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# Exploring the Benefits of an Outdoor Adventure Program for Improving Self-Esteem and Self-Efficacy and Reducing Problem Behaviors in Adolescent Girls

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# EXPLORING THE BENEFITS OF AN OUTDOOR ADVENTURE PROGRAM FOR IMPROVING SELF-ESTEEM AND SELF-EFFICACY AND REDUCING PROBLEM BEHAVIORS IN ADOLESCENT GIRLS

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The study assessed change in self-efficacy, self-esteem, and problem behaviors from pre-treatment to post-treatment and at 6-month follow-up for adolescent girls enrolled in an outdoor adventure program. Family security and previous program experience were also considered. Participants included 62 girls (ages 10 – 18) from diverse ethnic and SES backgrounds (the majority were Euro American from middle class backgrounds). As expected, problem behaviors were negatively correlated with self-esteem throughout the trip; they were negatively correlated with self-efficacy at 6-month follow-up. Girls from "higher security" families reported significantly higher levels of self-esteem ($p <$ .05) and fewer problem behaviors ($p <$ .01) than girls from "lower security" families. A principal components analysis (PCA) was run to review test properties of one of the study measures, the modified General Self-Efficacy Scales. Limitations of the study, including low power and few statistically significant results, are discussed.

# Dedication

I dedicate this work to the many wonderful women who have supported and inspired me through this tortuous process: To my mother and Aunt Terri, who both taught me early that women belong in the outdoors. For my remarkable sister-friends, Beth, Bridgett, Dawn, Dyana, Michelle O., Michelle PV, Shelley, and Susie. Maybe I could have done it without you, but there would have been a lot more tissues (and far fewer bottles of wine) along the way!

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Since Roszak, Gomes, and Kanner (1995) published their seminal book, *Ecopsychology,* it has been referenced by various scientist-practitioners for its thorough explanation of ecopsychological theory, thought, and research (e.g., Burns, 1998; Conn, 1998; Metzner, 1999). The basic premise of ecopsychology is that humans are just part of a much larger ecological context. It is a perspective that emphasizes people's connections to the natural world as an important feature of mental and environmental health (Burns, 2000; Conn, 1998). Conn (1998) emphasized the link between the environment and psychology in the following way:

> The theoretical base of ecopsychology sees the earth as a living system. Human beings, their psyches as well as their products and cultures, are integral and crucial parts of that system. The practice of ecopsychology is based on the recognitions that the needs of the earth and the needs of the human individual are interdependent and interconnected and that human health and sanity must include sustainable and mutually-enhancing relations with the natural world. (p. 180)

Scientists, writers, and artists from various disciplines have emphasized the necessity of nurturing the relationship between humans and the ecosystems in which they exist. Henry David Thoreau and Ralph Waldo Emerson are famous for their writings about nature as a spring of spiritual rejuvenation, clarity, and inspiration. John Muir said,

> Thousands of tired, nerve shaken, overcivilized people are beginning to find out that going to the mountains is going home… and that mountain parks and

> reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life. (as cited in Hendee & Pitstick, 1993, p. 1)

Aldo Leopold argued that the roots of American individualism lay in the early pioneer experience. He asserted that preservation of wild lands was necessary to ensure the continuation of independent ideals so essential to the American experience. Bob Marshall endorsed the mental, physical, and aesthetic advantages of wilderness, as well as the opportunities it provided for individuals to prove their autonomy in ways that they could not in more sterile, "civilized" settings. It was his premise that humans had a better chance at developing free-thinking, eminent ideas away from the influence of modern society (as cited in Hendee & Pitstick, 1993).

Conventional psychological thinkers have also done their parts to emphasize the important connection between nature and the mind. Over 20 years ago, Jay Haley published a chapter entitled *Using the Great Outdoors.* His fellow strategic family therapist, Milton Erickson, frequently advised his clients to engage in nature-oriented tasks (e.g., mountain climbing, desert hiking, gardening, or simply observing ecological surroundings) (as cited in Burns, 2000, p. 186). Mental health researchers and practitioners are growing increasingly interested in the potential benefits to be gained by inviting clients to take a break from the therapy couch and step out onto a mountain trail, river, or rock wall (e.g., Metzner, 1999; Plotkin, 2003; Roszak, 2001; Roszak, Gomes, & Kanner, 1995).

**History of Wilderness Experience Programs**

Outward Bound was one of the first organizations to explore the effects of outdoor adventures on the human psyche. This pioneering program was introduced in

Great Britain in 1941, and espoused the values of "self-reliance, responsibility, teamwork, confidence, compassion, environmental and community stewardship" (Outward Bound USA, n.d.). Outward Bound has spawned a variety of "adventure-based" groups that use outdoor experiences to address personal growth, therapeutic needs, and general inspiration. Hendee and Pitstick (1993) have categorized such programs as "(1) *catered trips* to wilderness and wild rivers offered by outfitters and guides; (2) *outdoor adventure training* for executives and organizations; (3) *adventure education* programs aimed at growth of individuals; and (4) *wilderness therapy* programs aimed directly at special populations seeking recovery and empowerment" (p. 2). This study will focus on a specific adventure education program based in Missoula, Montana, as well as discuss how the varying types of outdoor programs overlap and what implications this overlap might have for the burgeoning fields of ecopsychology and wilderness therapy.

**Wilderness Therapy**

Of Hendee and Pitstick's (1993) four aforementioned types of wilderness programs, wilderness therapy groups have perhaps received the most attention for their efforts to help at-risk adolescents with histories of substance abuse, court adjudication, and various delinquent behaviors (see Gass, 1993 for a thorough review of these types of applications). Such approaches are in their infancy, but have roots in well-established therapy schools (e.g., systems theory, solution-focused therapy, and experiential therapy) (Bandoroff & Scherer, 1994; Burg, 2000; Burns, 2000; Gillis & Gass, 1993). Some programs place more emphasis on the *adventure* aspect of wilderness therapy, incorporating high ropes courses or solo desert backpacking trips (e.g., Bandoroff &

Scherer, 1994), whereas others integrate nature through gentler means, such as meditating on a beautiful ocean view or sitting under a tree in a neighborhood park (e.g., Conn, 1998).

Outdoor adventure programs are becoming increasingly common as intervention and treatment tools for adolescents (Bandoroff & Scherer, 1994; Russell & Hendee, 2000). The benefits touted by these programs include increased self-sufficiency, cooperation with others, responsibility, and community involvement and reductions in substance abuse, court adjudication, and various delinquent behaviors (Gass, 1993; Outward Bound USA, n.d). Research on outdoor adventure programs has included examination of changes in the following dependent variables: self-concept, self-esteem, social attitudes and behavior, relationship development, physical health, emotional problems, criminal recidivism, locus of control, outdoor recreation skills, trait anxiety, quality of life, long-term influences on lifestyle, and stereotypical attitudes toward others, typically with beneficial results for participants (Anderson, Schleien, McAvoy, Lais, & Seligmann, 1997; Berman & Davis-Berman, 1989; Ewert, 1989; Hunter, 1987; McAvoy, Schatz, Stutz, Schleien, & Lais, 1989; Schleien, Fahnestock, Green, & Rynders, 1990).

A Psyclit search of outdoor behavioral therapy research quickly reveals that The University of Idaho's Wilderness Research Center (WRC) is the leader in conducting the most rigorous scientific research on wilderness therapy and adventure programs (e.g., Moore & Russell, 2002; Russell, 2002; Russell & Hendee, 2000). In 2002, WRC affiliates created an annotated list of wilderness therapy research-based literature produced from pre-1995 to 2001, for a total of 247 pieces of research. These works included published articles and unpublished theses and dissertations and were separated

by research category (i.e., experimental or quasi experimental; comparative analysis; internal comparison; qualitative analysis; program evaluation or description; subjective evaluation; evaluation of research or knowledge; proposed model or explanation; books or reference books; and unable to identify). The authors noted increased scientific rigor, accompanied by amplified publication in scientific, peer-reviewed journals, between 1996 and 2001 (Moore & Russell, 2002).

Wilderness therapy (WT) has been praised as a treatment for adolescents who are withdrawn and depressed, as well as for those who act out rebelliously. For the former group, vigorous physical activity and cooperation, communication, and group-problem solving (all inherent aspects of group outdoor adventure programs) are seen as inherently oppositional to depression and withdrawal. For members of the latter group (i.e., defiant adolescents), the natural consequences of wilderness experiences are thought to be more effective than delayed consequences more commonly found in their home communities. For example, teamwork and forethought are more likely to keep an individual dry and safe in a wilderness rainstorm, whereas rebelliousness or poor planning (e.g., not listening to instructions on setting up a tent) are likely to be punished immediately. Well-respected WT pioneers Berman and Davis-Berman have found, "[The] breakdown of defense mechanisms has generally led to more rapid change in participants than one would expect to see in a more traditional therapeutic setting. Physical fatigue, coupled with a renewed openness to new experiences, appears to facilitate change and risk taking in this setting" (Berman & Davis-Berman, 1989, p. 73).

There is no "one right way" to conduct wilderness therapy. Approaches vary depending on the therapist and clients. Psychiatric residents at the University of

Minnesota Medical School developed one of the first wilderness training programs targeted at family therapy. They used rock climbing, backpacking, dog sledding, cross-country skiing, winter camping, rafting, canoeing, sailing, and bicycling as vehicles for clearly outlined therapeutic interventions. The model involved family participation in these activities, followed by participant feedback. The clinicians emphasized the value of wilderness experiences because they contained or encouraged the following principles: *immediate feedback* (e.g., while canoeing with a partner), *trust* (e.g., as exemplified in a climber-belayer relationship), *real versus perceived fear* (e.g., fear of falling off a cliff versus fear of failing in a family context), *eustress* (i.e., the positive use of stress, which can elicit a sense of self-efficacy when overcome), *physiological empathy* (i.e., when a cared-for person is placed in a potentially dangerous situation, empathic feelings are naturally elicited), and *gender equality* (e.g., as exhibited by one man's statement, "Gee, everyone's equal on the rocks!" (p. 96) (Mason, 1987).

Other wilderness therapists have focused on the importance of metaphors (e.g., "The struggle to get over that wall is like getting over Jill's drug problem"), post-activity processing sessions, action-oriented (versus talking-oriented) therapy, novel environments, observable assessment information (i.e., family interactions are observed as they happen), support through a small-group format, focus on solutions and successful behaviors (as opposed to dysfunctional family patterns), and the significance of the role of the therapist (Bandoroff & Scherer, 1994; Gillis & Gass, 1993).

Bandoroff and Scherer (1994) have implemented a typical adventure therapy intervention, which they call "The Family Wheel." In their pilot study, adolescents were mainly referred by parents for substance abuse, behavior problems, delinquent activity,

and poor school performance. The participants were representative of many adventure therapy clients in that they were predominantly male (65%) and Caucasian (90%). After completing a 21-day survival expedition (with the last 3 days spent on a solo trip), adolescents were joined by their parents for 3 days of wilderness backpacking and individual and family therapy. Using instruments of their own creation (i.e., a 15-question, Likert-scale *Family Wheel Evaluation)* and "a variety of validated and normed measures" (i.e., *The Family Assessment Measure III, The Self-Reported Delinquency Checklist, The Revised Behavior Problem Checklist,* and *The Self-Description Questionnaire III)* (p. 182), both parents and adolescents reported improved communication, relationship skills, and enhanced adolescent self-concept. At follow up (which occurred after an unspecified time period), they also reported reduced problem behavior and delinquency in the adolescents. Although this study represented one of the earliest efforts to use scientifically well-established measures to assess the results of a wilderness therapy program, it still included statistical and design problems (e.g., no *p*-level description, no explanation of the length of time elapsed between treatment and follow-up, and a confusing translation of data findings).

Outdoor therapy has been largely untested on ethnic minorities and underprivileged children (in part because such programs are frequently expensive and not covered by insurance companies) (Beavers and Hampton, as cited in Bandoroff & Scherer, 1994; C. Fiore, personal communication, May 9, 2004). However, at least one study has suggested that outdoor education leads to improved race relations between children and adolescents (Senior, as cited in Crompton & Sellar, 1981).

There are a multiple findings that suggest the effectiveness of outdoor therapies. Bandoroff and Scherer's (1994) Family Wheel program received enthusiastic responses from both adolescent and caretaker participants. Upon completion of the program, one individual shared, "This program … help[ed] our family to reach out and slowly rebuild… progress[ing] from basic trust to negotiating a contract… an amazing feat for our previously dysfunctional family" (pp. 186-187). In one of the more methodologically rigorous studies in the field[1], Hickmon, Protinsky, and Singh (1997) found that married couples that participated in adventure therapy showed significantly higher improvements in marital intimacy than did those in a no-treatment control group.

Adventure therapy has been correlated with increases in participant self-esteem, trust, communication, problem solving, self-concept, internal locus of control, confidence, self-reliance, and partner intimacy (as reviewed by Crompton & Sellar, 1981, pp. 22-23; Gillis & Gass, 1993, pp. 276-277; Hickmon et al., 1997). Given the continuing publication of books and peer-reviewed journal articles on recreational therapy, it seems evident that academicians, clinicians, and laypersons are curious about the benefits of integrating nature into individual and family therapies.

**Adventure Education and Recreation Programs**

Though wilderness therapy has received the lion's share of research (Friese, Pittman, & Hendee, 1995; Moore & Russell, 2002), one must remember Hendee and Pitstick's (1993) acknowledgement of other categories of wilderness programs. Outdoor adventure courses are not limited to at-risk or troubled therapy clients. They have also

[1] The authors utilized random assignment to one of two treatment groups or a non-treatment control group. Pre-and post-treatment assessments were conducted using *The Waring Intimacy Questionnaire,* the *Participants' Self-Rating of Intimacy Scale,* and the *Intimacy Change Rating Scale.* Analysis of covariance (ANCOVA) was used to examine differences between all three groups of participants, with all results and significance levels explained in careful detail.

been used in early intervention, prevention, and growth contexts with varied populations, including high-functioning persons. For example, Outward Bound has historically been perceived as an "enrichment program" rather than one targeted at intervention (Berman & Davis-Berman, 1989). Anderson et al. (1997) have found benefits of integrated outdoor adventure programs for non-disabled adults participating alongside men and women who did have mental and physical disabilities.

Crompton and Sellars' (1981) metaanalysis, one of the first of these types of studies applied to outdoor education experience programs, suggested that such programs lead to enhanced self-concept, improved peer socialization and racial integration, and better relationships between teachers and students. However, the authors admitted, "These general conclusions remain very tentative for at least two reasons." First, they drew their results from the evaluation of only 11 empirical studies. Second, these studies often suffered from methodological problems (e.g., design problems, immediate post-tests with no longitudinal follow-up, small and/or unrepresentative samples, and untested reliability and validity of assessment measurements). It should be noted that later metanalyses have found similarly positive outcomes for outdoor adventure and education programs (e.g., Hattie, Marsh, Neill, & Richards, 1997; Wilson & Lipsey, 2000).

As early as the late 1960s, researchers were able to isolate at least three different categories of outdoor education: (1) *environment-oriented education*, which viewed wilderness as a medium for learning; (2) *conservation-oriented education,* which focused on outdoor education as a means to build increased conservation awareness and sensitivity; and (3) *activity-oriented education,* which involved physically-stimulating

outdoor activity (Horn, 1969). This study will examine a program that encompasses elements of all three types of program.

