **Conclusion**

The RSQ is an established measure of adolescent coping. This study represents an effort to adapt this measure for applications in therapeutic recreation and wilderness and adventure settings. The modified instrument, the RSQ-OAV, may provide a useful tool for scholars interested in studying coping and stress in therapeutic recreation and wilderness/adventure contexts. The unique set of stressors associated with wilderness,

and adventure and the novelty inherent in such programs, has the potential to introduce high levels of stress in a controlled environment. Adolescents may be taught coping strategies that can then be applied in these settings. As they learn to deal with stress in the outdoors, their

coping skills and efficacy should increase and can be systematically generalized to school, home and work settings. This may provide important and meaningful benefits to adolescents as they negotiate the complexities of becoming an adult.

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