Girls Using Their Strengths (GUTS!) is an outdoor adventure program based in Missoula, Montana that promotes itself as "an educational project that teaches leadership skills and builds self-esteem in girls, ages 11-17" through the use of "week-long Summer Outdoor Adventures that include activities such as climbing, rafting, backpacking, and hiking" (information taken from the GUTS! website, found at www.womenandenvironment.org/guts). The program attempts to use wilderness experiences and positive adult female role models to preserve and increase self-efficacy, self-esteem, and leadership in its participants.

**Self-Efficacy**

In the agentic social cognitive theory of personality development, humans are perceived as self-organizing, introspective, self-directing beings rather than organisms who simply react to environmental cues. Bandura has stated, "To be agentic is to be an intentional doer selecting, constructing, and regulating one's own activity to realize certain outcomes" (Bandura, 1999, p. 154; Bandura, 1997). People have the ability to influence and choose personal actions to help elicit desirable outcomes, though the degree to which individuals believe in this ability varies from person to person.

A commonly reported goal of adventure education is to increase participant self-efficacy, which is defined as *belief about one's ability to act in a manner that will elicit desirable outcomes*. Efficacy belief has been promoted as a primary motivating factor in human behavior. Belief about one's ability to accomplish a task or achieve a desired change is what drives individuals to develop a sense of personal agency. Without the

belief that they can choose actions that will produce desirable results, people have little reason to persist when confronted by challenges (Bandura, 1997; Bandura, 1999; Bandura, Pastorelli, Barbaranelli, & Caprara, 1999).

Self-efficacy beliefs are developed from four main sources of information: (1) *mastery experiences,* (2) *vicarious experiences,* (3) *social persuasion,* and (4) *physical and emotional states.* Among these, the first appears to be the most important source of influence on self-efficacy. *Mastery experiences* are obtained by approaching problems in consecutive, manageable steps. Successes lead to a vigorous belief in perceived self-efficacy, whereas failures (particularly in earlier stages of self-development) weaken it. Additionally, if successes are achieved only at easy tasks, it is likely that later failures will result in quick disappointment and disinterest in continuing. Durable self-efficacy is cultivated through progressive successes in manageable, but increasingly difficult, experiences (Bandura, 1999).

Wilderness therapists have endorsed this principle by emphasizing the importance of "a series of challenges which incrementally increase in difficulty, are high in perceived risk, and low in actual risk [so as not to endanger the participant]" (Kimball & Bacon, as cited in Russell, 2001c, p. 71). GUTS! introduces mastery experiences to its participants in a variety of activities. For example, one of the initial actions many of the girls engage in is rock climbing. Climbing is an activity that is perceived by many as frightening, but which actually presents little risk when standard safety practices are followed. Additionally, climbing has the ability to offer challenges to both novices and veterans of the sport.

The second approach to developing self-efficacy beliefs is through *vicarious experiences*, or the observation of others achieving success through sustained efforts. For this method to be most effective, observers must perceive the observed as like them and successful. Viewing the failures of others is likely to lead to misgivings about one's own ability to do well. Proficient models promote efficacy by relaying knowledge and skills for responding to likely difficulties (Bandura, 1999).

Adventure programs are most frequently conducted in group contexts, which allow individuals to observe growth in others while also acting as models for their peers (Kimball & Bacon, 1993; Russell, 2001c). GUTS! conducts a total of five outdoor adventure groups each summer. Groups are categorized by age and ability (i.e., 11-13 year-old Beginners, 11-13 year-old Advanced, 14-17 year-old Beginners, and 14-17 year-old Advanced), which increases the likelihood that girls will relate to each other as equals and experience similar levels of success and failure. Simultaneously, adult leaders act as models for the girls by sharing experience and skills about the specific tasks at hand.

*Social persuasion*, the third mode of increasing self-efficacy beliefs, relies on active efforts to convince individuals that they possess qualities necessary to achieve success. When people receive such encouragement, they put forth more effort and stick with tasks longer than if they dwell on self-doubts and personal deficits. The best social persuaders also create situations in which individuals are likely to feel challenged, yet still have a high chance at success (Bandura, 1999).

Davis-Berman and Berman (1994) have stressed the necessity of having skilled mentors act as leaders in outdoor adventure pursuits. Such leaders are in a position to engage in social persuasion by encouraging participants to continue in spite of self-doubts

that might otherwise dissuade them from pushing through difficult obstacles inherent to most wilderness activities. GUTS! follows this model by using a number of well-trained, experienced outdoorswomen to guide and encourage girls through difficult, yet manageable, tasks (e.g., rock climbing, canoeing, and backpacking). The girls also act as social persuaders with each other, cheering fellow participants through difficult times and congratulating one another's successes.

Finally, people gauge their own abilities through analysis of their *physical and emotional states*. For example, aching muscles and anxiety may be read as signs of personal inadequacy and inability. Efforts to increase positive interpretations of somatic information, mood, and physical stamina encourage higher levels of perceived self-efficacy (Bandura 1999). Wilderness adventure programs are led by qualified professionals who are familiar with the challenges of outdoor experiences. Leaders are required to make ongoing efforts to normalize physical and emotional discomfort as a temporary component of a larger, growth-enhancing experience (Davis-Berman & Berman, 1994; J. Euell, personal communication, June 6, 2006).

Families also appear to exert influence over the self-efficacy of children. Mothers and fathers who model mastery of challenging undertakings, and arrange such experiences for their children, have been found to encourage a sense of perceived efficacy in their progeny (Holden, Moncher, Schinke, & Barker, 1990), and supportive parenting has been correlated with higher rates of perceived efficacy (Juang & Silbereisen, 1999). GUTS! encourages parent involvement in the program through required parent-child orientation meetings, pre-trip parent phone contact, and an end-of summer Adventure Celebration party. Most of the participants live with one or both

biological parents who report actively involving their children in numerous programs in the community (J. Euell, personal communication, June 6, 2006).

Self-efficacy has been found to act as an important predictor of future cognitions, emotions, behavior, resistance to peer pressure to engage in aggressive actions, and prosocial behaviors (which have been linked to deterrence of adolescent delinquency) (Bandura, 1997; Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia, 2001; Caprara, Regalia, & Bandura, 2002; Swenson & Prelow, 2004). Sieving et al. (1997) found self-efficacy for condom use to be the best predictor of whether adolescent girls were willing to participate in safe sex practices (with a positive correlation between self-efficacy and condom use). Adolescents with *lower* self-efficacy were more likely to report histories of casual sexual experiences, higher numbers of nonmonogamous partners, and coercive sexual experiences (St. Lawrence, Brasfield, Jefferson, Allyene, & Shirley, 1994). Adolescents who are high in self-efficacy have demonstrated elevated rates of resiliency and positive coping mechanisms when compared to peers who are high in delinquent and aggressive behaviors but low in perceived self-efficacy (Hamill, 2003).

Self-efficacy carries with it a variety of consequences. People with high perceived efficacy demonstrate superior cognitive creativity, strategic flexibility, and effectiveness in managing their surroundings (Bouffard-Bouchard, Parent, & Larivee, 1991; Wood and Bandura, 1989). They tend to imagine successful outcomes that guide their performance, whereas those with low self-efficacy predict failure scenarios that demoralize them and decrease performance. Those with high self-efficacy focus on what they are likely to gain in their potential success rather than lose in their predicted failure (Krueger & Dickson, 1993, 1994).

Individuals who report high levels of self-efficacy explain personal failures as the result of insufficient effort, poor strategies, or adverse circumstances. Those with low self-efficacy perceive similar failures as the result of their limited abilities (Relich, Debus, & Walker, 1986; Schunk & Gunn, 1986; Schunk & Rice, 1986). People with low self-efficacy commonly avoid challenging tasks, which they perceive as threatening. They set low goals and have limited adherence to the goals they do plan. When faced with problems, they typically focus on impediments, negative effects of failure, and personal inadequacies. If the expected failure does occur, it is taken as evidence of the individual's innate ineptitude (Bandura, 1999).

Those who possess high perceived self-efficacy broach demanding tasks as opportunities for mastery instead of as menaces to be circumvented. They become interested in advancing their skills and see mistakes as the result of a lack of knowledge, poor planning, or not enough effort (all variables that can be improved). Failures are followed by second attempts, which frequently lead to success and reinforce belief in one's ability. Such an approach maintains motivation, limits stress, and reduces vulnerability to depression (Bandura, 1999).

For adolescent girls grappling with important decisions about alcohol and drug use, sexual behavior, academic performance, and peer choice, the difference between high- and low-self efficacy can be especially life altering. For example, faced with the daunting task of resisting peer pressure, the research suggests that girls with high self-efficacy will be more likely to imagine successful outcomes for themselves and have a higher probability of asserting dissenting opinions to friends. Conversely, girls with low self-efficacy may be more inclined to believe that saying, "No" will result in reduced

popularity, reinforcing previously held beliefs about inadequate social skills and discouraging decisions to stand up for their beliefs.

Among the primary goals of the GUTS! program is to help girls preserve and develop senses of competence, strength, and leadership. In reviewing positive aspects of high self-efficacy and the drawbacks associated with low self-efficacy, it is evident that fostering the former offers numerous benefits to individuals, families, and the larger society in which they function. This study will explore the role that an outdoor adventure program might play in encouraging self-efficacy in adolescent women, as well as the relationship between self-efficacy and other important variables (e.g., self-esteem, problem behaviors, and familial support).

**Self-Esteem**

When discussing self-efficacy, professionals and laypersons often mistakenly use the term interchangeably with "self-esteem." It's true that the self-efficacious tend to reject negative perceptions of themselves and their abilities when compared to those with low self-efficacy (Ozer & Bandura, 1990). However, the constructs of self-esteem and self-efficacy are distinctly different. Whereas perceived self-efficacy encompasses perceptions of personal ability, self-esteem relates to perceptions of self-worth. Individuals can be high in one trait while being low in the other (e.g., a young woman might believe that she is a fast runner, yet not value this trait and therefore derive little sense of self-worth from it) (Bandura, 1997).

Adolescent self-esteem has been researched extensively. High levels have been correlated with healthy body image, positive psychosocial functioning, safer sex behaviors, perceived efficacy, prosocial attitudes, supportive parent-child relationships,

and a host of other factors (Clay, Vignoles, & Dittmar, 2005; Davison & McCabe, 2006; Gillmore, Butler, Lohr, & Gilchrist, 1992; Salazar et al., 2005; Scholte, Van Lieshout, & Van Aken, 2001; Smith, Walker, Fields, Brookins, & Seay, 1999). Using a modified version of the Rosenberg Self-Esteem Scale, Dodge & Jaccard (2002) found that "for every one unit that self-esteem increased, the predicted odds of experience a pregnancy in the ensuing year decreased by a (multiplicative) factor of 0.81" (p. 57). Self-esteem and self-worth may also increase adolescent girls' interpersonal networks by increasing their decisions to access social support and helping resources (Schonert-Reichl & Muller, 1996).

Conversely, negative self-esteem levels have been correlated with higher rates of cigarette smoking, poor mental health, depression, delinquency, less supportive parenting, early sexual debut, and eating disorders, among others (Chang, 2001; Mason, 2001; Mason, 2005; Scholte et al., 2001; Byrne & Mazanov, 2001; Guillon, Crocq, & Bailey, 2003; Rohwer & Massey-Stokes, 2001). In a multiethnic South African sample, Wild, Flisher, Bhana, and Lombard (2004) used the Self-Esteem Questionnaire to analyze six domains of self-esteem. They found that low family-esteem and low school-esteem were the most important predictors of adolescent risk behaviors such as smoking, alcohol and drug use, suicidality, and risky sexual behaviors.

In a classic work on gender and socialization, Spence and Helmreich (1978) found that masculinity and androgyny (i.e., the state of possessing both traditionally masculine and traditionally feminine traits) were positively correlated with global self-esteem, and that women who possessed more masculine or androgynous traits were likely to have higher senses of self-worth than were their counterparts who identified as more

traditionally feminine in their gender roles. One of the goals of the GUTS! program is to challenge girls to question narrow feminine gender "ideals" and to model diverse gender roles through engaging in activities in which females are typically underrepresented (e.g., rock climbing, mountain biking, and backcountry backpacking).

Self-esteem researchers have argued that self-esteem cannot be "taught," but is instead cultivated over the course of an individual's life experiences (University of Maryland, n.d.). Others disagree, and have developed efforts to increase self-esteem through psychoeducational programs (e.g., media campaigns to examine the effects of advertising and teen magazines on teen girls' feelings of self-worth) and other means (Taylor-Seehafer & Rew, 2000).

Some have argued that participation in sports is one positive method of increasing girls' self-esteem. Richman and Shaffer (2000) found that precollege sports participation predicted increased self-esteem in a female sample of young adults. Subsequent path analyses and tests for mediation suggested that such an effect occurred only if sports participation specifically developed physical competencies, favorable body images, and gender flexibility. In the absence of these factors, the benefits of sports for increasing self-esteem appeared to be negligible. Dodge and Jaccard (2002) observed that adolescent female sports participants were most often younger European Americans with more educated parents and higher self-esteem than their non-sports playing peers.

Among the most consistent findings of wilderness experience programs is that they lead to increased self-esteem and senses of personal control for those who participate in them (Hendee & Pitstick, 1993). Berman and Davis-Berman (1989) have made the case that self-esteem is difficult to promote in traditional practice settings

because of its relational nature. The authors have observed that clients often struggle to apply lessons learned in therapy to the real world. They believe that group wilderness experiences provide a more optimal setting for fostering self-esteem because they allow participants to obtain immediate positive feedback, which frequently generates more instant and long-lasting positive self-evaluations. These findings suggest that GUTS!' use of wilderness adventure techniques may have a better chance than more traditional interventions of preserving and increasing adolescent girls' self-esteem.

**Special Risks for Adolescent Girls**

Adolescent girls have been described as a population that is especially vulnerable to reduced self-esteem and self-efficacy (e.g., Brooks-Gunn & Paikoff, 1993). Using a large British sample (n = 2917), Bergman and Scott (2001) noted that both self-esteem and self-efficacy interrelated with adolescent happiness and past worries. They observed that girls reported lower rates of self-esteem and self-efficacy than did boys. Girls also described more unhappiness and frequent past worries than their male counterparts. These four factors (i.e., self-esteem, self-efficacy, happiness, and past worries) were more interconnected for girls than boys, which prompted the authors to conclude that females are at higher risk for entering a "negative spiral where a low mark at school, an unkind comment about their appearance, a quarrel with a family member or friend, or a failure to attract the attention of a member of the opposite sex [or other romantic interest], can set off a feedback loop of negativity" (p. 195).

A meta-analysis of self-esteem studies conducted largely in Western industrialized nations found that women's self-esteem was significantly lower than men's, and that the mean gender difference was greatest in mid-adolescence (i.e., near 16

years of age) (Kling, Hyde, Showers, & Buswell, 1999). In Baldwin and Hoffman's (2002) 7-year longitudinal study of Midwestern US adolescent boys and girls, results illustrated a similar sharp decline in the self-esteem of adolescent girls from ages 12 to 17; boys also experienced a drop in self-esteem, though theirs was not as severe, nor as long-lasting. Pipher's (1995) best-selling book, *Reviving Ophelia: Saving the Selves of Adolescent Girls,* examined correlations between such reductions and the multiple mental health problems that plague adolescent girls, including mood disorders (e.g., Major Depression), affect disorders (e.g., Generalized Anxiety), and self-harming behavior (e.g., cutting, suicide attempts, and sexually risky behavior).

A study of homeless adolescent youth revealed that females were far less likely than their male counterparts to use condoms, thereby increasing their risk of contracting HIV and other sexually transmitted diseases (Clements, Gleghorn, Garcia, Katz, & Marx, 1997). A 2003 study conducted by the Center for Disease Control and Prevention found that teenage girls from diverse ethnic and racial backgrounds were more likely than teen boys to report seriously contemplating, planning for, and attempting suicide. They reported higher rates of being sexually assaulted, dating violence victimization, and depression. Additionally, they were more likely to describe themselves as overweight and trying to lose weight (though boys had higher rates of being overweight), and more frequently used extreme measures (e.g., vomiting or laxatives) to lose weight. Adolescent females were less likely to report having used a condom during their most recent incidence of sexual intercourse and less commonly engaged in sufficient amounts of physical activity (CDC, 2004).

Age may prove to be an important element in predicting girls' levels of happiness and problem behaviors. Bergman and Scott (2001) found that older adolescents reported lower levels of satisfaction with their family life, which might be attributed to struggles for autonomy and independence from parents. Interestingly, they found that socioeconomic status (SES) had little effect on young adolescents' well beings. This may imply that quality of family relationship and presence of parental support are more important than SES in predicting adolescent self-esteem, self-efficacy, and problem behaviors. Given that most wilderness interventions (with the exception of adjudicated youth) are conducted with participants from high SES backgrounds, it may prove useful to focus on the less-skewed variable of family support (Bandoroff & Scherer, 1994).

Considering that family disputes are a common referral problem for wilderness therapy (WT) programs, it can be assumed that adolescent participants in adventure education (AE) programs are more likely to report high levels of familial support than are their peers in WT programs. However, that is not to say that participants in GUTS! and similar AE programs have uniformly positive family experiences. In fact, parents may choose to enroll girls in these types of programs as a first step toward ameliorating perceived problem behavior in their daughters (J. Euell, personal communication, August 11, 2006). This study will attempt to examine the relationship between familial security and self-esteem, self-efficacy, problem behavior, and overall potential to benefit from an AE program.

**Prevention and Protective Factors**

Since it was first identified as a unique developmental phase, adolescence has been perceived as a time of "storm and stress" by both professionals and laypeople (Hall,

1904; Arnett, 1999). Though the notion has been debated to some extent, much research has been dedicated to the prevention and treatment of adolescence troubles (Arnett, 1999). Scientists (e.g., as reviewed in Spence, Sheffield, & Donovan, 2003) have completed controlled trials to examine the potential of intervention programs to promote general psychological health, prevent substance abuse, and decrease depression symptoms. Spence et al. (2003) have argued that there exists "a strong theoretical rationale for proposing that an intervention designed to enhance positive problem-solving orientation, problem-solving skills, and positive explanatory style will be effective in decreasing the risk of developing depression during adolescence" (p. 3).

Taylor-Seehafer and Rew's (2000) study on risky sexual practices in adolescent girls concluded that one protective factor against early sexual activity, and subsequent risk for sexually transmitted diseases, was the presence of caring adults in an adolescent girl's life. Children with families who support their efforts to be autonomous are less likely than their peers with nonsupportive families to engage in early sexual relationships (Turner, Irwin, Tschann, & Millstein, 1993). Other research has supported the association between an adolescent's satisfaction with her parental relationship and her level of sexual engagement (e.g., Jaccard & Dittus, 1991; Jaccard, Dittus, & Gordon, 1996; Jaccard, Dittus, & Litardo, 1999). Dittus, Jaccard, and Gordon (1997) found that relationship satisfaction with both mothers and fathers predicted adolescent sexual activity.

Colarossi and Eccles (2003) examined the effects of parent, teacher, and peer social support on depression and self-esteem in adolescents. From their sample, they concluded that friends and teachers had a stronger influence on self-esteem development

than did parents. Social support from other adults also acted to predict later self-esteem. The authors emphasized the importance of looking to non-familial sources (e.g., mentorship programs) as an important resource for improving self-esteem to decrease depression in adolescents. However, other researchers have emphasized the important role family relationships continue to play in fostering emotional health and competent behavior in adolescents (e.g., Grotevant, 1998; Sweeting, West, & Richards, 1998).

In addition to parents and other supportive adults, adolescent behavior is frequently influenced by peer interactions. In Western societies, many have argued that peer relationships are gradually replacing family relationships as the most important influence in adolescents' lives (Grotevant, 1998). Teenagers typically choose peers from similar sociocultural and behavioral groups. Such influence has demonstrated a positive impact in terms of adolescent socialization; however, it is also likely to lead to increased chances of unhealthy behavior if peers have a stronger influence on adolescents than do their parents (Steinberg, 1996). For example, Metzler and colleagues (Metzler, Noell, Biglan, Ary, & Smolkowski, 1994) found that association with deviant peers was perhaps the most influential factor in adolescent sexual risk taking. However, involvement with supportive peer groups (e.g., religious youth groups, school sports and music, or community environmental groups) was found to have a protective influence on adolescents (Werner, 1993).

GUTS! attempts to integrate many of the above principles: positive peer interactions, family support, and social support and role modeling by caring, non-familial adults. In keeping with Spence et al's (2003) research, GUTS! attempts to enhance positive problem-solving orientation and problem-solving skills in adolescents through

the use of outdoor adventure activities. Each of these elements has been integrated into the program with an end-goal of preserving and developing strong senses of self in young women to help them weather the storms of female adolescence.

## The Present Study

### *Study 1*

An exploratory principal components analysis (PCA) was conducted on one of the measures, the modified General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995), with the goal of better understanding the test and its usefulness for future evaluative purposes.

### *Study 2*

Wilderness programs have proven to be effective with a variety of participants, though the bulk of the research has been conducted on acting-out and adjudicated adolescent Caucasian males. Research suggests that adolescent girls are most likely to benefit from recreation interventions that emphasize physical competence, positive body image, and gender flexibility (Richman & Shaffer, 2000; Spence & Helmreich, 1978). These issues are all included in the goals of Girls Using Their Strengths! (J. Euell, personal communication, June 6, 2006). Combined, the research suggests that GUTS! has the potential to provide important prevention and intervention benefits to a group that may be in great need of it.

The current study used four well-researched psychological assessment measures [i.e., the Achenbach System of Empirically Based Assessment Child Behavior Checklist (CBCL) (Achenbach & Rescorla, 2001), the General Self-Efficacy Scale (GSE) (Schwarzer & Jerusalem, 1995), the Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1989), and the Security in the Family System (SIFS) scales (Forman & Davies, 2005)] to

monitor changes in GUTS! participants' levels of problematic behavior, self-efficacy, and self-esteem and to predict which girls are most likely to benefit from GUTS! and similar outdoor education programs.

Based on the literature, the following hypothesizes have been developed:

*Hypothesis 1*

Previous GUTS! experience will predict higher Time 1 levels of self-efficacy and self-esteem and lower YSR Total Problems scores.

*Hypothesis 2*

Both self-esteem and self-efficacy will negatively correlate with YSR Total Problems scores.

*Hypothesis 3*

Girls who report lower levels of family security are likely to show the greatest improvement at Time 2 (i.e., higher GSE and RSES scores and lower YSR Total Problems scores); however, it is likely that their scores will return closer to baseline at Time 3.

*Hypothesis 4*

Mean scores for the three dependent variables (i.e., self-efficacy, self-esteem, and problem behaviors) will improve from Time 1 to Time 2 for all participants. However, sustained improvement at 6-month follow-up will be predicted by initial familial security. Those with lower initial scores on family security are unlikely to maintain improvements at Time 3.

*Hypothesis 5*

Increases in self-efficacy will be significantly higher from Time 1 to Time 2 for girls who endorse valuing the outdoors, as measured by modified GSE Questions 2 ("I dislike spending time outdoors"), 16 ("I enjoy time spent in nature"), and 17 ("I am adventurous"), than for those girls who report lower levels of valuing the outdoors.

*Hypothesis 6*

Girls who endorse valuing the outdoors at Time 1 will also present significantly higher scores on self-esteem *and* self-efficacy and lower YSR Total Problems scores at Time 3 than their peers who have lower outdoor value scores.

*Hypothesis 7*

Overall self-esteem (a composite mean score of Times 1, 2, and 3) will predict changes in problem behaviors from Time 1 to Time 3, but overall self-efficacy (a composite mean score of Times 1, 2, and 3) will have an independent and greater effect than overall self-esteem on problem behavior change.

## Method

### ***Study 1***

*Participants*

Copies of the modified General Self Efficacy Scale (mod-GSE) were administered to all GUTS! participants, as well as to a convenience sample of 69 adolescent females (ages 18 and 19 years) enrolled in Introduction to Psychology courses at The University of Montana. In the interest of limiting the measure administration time, demographic and identifying information were not collected from the UM cohort (though they did provide participant consent consistent with IRB protocol). Between the GUTS!

and UM groups, a total of 131 Time 1 mod-GSE measures were administered and included in the PCA.

*Materials*

As described later in the paper, the General Self Efficacy Scale (GSE) consists of 10 original questions that have been thoroughly tested and received strong validity and reliability ratings. The measure's authors recommend adding additional questions to cover content of specific interest to the research being conducted. In this study, 21 such questions were added (e.g., "I can make a difference in improving my community") based on the program goals listed on GUTS! recruitment materials and described during interviews with the GUTS! program director (J. Euell, personal interviews, June 6 & 15, 2006; GUTS!, n.d.).[2] The resulting product was a 31-questions modified General Self-Efficacy Scale (mod-GSE). When the mod-GSE was scored, only Schwarzer and Jerusalem's (1995) original 10 questions were analyzed to determine the perceived self-efficacy score. The other questions were used to assess information about the GUTS! program, as well as to elicit a way to measure participants' attitudes toward the outdoors.

*Design and Procedure*

In an effort to gain a better understanding of the test construction of the mod-GSE, a principal components analysis (PCA) was conducted. PCA is typically used in psychology to develop objective tests (e.g., to measure personality). Researchers use the method to reduce a large number of "best guess" items to a smaller number that will eventually prove helpful in assessing the construct of interest. The measure is typically administered, items are then added and deleted, and the instrument is submitted to a new

[2] Specific program goals include *teaching leadership skills, building self-esteem, developing the self-confidence and experience necessary for community involvement and activisim, fostering the development of personal goals,* and *instilling attitudes of responsibility for the environment and fellow humans.*

group of subjects. This process continues until the researcher has achieved a satisfactory number of items forming different components that correspond to the topic to be assessed (Tabachnick & Fidell, 2001).

Though the current PCA represents only the initial step in what is typically a more complex research process, it was intended to serve an exploratory purpose and may be the first step in developing a self-efficacy measure for adolescent females that GUTS! and similar program decide to adopt for their own future purposes.

***Study 2***

*Participants*[3]

The study participants were girls enrolled in the Girls Using Their Strengths (GUTS!) summer outdoor adventure program[4]. All of the members of the late summer 2006 and full summer 2007 GUTS! programs were invited to participate in the study. Subjects were eligible to receive $10 in gift cards as reimbursement for their participation ($5 disbursed upon completion of the post-trip measures and $5 paid after returning the 6-month follow-up interviews). Girls and their caretakers were required to provide written consent as a requirement of participating in the study.

In order to examine the feasibility of this research project, a pilot study was conducted in summer 2006 with approval from The University of Montana's Institutional Review Board (IRB). Thirty girls were eligible to join the pilot study. Of these, two refrained, due either to their own disinterest or to their parents' decisions not to permit

[3] Though data were not collected from the GUTS! trip leaders, it is worth describing their demographic characteristics (which were collected for leaders of the summer 2007 trips): There were 10 female group leaders. Eight of the women identified as Euro American, one as Native American, and one as Asian. Five of the women were in their 20's, four were in their 30's, and one was in her 40's.

[4] GUTS! is based in Missoula, Montana. It was a part of Women's Voices for the Earth (WVE) until winter 2006, when it joined with the Missoula YWCA. The GUTS! leadership and programming did not undergo any significant changes as a result of its transition from WVE to the YWCA.

them to engage in the project. Eleven participants were rejected due to invalid responses (e.g., one set of questionnaires appeared to have been completed by a parent) or flawed consent (i.e., either a child or parent did not fully complete their consent forms and failed to provide follow-up contact information). Seventeen girls completed the pretest and gave proper consent.

One year later, during summer 2007, 48 girls participated in the GUTS! trips. Of the 48, 45 produced parent/caretaker consent and completed the pretest. Two participants were rejected due to lack of parent/caretaker consent and one declined to participate in the study.

Of the original 62 participants who completed usable pretests, 61 completed post-tests upon finishing their 1-week trips. Thirty-five (57%) of the girls provided 6-month follow-up data. The participants ranged in age from 10 to 18[5] (mean = 13.3 years, *SD* = 1.8; mode = 12 years) at the onset of the trips. The members of the sample identified as Caucasian (79.0%), Native American (4.8%), Latina (3.2%), and Biracial/Multiethnic (4.8%). Five of the participants (8.1%) chose not to identify with any ethnic group. (Please refer to Table 1 for a description of participants' demographic information.)

Socioeconomic status (SES) was assessed using participants' reports of their parent/caretakers' occupations that held the highest prestige (as recommended by

[5] Most participants fell into GUTS! advertised age range of 11-17, though two were accepted because they narrowly missed the age cut-offs (i.e., one was "nearly 11" and another had "just turned 18"). Eleven has been used as a typical cutoff by other research institutions (e.g., the Youth Survey of the British Household Panel Study) because it appears to represent the point at which adolescents enter Piaget's *formal operational stage* and start to be capable of deductive and abstract thinking (Piaget and Inhelder, as cited in Bergman & Scott, 2001). The capacity to engage in abstract thinking has been linked to the development of self-concept, including self-efficacy and self-esteem (Harter; Hattie [both as cited in Bergman & Scott, 2001]).

Achenbach and Rescorla, 2001).[6] Professions were divided into 1 of 23 existing US Department of Labor Standard Occupational Classification (SOC) Major groups, and then assigned 1 of 5 corresponding class categorizations (National Opinion Research Center, as cited in the New York Times, 2005; US Department of Labor, 2001). Most of the participants fell into the middle class brackets (i.e., "lower middle" = 16.1%, "middle" = 41.9%, and "upper middle" = 24.2%), though 6.5% were classified as "bottom-fifth" and 1.6% met criteria for "top fifth." The remaining 9.7% did not provide enough information to code an SES.

Seven of the participants (11.3%) reported that they were "only children" in their families. Fifty-four reported (87.1%) at least one sibling. One participant (1.6%) did not identify whether she had brothers or sisters. Not counting siblings, 44 of the girls (71%) resided exclusively with one or both of their parents. Six (9.7%) resided in homes that included both a parent and a non-biological or non-adoptive parent-figure (i.e., a stepparent or a parent's romantic partner). Four (6.5%) lived with nuclear (i.e., one or both parents) and extended family members in the same household. Two (3.2%) of the girls lived only with relatives other than their parents (e.g., a grandparent was the primary caretaker). One (1.6%) of the participants had a foster sibling living with her and her parent(s), whereas another (1.6%) was a child in a foster family. Four of the participants (6.4%) did not report information on the family members residing in their homes.

[6] A number of the girls presented vague caretaker occupation titles (e.g., "works for Department of Transportation") or noted that they were uncertain what their parents did for professional work. Given that occupational information was gathered from second-hand informants, SES-information should be interpreted with caution.

Table 1

*Demographic Characteristics of the Sample*

| | **Total Sample (*N* = 62)** |
|---|---|
| Race | |
| Caucasian | **49 (79.0%)** |
| Native American | **3 (4.8%)** |
| Latina | **2 (3.2%)** |
| Biracial/Multiethnic | **3 (4.8%)** |
| Did not identify | **5 (8.1%)** |
| Mean age (*SD*) | **13.3 (1.8)** |
| SES | |
| Top Fifth | **1 (1.6%)** |
| Upper Middle | **15 (24.2%)** |
| Middle | **26 (41.9%)** |
| Lower Middle | **10 (16.1%)** |
| Bottom Fifth | **4 (6.5%)** |
| Unknown | **6 (9.7%)** |
| Sibling Status | |
| 0 Siblings | **7 (11.3%)** |
| 1 Sibling | **28 (45.2%)** |
| 2 Siblings | **18 (29.0%)** |
| 3 Siblings | **4 (6.5%)** |
| 4 Siblings | **4 (6.5%)** |
| Did not identify | **1 (1.6%)** |
| Family in Home | |
| Biological/Adoptive Parent(s) (B/AP) Only (Not Including Siblings) | **44 (71%)** |
| (B/AP) Plus Non-Related Parent-Figure | **6 (9.7%)** |
| (B/AP) Plus Extended Family | **4 (6.5%)** |
| Other Family (No B/AP) | **2 (3.2%)** |
| (B/AP) Plus Foster Relative | **1 (1.6%)** |
| No Biological or Adoptive Relatives | **1 (1.6%)** |
| Unknown | **4 (6.4%)** |

*Materials*

All participants were asked to complete three assessment measurements: The Youth Self-Report version of the Achenbach System of Empirically Based Assessment Child Behavior Checklist (YSR)[7] (Achenbach & Rescorla, 2001), a modified General Self-Efficacy Scale (mod-GSE) (Schwarzer & Jerusalem, 1995), and The Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1989), as well as a few additional demographic questions not included in the YSR (e.g., number of siblings, relationships with other household residents, and the occupations of parents/caregivers) and brief open-ended program questions. An additional measure, the Security in the Family System (SIFS) scales (Forman and Davies, 2004), was added to the summer 2007 data collection to gather more complete information about participants' attitudes about their family relationships. (Please see Appendixes C and D for a review of the aforementioned measures.)

Problematic Behavior

The Achenbach System of Empirically Based Assessment (ASEBA) Child Behavior Checklist Youth Self-Report for Ages 6 to 18 (YSR) (Achenbach & Rescorla, 2001) was used to monitor changes in participants' levels of problematic behaviors (i.e., syndrome scales include the following internalizing and externalizing behaviors: A*nxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule-Breaking Behavior, Aggressive Behavior,* and *Other Problems*). The YSR has demonstrated high levels of internal consistency

[7] The YSR used in this study was modified to omit Questions 18, 91, and 97, which queried about suicidal and homicidal ideation. The removal of these questions did not alter the psychometric properties of the test scales of interest to this study.

(Cronbach's alpha = .88[8] for the *Competence* scales and .82 for the *Empirically Based Problems* scales). Additionally, it has shown good *content validity* (i.e., how much a measure's content includes what it is meant to assess), which is supported by its ability to discriminate significantly ($p < .01$) between demographically similar referred and nonreferred children[9]. The YSR also has a well-documented history of *criterion validity* (i.e., the test score is related to other measures of the characteristic under study) and *construct validity* (i.e., the relationship of the measure to specific theoretical constructs) (please see Achenbach & Rescorla, 2001 for a detailed analysis of the validity research; Sommer & Sommer, 1991).

Use of an ASEBA instrument offers the ability to compare research findings to a number of other studies that have also used measures from the program [for more information, see Berube & Achenbach's (2001) *Bibliography of Published Studies Using ASEBA,* which lists approximately 4,000 publications from authors who have reported ASEBA findings from 50 countries].

Self-Efficacy

Perceived self-efficacy was measured with a modified version of The General Self-Efficacy Scale (GSE) (Schwarzer & Jerusalem, 1995). The measure was designed to assess "perceived self-efficacy with the aim in mind to predict coping with daily hassles as well as adaptation after experiencing all kinds of stressful life events" (Schwarzer, 2005, n.d.). Jerusalem & Schwarzer developed the first version of the test in Germany in 1979. Since then, the scale has been revised and adapted to 26 other languages. It has

[8] .7 or above is often used as a general cutoff for acceptable reliability (Nunnaly, 1978).
[9] *Referred* and *nonreferred* discriminates between children who were referred for mental health services and demographically similar children who had no history of mental health referrals or problem behaviors that might warrant such intervention (Achenbach & Rescorla, 2001).

been tested extensively with adults and adolescents 12 years and older[10], and has demonstrated strong reliability (i.e., Cronbach's alphas range from .76 to .90, with the majority in the upper .80s) and criterion validity. Numerous studies (see Schwarzer, 2005 for a list of relevant research articles) have documented that positive test scores have been correlated with "favorable emotions, dispositional optimism, and work satisfaction." Conversely, negative coefficients have been associated with "depression, anxiety, stress, burnout and health complaints" (Schwarzer, n.d., p. 1).

The GSE consists of 10 statements (e.g., "I can remain calm when facing difficulties because I can rely on my coping abilities") that are scored unidimensionally with a Likert scale (1 = Not at all true, 4 = Exactly true) (these questions have been listed in bold type in the GSE included in Appendix C). The authors recommend adding additional questions to cover content of specific interest to the research being conducted. In this study, 21 such questions were added (e.g., "I can make a difference in improving my community") based on the program goals listed on GUTS! recruitment materials and described during interviews with the GUTS! program director (J. Euell, personal interviews, June 6 & 15, 2006; GUTS!, n.d.).[11] When the GSE was scored, only Schwarzer and Jerusalem's (1995) original 10 questions were analyzed to determine the perceived self-efficacy score. The other questions were used to assess information about the GUTS! program, as well as to elicit a way to measure participants' attitudes toward the outdoors.

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[10] A potential threat to the validity of this study is that the GSE was used with GUTS! participants who were 10 -17 years old. Because the reliability and validity assessments have been determined based on research conducted with adolescents 12 and older, findings for the 10 ($n$ = 1) and 11 ($n$ = 5) year-olds should be interpreted with caution.

[11] Specific program goals include *teaching leadership skills, building self-esteem, developing the self-confidence and experience necessary for community involvement and activisim, fostering the development of personal goals,* and *instilling attitudes of responsibility for the environment and fellow humans.*

Self-Esteem

Self-esteem was assessed with the Rosenberg Self-Esteem Scale (RSES) (1989), arguably the most widely-adopted social science measure of global self-esteem (Swenson & Prelow, 2004; Whiteside-Mansell & Corwyn, 2003). The instrument defines self-esteem as "a positive or negative orientation toward oneself; an overall evaluation of one's worth or value" (University of Maryland, n.d.). The original sample for which the scale was developed included over 5,000 high school juniors and seniors. The scale consists of ten questions (e.g., "On the whole, I am satisfied with myself") that are responded to using a Likert score from *strongly disagree* to *strongly agree.* Five items are reverse scored so that higher scores indicate greater self-esteem. Test scores may consist of scaled ranges from 0 – 30, 10 – 40, or test means (University of Maryland, n.d.; Saunders-Ferguson, 2006). A test mean was chosen as the scoring method for the current study. The measure has demonstrated moderate to high reliability (i.e., typical test-retest correlations are .82 to .88; Cronbach's alpha for multiple samples falls in the range of .71 to .88) (Blascovich and Tomaka, 1993; Rosenberg, 1965; Rosenberg, 1986).

Family Security

Family security was assessed with the Security in the Family System (SIFS) scales (Forman & Davies, 2004). The 22-item measure examines three dimensions of family security (i.e., *Preoccupation*, *Security*, and *Disengagement*). The Preoccupied scale consists of eight items to measure children's concerns about the future welfare of themselves and their family members (e.g., "I don't know what to do about things that are happening in my family"). The Security scale is made up of seven questions that attempt to gauge children's beliefs that their families are consistent sources of safety even during

times of stress or chaos (e.g., "It's worth caring about family members, even when things go wrong"). The Disengagement scale demonstrates children's efforts to detach from the importance of family in their lives (e.g., "When something bad happens in my family, I wish I could live with a different family"). The three scales are combined to produce a Total Score that ranges from 7 (low family security) to 99 (high family security). There are no discrete cutoff points to delineate between distinct levels of family security. However, the lead author has suggested splitting the group by the sample mean to create study-specific "higher security" and "lower security" categories (E.M. Forman, personal communication, March 25, 2008).

The SIFS was originally normed on 853 schoolchildren, aged 10 – 15 years. The initial sample was similar to the sample in the current study in that participants exhibited some social and demographic diversity, but were largely young, Euro American, middle-class adolescents. The SIFS has demonstrated good internal consistency between scales (alphas = .83 to .88) and strong convergent, predictive, and discriminant validity (Forman & Davies, 2003, 2004).

Other Questions

In addition to preceding standardized measures, the participants were asked to respond to open-ended questions about the GUTS! program (i.e., "What did you enjoy most about GUTS!?," "If you could change anything about GUTS!, what would it be?," and "Would you recommend GUTS! to a friend? If so, is there anything else (besides what you listed above) that you would want her to know about the program?"

Participants also completed a demographic questionnaire (see Appendix D), which consist of questions from the YSR as well as additional items that assessed family

information (e.g., "Total number of person's living in your household? Please list each person's relationship to you").

*Design and Procedure*

In spite of ongoing improvements in the outdoor adventure program research, methodology criticisms abound. Complaints made about treatment studies have included selection bias, lack of randomized assignment, small sample sizes, rare use of control groups, lack of long-term follow up, overreliance on case studies, assessment instruments with unproven reliability and validity, researcher bias, and few statistically significant results (Bandoroff & Scherer, 1994; Berman & Davis-Berman, 1989; Burg, 2000; Burns, 2000; Crompton & Sellar, 1981; Hickmon et al., 1997). This study attempted to avoid some of these issues through the use of standardized measures, a moderately-sized sample, a within-subjects design, and longitudinal data collection.

This study employed four well-researched psychological assessment measures [i.e., the Achenbach System of Empirically Based Assessment Child Behavior Checklist (CBCL) (Achenbach & Rescorla, 2001), the General Self-Efficacy Scale (GSE) (Schwarzer & Jerusalem, 1995), the Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1989), and the Security in the Family System (SIFS) scale (Forman & Davies, 2004)] to monitor four variables: changes in GUTS! participants' levels of problematic behavior, self-efficacy, self-esteem, and sense of family security. The measures, along with additional demographic and open-ended program evaluation questions, were administered face-to-face by a researcher at baseline and upon completion of the 1-week program. Follow-up assessments were conducted by mail 6 months after completion of the program. The pre-post design was implemented to compensate for the lack of a

control group. It was hoped that repeated longitudinal administration of the measurement instruments would help overcome some of the threats to internal validity inherent to a within-subjects design (e.g., carryover effects caused by exposure to prior levels of the treatment sequence, including practice, fatigue, or attention) and give a sense of stability of change over time.

## Analysis and Results

### *Power Analysis*

To determine the sample size needed for the current study, a power analysis[12] was conducted for Hypothesis 4 of Study 2. The analysis was performed with the help of the statistical software package, Sample Power (Borenstein, Rothstein, Cohen, Schoenfield, & Berlin, 2000). Hypothesis 4 was chosen because it was identified as having a high number of predictor variables, which would require the most participants to achieve power of .80. The following data were entered in Sample Power for a factorial ANOVA with two factors (one with three levels, i.e., time, and one with two levels, i.e., family security), an effect size of .40 (based on moderately large expected between-group differences), and an alpha-level of .05. The number of participants was then increased until a power of at least .80 was achieved. Results from this analysis indicated that a sample size of 66 would be needed to achieve a power of .80.

Given that the sample size was constrained by the GUTS! program (i.e., currently, only 50 girls are permitted to participate each summer), it was understood from the onset that this study might be necessarily underpowered. The decision to include the 16 participants from the pilot study was made in the interest of maximizing the power of the

[12] Power is defined as "a strong probability that effects that actually exist have a chance of producing statistically significance in your eventual data analysis" (Tabachnick & Fidell, 2001, p. 11).

study. It was also recognized that Hypothesis 4 was likely to require the highest number of participants to achieve power of .80. For example, a sample power analysis for Hypothesis 1 revealed that an *n* of only 10 members per group would be adequate to produce a power level of 1.0.

***Study 1***

*Principal Components Analysis*

An SPSS principal-components analysis of the 31-question (10 questions from the original GSE combined with 21 GUTS!-related questions) mod-GSE revealed 11 subscales with eigenvalues greater than 1. However, one of these subscales was dropped because it consisted of a single item. The analysis was then re-conducted with a forced solution of 10 factors. The rotated component matrix of this principal components analysis is presented in Table 2 (please note that higher absolute values represent that the question had a stronger loading on a particular component).

Table 2

*PCA Components*

| **Subscale** | **Theme** ***(% of variance)***[13] | **Questions** ***(% of variance)*** |
|---|---|---|
| 1 | Self-Efficacy *(15.1)* | 9 *(.687)*, 11 *(504)*, 13 *(.557)*, 15 *(.500)*, 20 *(.728)*, 23 *(.565)*, 25 *(.596)*, 29 *(.756)* |
| 2 | Valuing Outdoors / Outdoor Adventure *(9.3)* | 2 (.805), 16 *(.846)*, 17 *(.667)* |
| 3 | Organization *(6.4)* | 6 *(.478)*, 18 *(.842)*, 27 *(-.743)* |
| 4 | Ability to Lead *(6.3)* | 1 *(.651)*, 4 *(-.362)*, 7 *(.575)* |
| 5 | Courage for Unknown *(5.5)* | 12 *(.720)*, 22 *(.778)* |
| 6 | Desire to Lead *(5.0)* | 8 *(.663)*, 26 *(.790)* |
| 7 | Interpersonal Harmony *(4.4)* | 3 *(.763)*, 5 *(.730)* |
| 8 | Key GUTS! Goals *(4.1)* | 21 *(.619)*, 30 *(.394)*, 31 *(.554)* |
| 9 | Community Involvement *(3.8)* | 14 *(.776)*, 19 *(.579)* |
| 10 | Citizenship *(3.6)* | 10 *(.563)*, 24 *(-.512)*, 28 *(.781)* |

Table 2 lists a condensed version of the measure items. Please see Appendix C to review the complete questions; Appendix F contains a copy of the PCA Rotated Component Matrix. Of the ten components that were elicited from the PCA, each represented a unique category. *Subscale 1*, made up of 8 items, seemed to group questions directly related to self-efficacy. Interestingly, seven of these items appeared in the original general self-efficacy measure (GSE), whereas one was added to the modified version of the measure (i.e., "I speak up to others when I disagree with their opinions." *Subscale 2* appeared to capture enthusiasm for outdoor adventure. Though the original prediction was that Questions 2, 16, and 31 would predict valuing of the outdoors, these findings suggest that Question 17 (i.e., "I am adventurous") was linked more strongly to feelings about time spent in nature than was Question 17 (i.e., "I feel a responsibility to

[13]As demonstrated, the first component accounts for the largest possible amount of variance. The second component is formed from the variance that remains after that associated with the first component was extracted. The third component accounts for the third possible amount of variance and is composed of what remains after the first and second components' variances were extracted. The extraction process continues in this manner for each of the remaining components.

care for the natural environment." *Subscale 3* was composed of three items (e.g., "It is easy for me to stick to my aims and accomplish my goals" and "I have a clean bedroom") and seemed connected to organizational abilities. *Subscale 4* consisted of 3 items (e.g., "Others would describe me as a leader") and showed an apparent relationship to ability to lead, which differed from the 2-component *Subscale 6*, which seemed to capture desire to lead (e.g., "I am passionate about leading others"). *Subscale 5* consisted of two items (e.g., "I am scared to try new things"), which appeared to be tied to courage for unknown or novel experiences. *Subscale 7* consisted of 2 items that appeared connected to interpersonal relationships (e.g., "I never disagree with others"). *Subscale 8* consisted of three items (i.e., "I like my body," "I feel a responsibility to care for the natural environment," and "I have strong ideas about what I want to do with my future") whose relationship was not readily obvious, though all connected to important GUTS! goals (and were thus dubbed the *Key GUTS! Goals Subscale)*. *Subscale 9* included 2 items (e.g., "I can make a difference in improving my community") relevant to community involvement. Finally, *Subscale 10* consisted of three items (e.g., "I like to do homework") that seemed linked to general citizenship. (Table 3 lists mean responses to the various questions in the mod-GSE.)

Table 3

*Mean Responses to the Modified General Self-Efficacy Scales (Mod-GSE)*

| | **Total Sample[14] (N = 131)** | **Mean** | **Standard Deviation** |
|---|---|---|---|
| Question 1 | 100 | 3.37 | 0.485 |
| Question 2* | 100 | 3.55 | 0.809 |
| Question 3* | 100 | 2.90 | 0.732 |
| Question 4 | 100 | 2.52 | 0.674 |
| Question 5* | 100 | 2.11 | 0.618 |
| Question 6 | 100 | 3.12 | 0.573 |
| Question 7 | 100 | 2.91 | 0.668 |
| Question 8 | 100 | 3.45 | 0.557 |
| Question 9 | 100 | 3.20 | 0.636 |
| Question 10 | 100 | 2.91 | 0.653 |
| Question 11 | 100 | 2.94 | 0.649 |
| Question 12* | 100 | 2.74 | 0.799 |
| Question 13 | 100 | 3.44 | 0.519 |
| Question 14 | 100 | 3.57 | 0.555 |
| Question 15 | 100 | 3.00 | 0.682 |
| Question 16 | 100 | 3.61 | 0.709 |
| Question 17 | 100 | 3.44 | 0.671 |
| Question 18 | 100 | 2.79 | 0.957 |
| Question 19 | 100 | 3.10 | 0.611 |
| Question 20 | 100 | 3.11 | 0.549 |
| Question 21 | 100 | 2.81 | 0.861 |
| Question 22* | 100 | 3.00 | 0.804 |
| Question 23 | 100 | 2.92 | 0.748 |
| Question 24* | 100 | 2.66 | 0.879 |
| Question 25 | 100 | 3.08 | 0.506 |
| Question 26* | 100 | 3.09 | 0.753 |
| Question 27 | 100 | 1.93 | 0.879 |
| Question 28* | 100 | 2.84 | 0.813 |
| Question 29 | 100 | 3.18 | 0.557 |
| Question 30 | 100 | 3.29 | 0.782 |
| Question 31 | 100 | 3.25 | 0.657 |

*Indicates questions that were reverse-score corrected from the original measure.

Results of the current PCA represent exploratory research only and should be interpreted with caution, given three concerns: A test of the Kaiser-Meyer-Olkin

[14] Please note that the total sample size is greater than the subsample used in the analysis because 31 cases were dropped due to missing data.

Measure of Sampling Adequacy produced a score of .547. A value of .6 is the suggested minimum before a PCA is recommended (UCLA Academic Technology Centers, n.d.). Additionally, the sample size used in this study (N = 131[15]) falls in the poor range using the following scale: 50 as very poor, 100 as poor, 200 as fair, 300 as good, 500 as very good, and 1000 as excellent (Comrey and Lee, 1992). Finally, an SPSS reliability analysis produced a Cronbach's alpha of .64, which falls below the often-used .70 cutoff for acceptable reliability (Nunnaly, 1978). However, the intention behind the use of the PCA was met; the results act as a first step toward better understanding the measure and begin refining a tool to capture information relevant to the specified goals of the GUTS! program. They also provided some information to help shape the Valuing Outdoors (VO) score referred to in Hypothesis 5 of Study 2 (i.e., based on the previously-referenced component loadings, the VO score was changed to incorporate mod-GSE Question 17 in place of Question 31).

***Study 2***

*Hypothesis 1*

**Previous GUTS! experience will predict higher Time 1 levels of self-efficacy and self-esteem and lower YSR Total Problems scores.**

Three independent samples *t*-tests were used to compare differences in *self-efficacy, self-esteem*, and *problem behavior* scores for girls with *GUTS! experience* compared to those who were naïve to the program. *GUTS! experience* acted as the independent variable, whereas the dependent variables were *self-efficacy*, *self-esteem*, and *problem behavior*. Analyses revealed no significant differences in *pre-trip self-esteem* [*t*

[15] After cases with missing data were deleted, the sample size fell to 100.

(40) = -.034, $p$ = .973, $MD$ = -.004, $d$ = -.012[16]], *self-efficacy* [$t$ (35) = -1.217, $p$ = .232, $MD$ = -.127, $d$ = -.411], or *problem behavior* [$t$ (41) = .143, $p$ =.887, $MD$ = .429, $d$ = .045] between girls with *GUTS! experience* and those without. (Please see Table 4 for a display of the means and standard deviations associated with this analysis.)

[16] Effect sizes measured by Cohen's *d* use the following *general* scale: .2 to .5 = small, .5 to .8 = medium, and > .8 = large (Cohen, 1988).

Table 4

*Means and Standard Deviations for Hypotheses 1 Through 3*

| | **Total Sample[17] (N = 62)** | | **Mean** | | **Standard Deviation** | |
|---|---|---|---|---|---|---|
| Hypothesis 1 | Yes | No | Yes | No | Yes | No |
| *(Previous GUTS! Experience)* | | | | | | |
| Time 1 Self-Esteem Scores | *n* = 18 | *n* = 24 | 3.18 | 3.18 | .399 | 0.399 |
| Time 1 Self-Efficacy Scores | *n* = 16 | *n* = 21 | 3.18 | 3.05 | .291 | 0.333 |
| Time 1 Problem Behavior Scores | *n* = 18 | *n* = 25 | 53.61 | 54.04 | 9.127 | 10.073 |
| Hypothesis 2 | | | | | | |
| *(Correlations w/ Problem Scores)* | | | | | | |
| Time 1 Self-Esteem Scores | *n* = 59 | | 3.19 | | 0.442 | |
| Time 2 Self-Esteem Scores | *n* = 55 | | 3.31 | | 0.418 | |
| Time 3 Self-Esteem Scores | *n* = 32 | | 3.25 | | 0.461 | |
| Time 1 Self-Efficacy Scores | *n* = 52 | | 3.13 | | 0.329 | |
| Time 2 Self-Efficacy Scores | *n* = 55 | | 3.20 | | 0.372 | |
| Time 3 Self-Efficacy Scores | *n* = 31 | | 3.09 | | 0.309 | |
| Time 1 Problem Behavior Scores | *n* = 61 | | 53.41 | | 9.577 | |
| Time 2 Problem Behavior Scores | *n* = 59 | | 50.97 | | 11.118 | |
| Time 3 Problem Behavior Scores | *n* = 33 | | 50.88 | | 9.127 | |
| Hypothesis 3 | | | | | | |
| *(Lower Family Security)* | | | | | | |
| Time 1 Self-Esteem Scores | *n* = 6 | | 2.90 | | 0.179 | |
| Time 2 Self-Esteem Scores | *n* = 6 | | 3.07 | | 0.242 | |
| Time 3 Self-Esteem Scores | *n* = 6 | | 3.08 | | 0.279 | |
| Time 1 Self-Efficacy Scores | *n* = 5 | | 3.04 | | 0.230 | |
| Time 2 Self-Efficacy Scores | *n* = 5 | | 3.16 | | 0.391 | |
| Time 3 Self-Efficacy Scores | *n* = 5 | | 2.94 | | 0.152 | |
| Time 1 Problem Behavior Scores | *n* = 7 | | 56.57 | | 8.182 | |
| Time 2 Problem Behavior Scores | *n* = 7 | | 57.57 | | 9.931 | |
| Time 3 Problem Behavior Scores | *n* = 7 | | 57.86 | | 5.956 | |

[17] Please note that total sample sizes may vary within hypotheses because some cases were dropped due to missing data. Additionally, the Time 3 response rate was 57%, which resulted in a low *n* for analyses involving data from that time point.

Hypothesis 2

**Both self-esteem and self-efficacy will negatively correlate with YSR Total Problems scores.**

Two correlation analyses were conducted to determine the nature of the correlation between a) *self-esteem* and *problem behaviors* and b) *self-efficacy* and *problem behaviors* over the three testing points (i.e., pre-trip, post-trip, and at 6-month follow-up). As predicted, the results determined that there was an overall negative relationship between *self-esteem* and *problem behaviors*. Significant negative correlations between the two variables were found pre-trip ($r = -.577$, $p < .001$), post-trip ($r = -.551$, $p < .001$), and at 6-month follow-up ($r = -.515$, $p < .001$) (i.e., it is likely that such correlations would be observed in the general population). It should be noted that these reflect medium to large correlation relationships (Cohen, 1988)[18].

The correlation analysis for *self-efficacy* and *problem behaviors* produced less robust results. A statistically significant ($p < .05$, 2-tailed) negative correlation existed between Time 3 *self-efficacy* and *problem behaviors* ($r = -.414$, $p = .025$), but there was no statistically significant correlation at Time 1 ($r = -.120$, $p = .400$) or Time 2 ($r = -.228$, $p = .095$). (Please see Table 4 for a display of the means and standard deviations associated with this analysis.)

*Hypothesis 3*

**Girls who report lower levels of family security are likely to show the greatest improvement at Time 2 (i.e., higher GSE and RSES scores and lower YSR**

[18] Cohen (1988) has described the following *general* guidelines for correlation strength: .0 to .3 = small; .3 to .5 = medium; .5 to 1 = large.

**Total Problems scores); however, it is likely that their scores will return closer to baseline at Time 3.**

Prior to departing for their trips, girls reported family security with the SIFS. Respondents produced scores that ranged from 33 to 91. At the suggestion of one of the measure's co-authors, study-specific "lower family security" and "higher family security" cutoff scores were created by dividing the group in half by the sample mean (M = 67.87) (E.M. Forman, personal communication, March 25, 2008). Seventeen participants (45% of respondents) scored below the mean and were assigned to the lower family security group, whereas 21 (55% of respondents) fell above the mean and were assigned to the higher family security group.[19] These categorizations are consistent with GUTS!' reports that a larger portion of the girls come from supportive, involved families (which is assumed to be connected to family security) (J. Euell, personal communication, June 6, 2006).

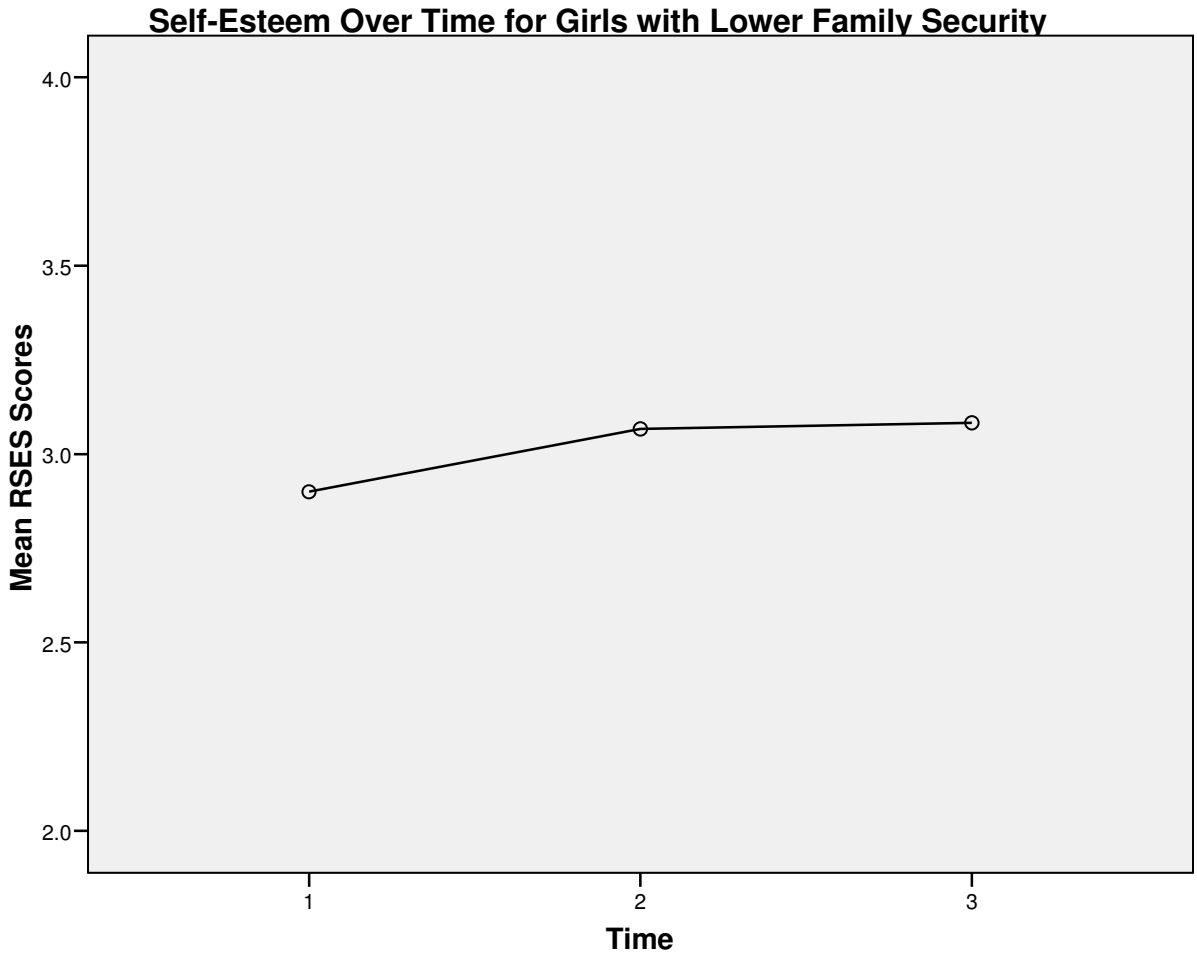
Three repeated-measures ANOVAs were conducted to examine differences in *self-esteem*, *self-efficacy*, and *problem behavior* (the dependent variables) over Time 1, Time 2, and Time 3 for members of a single group (i.e., girls who reported lower family security). The independent variable was *time*.

The results indicated that the mean *self-esteem* scores for girls with lower family security did not differ significantly at *Time 1*, *Time 2*, and *Time 3* [$F(2, 10) = 2.342$, $p = .147$, partial eta squared = .469[20]). Figure 1 illustrates the *self-esteem* mean scores at *pre-trip, post-trip*, and *6-month follow-up*.

[19] This measure was added in summer 2007 and was not administered to participants in the pilot study, which largely explains the high number (n = 24) of non-respondents.

[20] SPSS reports effect sizes through the use of partial eta squared. This measure has been criticized for failing to account for sampling error and it has been suggested that it may inflate effect sizes (Hullett &

**Figure 1: Hypothesis 3, Rosenberg Self-Esteem Scale (RSES)**




The mean *self-efficacy* scores for girls with lower familial security did not differ significantly at *pre-trip, post-trip*, and *6-month follow-up* [$F(2, 8) = 1.141$, $p = .366$, partial eta squared = .238]. Please refer to Figure 2 for a graph of these results.

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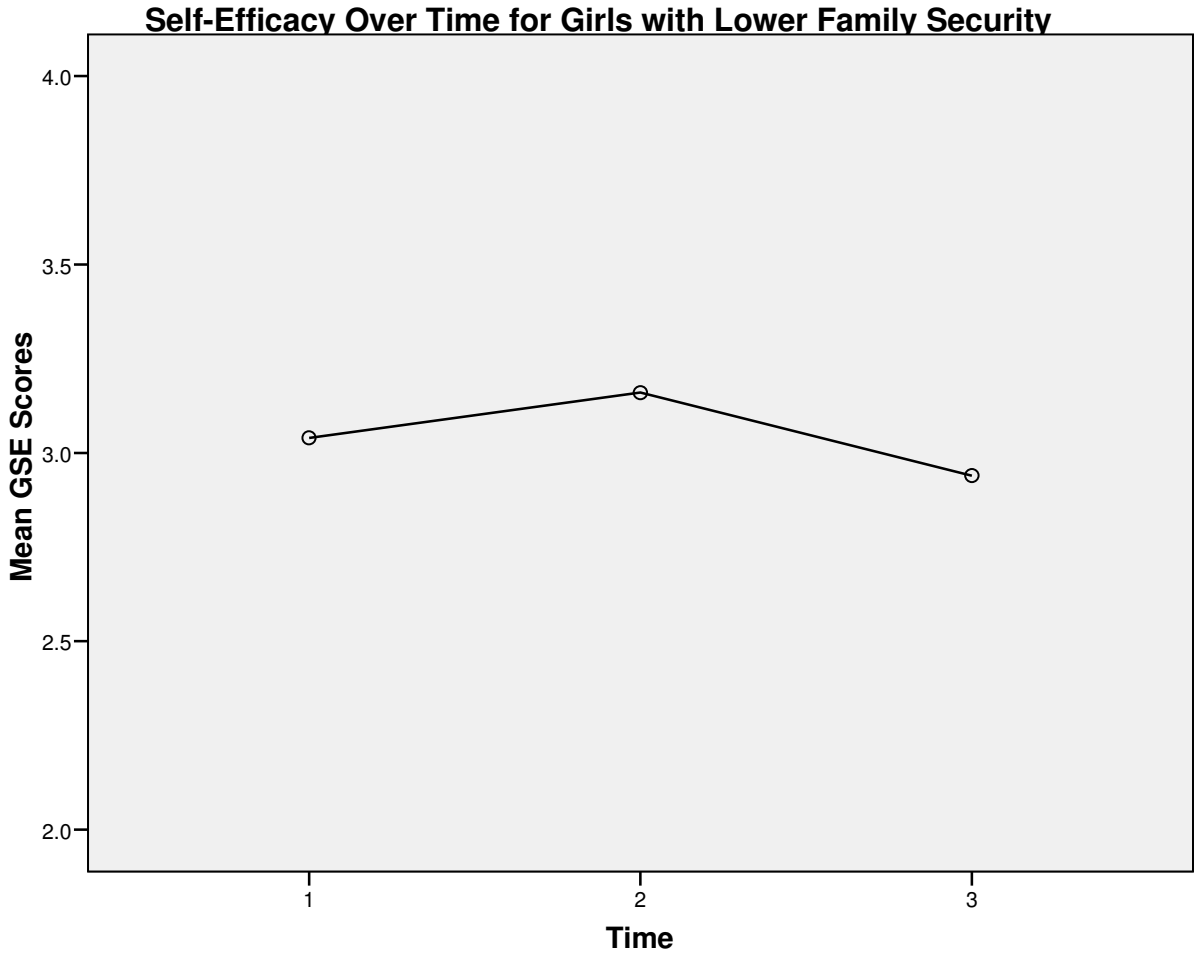
Levine, 2003; Kinnear & Gray, 2004). It has been suggested that the partial eta squared should be interpreted using the following effect sizes: < .01 = small; .01 to .10 = medium, > .10 = large (Clark-Carter, 1997).

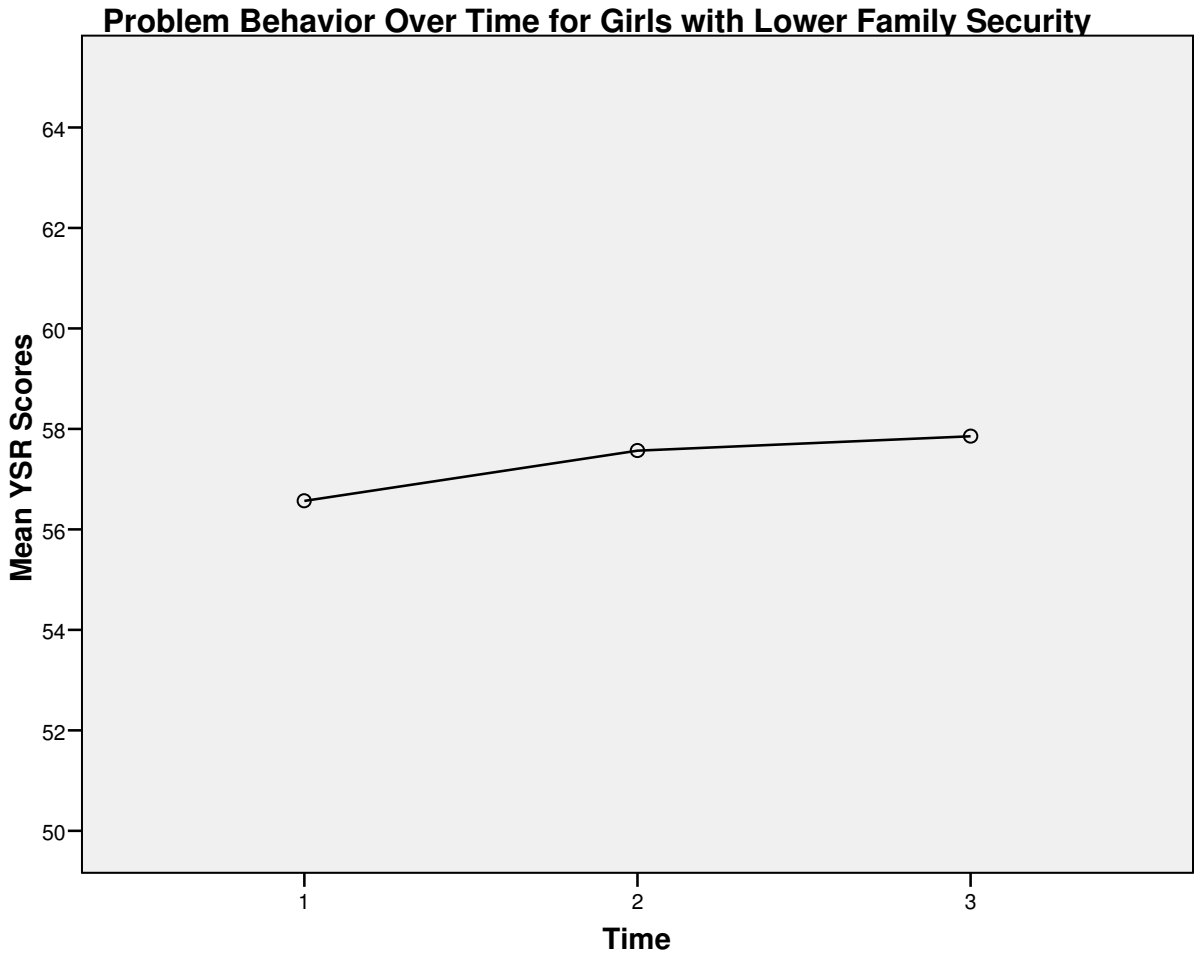
**Figure 2: Hypothesis 3, General Self-Efficacy Scale (GSE)**




Finally, the mean *problem behavior* scores for girls with lower familial security also did not differ significantly at *Times 1, 2*, and *3* [$F(2, 12) = .149$, $p = .863$, partial eta squared = .048). The results are displayed in Figure 3[21]. It should be noted that none of the mean *problem behavior* scores fell into the YSR's borderline or clinical range cutoffs (*T* scores of 60 to 63 are classified as in the borderline range, and *T* scores above 63 fall into the clinical range) (Achenbach & Rescorla, 2001). (Please see Table 4 for a display of the means and standard deviations associated with this analysis.)

[21] Given the extremely small sample size (i.e., $n = 5$ to 7) associated with this hypothesis, the analyses were likely underpowered. It may prove useful to review the qualitative results of this study (see Appendix E) as an additional source of information to inform this research question.

**Figure 3: Hypothesis 3, Youth Self Report Total Problem Scores (YSR)**



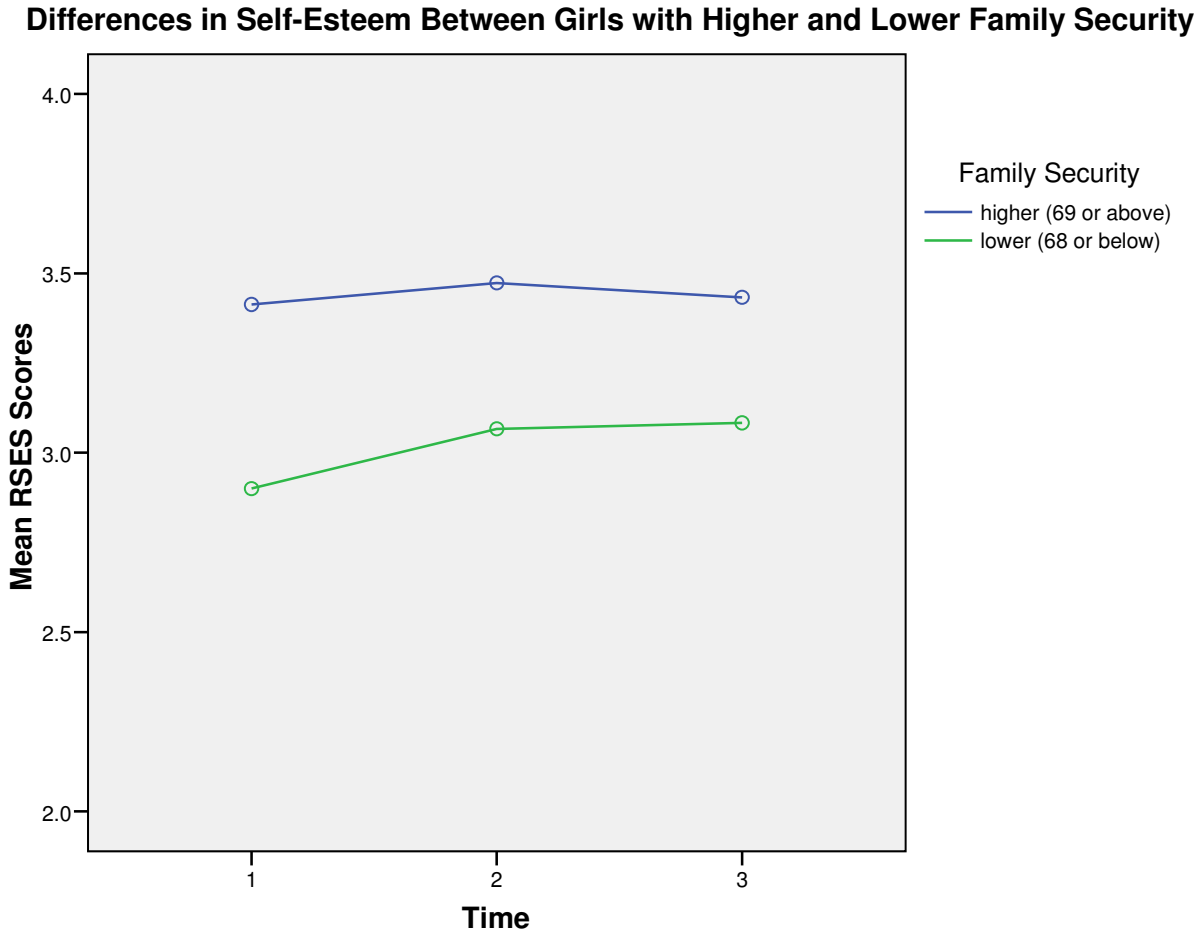

*Hypothesis 4*

**Mean scores for the three dependent variables (i.e., self-efficacy, self-esteem, and problem behaviors) will improve from Time 1 to Time 2 for all participants. However, sustained improvement at 6-month follow-up will be predicted by initial familial security. Those with lower initial scores on family security are unlikely to maintain improvements at Time 3**.

Three 2x3 repeated measures ANOVAs (i.e., within this analysis, there were two between-subjects factors, higher and lower family security, and three time points) were conducted to look at the impact of *family security* and *time* (the independent variables) on *self-esteem*, *self-efficacy*, and *problem behaviors* (the dependent variables). The mean

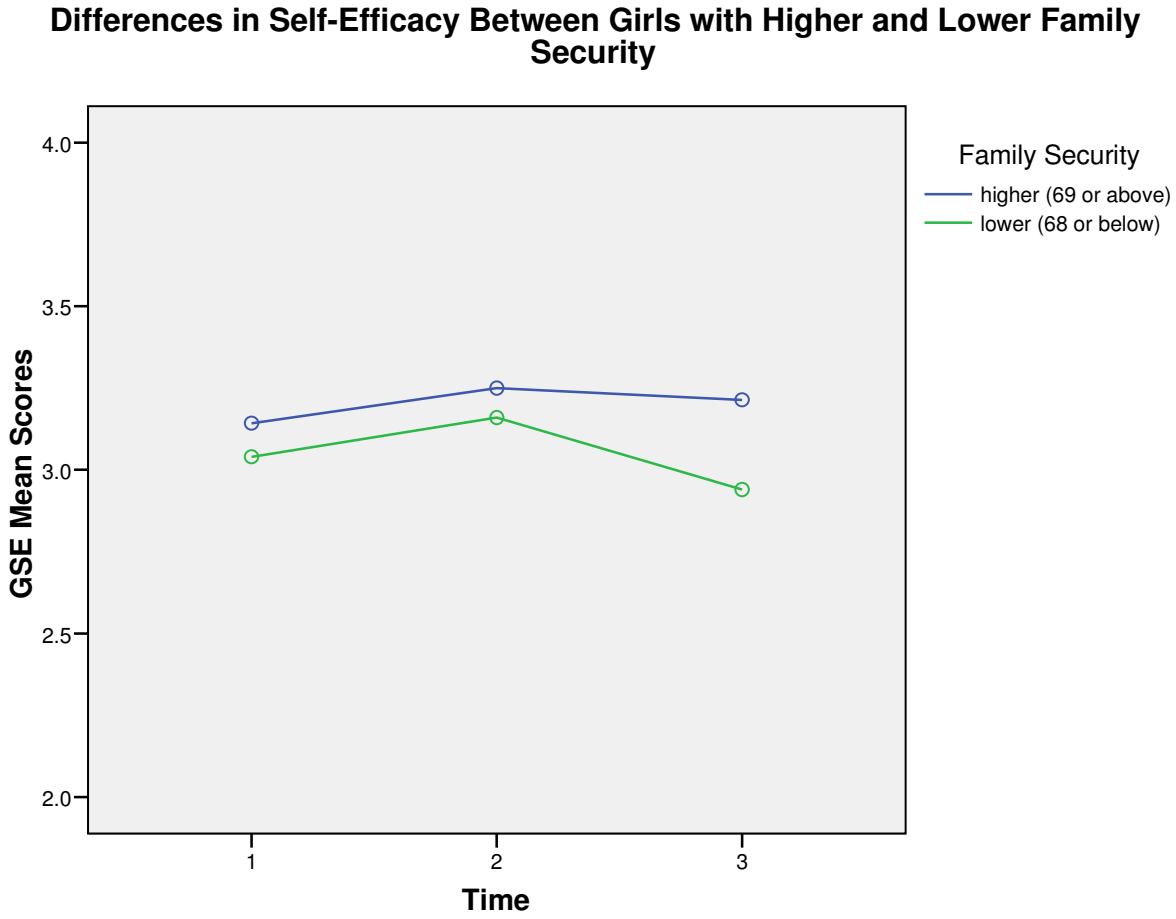
*self-esteem* scores for the two groups (higher and lower family security) differed significantly: $F(1, 19) = 6.132$, $p = .023$, partial eta squared = .244. However, the within-subjects mean *self-esteem* scores did not differ significantly over time at the present alpha level of .05 [$F(2, 38) = 1.561$, $p = .223$, partial eta squared = .076] and there was not a significant interaction between *time* and *family security* [$F(2, 38) = .691$, $p = .507$, partial eta squared = .035]. These findings may suggest that *pre-trip levels of family security* do not significantly predict who will sustain improvements in *self-esteem* at 6-month follow-up. Please see Figure 4 for a graphical display of the findings.

**Figure 4: Hypothesis 4, Rosenberg Self-Esteem Scale (RSES)**




The mean *self-efficacy* scores did not differ significantly for girls with *lower* or *higher family security ratings*: $F(1, 17) = 1.263$, $p = .277$, partial eta squared = .069. There were not statistically significant within-subjects differences in *self-efficacy* over time [$F(2, 34) = 1.667$, $p = .204$, partial eta squared = .089], nor was there a significant interaction between *time* and *family security* [$F(2, 34) = .899$, $p = .417$, partial eta squared = .050]. These findings suggest that pre-trip levels of *self-efficacy* do not significantly predict which girls will maintain improvements in *self-efficacy* at 6-month follow-up. Please see Figure 5 for a pictorial display of these results.

**Figure 5: Hypothesis 4, General Self-Efficacy (GSE)**




The mean *problem behavior* scores did differ significantly between groups for girls with *lower* or *higher family security* ratings: $F(1, 21) = 8.524$, $p = .008$, partial eta squared = .289). There were not significant within-subjects differences in *problem behavior* scores over the three measured time periods [$F(2, 42) = .712$, $p = .496$, partial eta squared = .033], nor was there a significant interaction between *time* and *family security* [$F(2, 42) = 1.129$, $p = .333$, partial eta squared = .051].

These findings suggest that pre-trip levels of family security may not significantly predict which girls will maintain improvements in *self-efficacy* at 6-month follow-up. A review of Figure 6 illustrates these findings. (Please see Table 5 for a list of the means

and standard deviations associated with this hypothesis.) As with the earlier examples, potential problems related to low power should be considered when interpreting non-statistically significant results.

**Figure 6: Hypothesis 4, Youth Self-Report Total Problem Score (YSR)**

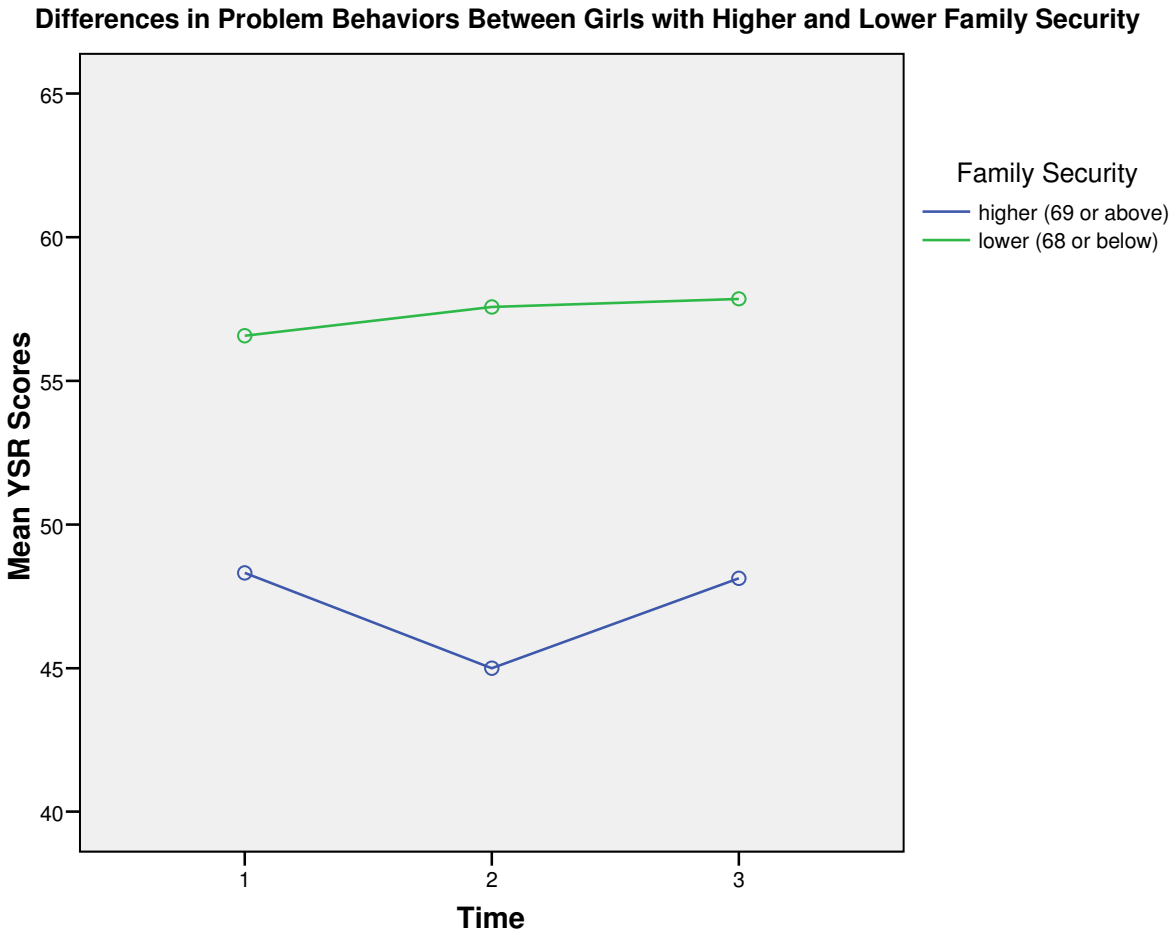


Table 5

*Means and Standard Deviations for Hypotheses 4 Through 6*

| | **Total Sample[22] (N = 62)** | | **Mean** | | **Standard Deviation** | |
|---|---|---|---|---|---|---|
| Hypothesis 4 *(Change Over Time)* | Higher Security | Lower Security | Higher Security | Lower Security | Higher Security | Lower Security |
| Time 1 Self-Esteem Scores | *n* = 15 | *n* = 6 | 3.41 | 2.90 | 0.391 | 0.179 |
| Time 2 Self-Esteem Scores | *n* = 15 | *n* = 6 | 3.47 | 3.07 | 0.403 | 0.242 |
| Time 3 Self-Esteem Scores | *n* = 15 | *n* = 6 | 3.43 | 3.08 | 0.501 | 0.279 |
| Time 1 Self-Efficacy Scores | *n* = 14 | *n* = 5 | 3.14 | 3.04 | 0.293 | 0.230 |
| Time 2 Self-Efficacy Scores | *n* = 14 | *n* = 5 | 3.25 | 3.16 | 0.344 | 0.391 |
| Time 3 Self-Efficacy Scores | *n* = 14 | *n* = 5 | 3.21 | 2.94 | 0.342 | 0.152 |
| Time 1 Problem Behavior Scores | *n* = 16 | *n* = 7 | 48.31 | 56.57 | 6.560 | 8.182 |
| Time 2 Problem Behavior Scores | *n* = 16 | *n* = 7 | 45.00 | 57.57 | 10.020 | 9.931 |
| Time 3 Problem Behavior Scores | *n* = 16 | *n* = 7 | 48.13 | 57.86 | 9.120 | 5.956 |
| Hypothesis 5 *(VO & Self-Efficacy)* | | | | | | |
| Time 1 Self-Esteem Scores | *n* = 48 | | 3.19 | | 0.439 | |
| Time 2 Self-Esteem Change Scores | *n* = 48 | | 0.09 | | 0.274 | |
| Time 1 Valuing Outdoors Scores | *n* = 48 | | 10.77 | | 1.716 | |
| Hypothesis 6 *(VO & Change Over Time)* | | | | | | |
| Time 3 Self-Esteem Scores | *n* = 30 | | 3.22 | | 0.455 | |
| Time 1 Valuing Outdoor Scores | *n* = 30 | | 10.83 | | 1.117 | |
| Time 3 Self-Efficacy Scores | *n* = 30 | | 3.09 | | 0.314 | |
| Time 1 Valuing Outdoor Scores | *n* = 30 | | 10.77 | | 1.165 | |
| Time 3 Problem Behaviors Scores | *n* = 30 | | 50.83 | | 8.623 | |
| Time 1 Valuing Outdoor Scores | *n* = 30 | | 10.87 | | 1.167 | |

[22] Please note that total sample sizes may vary within hypotheses because some cases were dropped due to missing data. Additionally, the Time 3 response rate was 57%, which resulted in a low *n* for analyses involving data from that time point.

Hypothesis 5

**Increases in self-efficacy will be significantly higher from Time 1 to Time 2 for girls who endorse valuing the outdoors, as measured by modified GSE Questions 2 ("I dislike spending time outdoors"), 16 ("I enjoy time spent in nature"), and 17 ("I am adventurous") than for those girls who report lower levels of valuing the outdoors.**

To date, wilderness adventure research has done little to address the question of whether preference for nature influences program participants' outcome. The modified GSE has not been subjected to rigorous validity and reliability testing. Instead, the three "valuing of the outdoors" (VO) questions represented an initial attempt to explore a topic that has received little research attention. There were no predetermined cutoff scores to separate participants into distinct outdoors "like" versus "do not like" groups. Instead, a continuous range of scores from 3 - 12 was examined using a multiple regression analysis to find whether the VO score made a unique and significant contribution to predicting self-esteem at Time 2. The independent variables, or predictors, were *Time 1 self-esteem* and *Time 1 VO* score. The *Time 2 self-esteem change* score (i.e., *Time 2 self-esteem minus Time 1 self-esteem*) acted as the dependent, or response, variable.

As part of the initial regression analysis, the data were checked for outliers (i.e., cases that fell more than 3 standard deviations from the mean) using the SPSS Casewise Diagnostics feature. This led to the rejection of one case. The remaining ($n$ = 48) were used in the analysis.

Analyses revealed that the correlation between *Time 1 VO* and *Time 1 self-esteem* and was not statistically significant ($r$ = .188, $p$ = .100). The correlation between *Time 1*

*VO* and *Time 2 self-esteem change* was also not statistically significant ($r$ = -.139, $p$ = .173). However, the correlation between *Time 1 self-esteem* and *Time 2 self-esteem change* was statistically significant ($r$ = -.370, $p$ = .005) (i.e., higher *Time 1 self-esteem* corresponds with lower *Time 1 to Time 2 changes in self-esteem* scores, whereas lower *Time 1 self-esteem* corresponds with higher *Time 1 to Time changes in self-esteem*).

There was a significant linear relationship between the outcome variable and the entire set of predictor variables, $F(2, 45) = 3.722$, $p$ =.032, $R^2 = .142$[23]. The sample multiple correlation coefficient was .377. About 14% of the variance of the *Time 2 change in self-esteem* in the sample could be accounted for by *Time 1 self-esteem* and the *Time 1 VO* score. *Time 1 self-esteem*, but not *Time 1 VO*, appeared to be important for better prediction of *Time 2 self-esteem*. The hypothesis was not supported, as *valuing of the outdoors* did not significantly impact *self-esteem change* from *Time 1* to *Time 2*. (Please see Table 5 for a list of the means and standard deviations associated with this hypothesis.)

*Hypothesis 6*

**Girls who endorse valuing the outdoors at Time 1 will also present significantly higher scores on self-esteem *and* self-efficacy and lower YSR Total Problems scores at Time 3 than their peers who have lower outdoor value scores.**

As in the previous hypothesis, a continuous range of valuing outdoors (VO) scores (i.e., from a total of 3 –12 points) was examined using three simple regression analyses. In this hypothesis, *Time 1 VO* acted as the independent, or predictor, variable, whereas the dependent, or response, variables were *Time 3 self-esteem*, *self-efficacy*, and

[23] Kinnear and Gray recommend using the following scale to interpret effect sizes estimated with $R^2$: < .01 = small, .01 to .10 = medium, > .10 = large.

*problem behaviors*. Analyses were conducted on responses from the GUTS! participants who turned in complete 6-month follow-up responses.

The regression analysis for *Time 3 self-esteem* (as the response value) and *Time 1 VO* (the predictor variable) was conducted to determine how well the latter predicted the former. The results revealed that there was no statistically significant relationship between *Time 3 self-esteem* and *Time 1 VO* ($r = .137$, $p = .236$). Nor was there a significant linear relationship between the response variable and the predictor variable: $F(1, 28) = .534$, $p = .471$, $R^2 = .019$. *Time 1 VO* does not appear to play a significant role in predicting *Time 3 self-esteem* scores for GUTS! participants.

The regression analysis for *Time 3 self-efficacy* (as the response value) and *Time 1 VO* (the predictor variable) was conducted to determine how well the latter predicted the former. The results revealed a negative correlation between *Time 1 VO* and *Time 3 self-esteem*, though the relationship was not statistically significant ($r = -.075$, $p = .347$). A statistically significant linear relationship was not demonstrated between the two variables: $F(1, 28) = .158$, $p = .694$, $R^2 = .006$. *Pre-trip valuing of the outdoors* did not appear to play a significant role in the development of long-term *self-efficacy* for GUTS! participants.

The regression analysis for *Time 3 problem behavior* scores (as the response value) and *Time 1 VO* (the predictor variable) was conducted to determine how well the latter predicted the former. The results revealed that there was no statistically significant ($p < .05$) correlation between *Time 3 problem behavior* scores and *Time 1 VO* ($r = -.232$, $p = .109$). Nor was there a significant linear relationship between the response variable and the predictor variable: $F(1, 28) = 1.592$, $p = .217$, $R^2 = .054$. *Time 1 valuing of the*

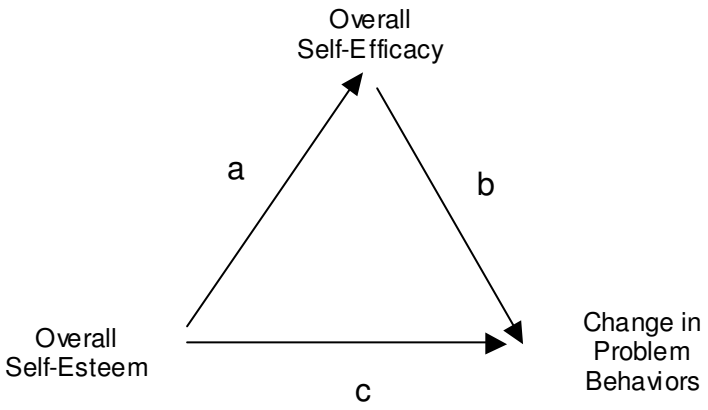
*outdoors* does not appear to play a significant role in predicting *Time 3 problem behavior* scores for GUTS! participants. (Please see Table 5 for a list of the means and standard deviations associated with this hypothesis.)

*Hypothesis 7*

**Overall self-esteem (a composite mean score of Times 1, 2, and 3) will predict changes in problem behaviors from Time 1 to Time 3, but overall self-efficacy (a composite mean score of Times 1, 2, and 3) will have an independent and greater effect than overall self-esteem on problem behavior change.**

*Self-efficacy* was tested as a mediator variable for the hypothesized relation between *self-esteem* and *problem behaviors*. To test mediation hypotheses, Baron and Kenny (1986) have advised that three regression equations must be estimated: 1) The independent variable (i.e., *overall self-esteem*) predicting the mediator variable (i.e., *overall self-efficacy*); 2) The independent variable predicting the dependent variable (i.e., *change in problem behaviors from Time 1 to Time 3*); and 3) The independent variable and the mediator variable concurrently predicting the dependent variable. (Please refer to Figure 7 for a path diagram.)

Figure 7: *A Path Diagram of Hypothesis 7*




IV = independent variable (i.e., overall self-esteem)
DV = dependent (aka outcome or criterion) variable (i.e., change in problem behaviors)
Mediator = overall self-efficacy

In this case, *self-efficacy* was regressed on *self-esteem*. Next, *changes in problem behaviors* (i.e., the YSR score) was regressed on *self-esteem*. Finally, *problem behaviors* was regressed on both *self-esteem* and *self-efficacy*. Mediation would have been supported if *self-esteem* related to *self-efficacy* in the first equation, *self-esteem* related to *problem behaviors* in the second equation, *self-efficacy* related to *problem behaviors* in the third equation, and the relation between *self-esteem* and *problem behaviors* was less in the third than in the second equation (Baron & Kenny, 1986).

In the first regression analysis, *overall self-esteem* acted as the predictor variable and *overall self-efficacy* was the criterion (or outcome) variable. There was a significant positive correlation between the two variables ($r = .452$, $p < .001$). The regression revealed a significant linear relationship between *overall self-esteem* and *overall self-efficacy*: $F(1, 59) = 15.125$, $p < .001$, $R^2 = .204$). In the second regression analysis, *overall self-esteem* was the predictor variable and the *Time 1 to Time 3 change in*

*problem behaviors* was the criterion variable. There was a statistically significant negative correlation between these variables ($r$ = -.321, $p$ = .037). The regression did not show a statistically significant linear relationship between *overall self-esteem* and *change in Time 1 to Time problem behaviors*: $F(1, 30) = 3.437$, $p$ = .074, $R^2$ = .103). In the third and final regression analysis, *overall self-esteem* and *overall self-efficacy* were the predictor variables and the *Time 1 to Time 3 change in problem behaviors* was the criterion variable. In this case, *overall self-efficacy* did not correlate significantly with *Time 1 to Time 3 total problems* ($r$ = -.145, $p$ = .214). There was a statistically significant correlation between *overall self-esteem* and *change in problem behavior* scores ($r$ = -.321, $p$ = .037), though the relation was not less than in the second equation. There was not a significant linear relationship between the criterion variable and the predictor variables: $F(2, 29) = 1.709$, $p$ = .199, $R^2$ = .105.

These results did not support the hypothesis that *overall self-efficacy* acted as a mediator variable for a relationship between *overall self-esteem* and *change in problem behaviors from Time 1 to Time 3*. As noted in previous analyses, the lack of statistical significance may be related to problems with power; in this case, the independent variables may not have predicted the dependent variables solely due to lack of power, irrespective of whether mediation occurred. (Please see Table 6 for a list of the means and standard deviations associated with this hypothesis.)

Table 6

*Means and Standard Deviations for Hypothesis 7*

| | **Total Sample[24] (N = 62)** | **Mean** | **Standard Deviation** |
|---|---|---|---|
| Hypothesis 7 *(Mediation Test)* | | | |
| Overall Self-Esteem Scores | *n* = 61 | 3.24 | 0.401 |
| Overall Self-Efficacy Scores | *n* = 61 | 3.15 | 0.325 |
| Overall Self-Esteem Scores | *n* = 32 | 3.26 | 0.386 |
| Time 1 to Time 3 Problem Behaviors Change Scores | *n* = 32 | 0.16 | 5.870 |
| Overall Self-Esteem Scores | *n* = 32 | 3.26 | 0.386 |
| Overall Self-Efficacy Scores | *n* = 32 | 3.06 | 0.276 |
| Time 1 to Time 3 Problem Behaviors Change Scores | *n* = 32 | 0.16 | 5.870 |

[24] Please note that total sample sizes may vary within hypotheses because some cases were dropped due to missing data. Additionally, the Time 3 response rate was 57%, which resulted in a low *n* for analyses involving data from that time point.

*Qualitative Responses*

A complete analysis of participants' qualitative responses was beyond the scope of this study. However, a brief review of girls' comments (see Appendix E) demonstrates that some girls did observe an increase in self-esteem and self-efficacy that they attributed to their participation in GUTS! Table 7 shows some examples of qualitative responses reported at 6-month follow up:

Table 7

*Selected Qualitative Responses Related to Self-Esteem and Self-Efficacy*

| **Self-Esteem** |
|---|
| GUTS! has given me new people skills and the confidence I can backpack. It has boosted my self-esteem and given me an insight into who I am and what I can do. |
| Yes, I feel a bit better about myself. |
| GUTS! has made me more confident and sure of myself. GUTS! rox. |
| I think it helped a lot with the self-esteem I have now. |
| It has made me more self-confident and more light-hearted. |
| I have participated in GUTS! for 3 years now and it has definitely made me feel more comfortable with myself and whenever I am feeling like I'm not good enough, I just think of the weeks at GUTS! and remember that I do in fact have what it takes. |
| I'm more confident in where I am and what I want, as well as having made several lifelong friends. |
| On GUTS! trips, I can feel totally comfortable and confident with myself. |
| |
| **Self-Efficacy** |
| I am a lot more confident in my abilities and my actions. I know what I can handle and I learned a lot about my strengths. All thanks to GUTS! ☺ |
| It taught me how to communicate better and to learn to accept people that are different. The program also helped by providing challenges, creating a good feeling after I completed those challenges. |
| I think my life has changed from the GUTS! trip because I'm able to handle situations with people I don't like more easily. |
| I really like GUTS! It's a great way to meet up with girls. I like being able to talk about and share our differences. It has helped me to try new things. I think GUTS! is such a great program. I am bringing two of my friends this coming summer and I suggest it to all my friends. |

# Discussion

## *Summary of Initial Predictions*

Based on previous literature, the current study predicted that the outdoor adventure program under study would have the most success in improving self-efficacy because it has been described as more responsive to intervention than self-esteem, especially over the short term. It was also assumed that family security would serve as a protective factor and that girls from more secure families would be higher functioning (i.e., have higher self-esteem and self-efficacy and lower reported problem behaviors) than girls who came from less secure families. Relatedly, it was assumed that girls from the latter group would be more in need of positive adult role models, and would thus benefit more from GUTS! (at least in the short term) than girls who already had positive adults in their families of origin. However, it was also expected that the week-long outdoor adventure would not carry enough positive influence to improve self-esteem and self-efficacy and reduce problem behaviors over the long-term for girls who were returning to insecure families.

Questions were raised about which girls would benefit most from treatment. In addition to those with lower family security rates, it was proposed that girls with a predisposition toward the outdoors might enjoy, and thus reap more rewards, from the outdoor adventure program. It was also suggested that girls with previous GUTS! experience who benefited enough to return to the program would have entered with some advantage over girls without such experience.

*Self-Efficacy*

Though information was discovered about the role of self-efficacy in the outdoor adventure program under study, the variable did not appear as influential as first assumed. One curious finding was that self-efficacy did not correlate significantly with reductions in total problem behaviors reported at Time 1 or Time 2. However, it did at Time 3. This may be explained by the idea that whereas self-esteem describes an internal trait, self-efficacy relates to situational confidence. It may be that self-efficacy "seeds" were planted during the GUTS! experience, and then "bloomed" over time to reduce problem behaviors as girls' confidence grew when they faced new challenges over the 6 months following the trip.

Though some slight differences in overall self-efficacy presented between girls with higher and lower family security ratings (consistent with previous research in this area: e.g., Holden et al., 1990; Juang & Silbereisen, 1999), the mean differences between the groups were not strong enough to be statistically significant.

Consistent with the initial notion that self-efficacy was more easily changeable than self-esteem, it was thought that it would make a stronger contribution to changes in problem behaviors than did self-esteem. In fact, it appeared that self-efficacy did not have an independent and greater influence than self-esteem on changes in problem behaviors at 6-month follow-up. These findings suggest that self-efficacy was not more important than self-esteem in reducing problem behaviors, as was first thought. In fact, it was found that overall self-esteem significantly predicted overall self-efficacy for girls involved in the outdoor adventure program. This provides support for the importance of

promoting self-esteem as a primary outdoor adventure program goal, in part because it may help predict other important factors, such as self-efficacy.

In reviewing these findings, it is important to consider that self-efficacy may not have significantly improved over time for those who started with lower scores precisely because of their lower starting points. As Bandura (1999) and others have highlighted, people with low self-efficacy are often reluctant to engage in challenging tasks and expect failure, which may lead to self-fulfilling prophecies of failed behavior (Krueger & Dickson, 1993, 1994; Relich et al., 1986; Schunk & Gunn, 1986; Schunk & Rice, 1986).

*Self-Esteem*

Many of the findings of this study highlighted the importance of self-esteem. At pre-trip, post-trip, and 6-month follow-up, increases in self-esteem were significantly correlated with decreases in problem behaviors (conversely, decreases in self-esteem were correlated with increases in problem behaviors). A similar correlation between self-efficacy and problem behaviors appeared at 6-month follow-up, though the relationship was not as robust as between self-esteem and problem behaviors. Self-esteem was also identified as able to predict self-efficacy at a statistically significant level. These findings suggest that the relationship between increased self-esteem and decreased problem behaviors is stronger than that between increased self-efficacy and decreased problem behaviors. They also support the position that a strong relationship exists between self-esteem and self-efficacy (e.g., Ozer & Bandura, 1990).

As neophyte researchers are constantly reminded, correlation does not prove causation. However, these findings do raise interesting questions about the value of

prioritizing the promotion of self-esteem over self-efficacy when working to reduce problem behaviors in adolescent girls.

Girls who entered the GUTS! program with higher self-esteem had significantly lower changes in self-esteem at the end of the trip than did girls who entered with lower scores. This speaks to an important aspect of outdoor adventure programs geared toward high functioning participants: Such participants may benefit from the program, yet not improve dramatically simply because they initially start at such an elevated place. Outdoor adventure programs for adolescent girls might serve to *maintain* self-esteem rather than *increase* it (these programs might act as a self-esteem "booster shot") when the girls enter with high self-confidence. However, it should be noted that there was a statistically significant negative correlation between pre-trip self-esteem and post-trip change in self-esteem (e.g., girls who entered the program with lower self-esteem experienced greater increases in self-esteem by the end of the trip than did girls who entered with higher self-esteem). This may suggest that outdoor adventure programs like GUTS! could offer an important boost in self-esteem to girls who need it most.

Girls with higher family security started with significantly higher self-esteem than did girls with lower family security, and self-esteem levels did not change significantly over time for girls from either group. This suggests that family security is a good predictor of whether girls will enter an outdoor adventure program with higher or lower self-esteem.

As noted earlier, a complete analysis of participants' qualitative responses was beyond the scope of this study. However, the comments listed in Table 7 demonstrate that some girls did observe an increase in confidence that they connected to their

participation in GUTS! Given the small sample size of this study, a future complete analysis of qualitative responses could make an important contribution to understanding how GUTS! influenced self-esteem development among its members.

*Family Security*

Family security, more than any other factor, appeared to be the best predictor of self-esteem and problem behaviors in adolescent girls enrolled in the outdoor adventure program under study. Girls who reported higher levels of family security before starting the outdoor adventure program reported significantly more self-esteem and fewer problem behaviors than did girls who reported lower levels of pre-trip family security. It is worth recalling that the cutoff score that differentiated between higher and lower familial security was somewhat arbitrary, though it appears to have captured a meaningful delineation point between the two groups given the statistically significant differences in findings between the two.

*Test Construction*

Tabachnick and Fidell (2001) have identified the early-stage goals of PCA as attempts to reduce data from a large number of items assumed to assess desired information to a final list (with items added to, and deleted from, the original source) that has been administered to different groups of randomly selected participants. The end result is "a test with numerous items forming several factors that represent the area to be measured" (p. 582). The PCA conducted in Study 1 was necessarily exploratory, given the resource limitations (e.g., sample size and time constraints) of the current research project. However, it does represent the essential first step in the extensive process of constructing a test that is respectably reliable and valid.

The results showed that the variable "valuing the outdoors" (VO) contributed little to predicting self-esteem, self-efficacy, or problem behaviors. The preliminary PCA helped influence which questions were incorporated into the VO score. However, further information is required before it is clear whether the current VO score possesses adequate construct validity. The VO research was recognized from the beginning of this study as being exploratory. Future research might continue the PCA to develop a better measure of VO that could be integrated into other outdoor adventure studies.

*Previous GUTS! Experience*

Previous GUTS! experience did not predict higher Time 1 levels of self-efficacy and self-esteem or lower problem behaviors at a statistically significant level. The group differences may not have reached statistical significance because the sample was too small [the question was not included in the summer 2006 pilot study. Only 18 girls (29% of the total respondents) reported having previous GUTS! experience]. Another explanation is that the average first-year GUTS! participant is already fairly high functioning to begin with (personal communication, J. Euell, June 6, 2006), so they're not particularly different from high functioning returning members. A positive interpretation of these results is that new members are not at an obvious disadvantage when beginning GUTS! compared to their more experienced peers.

*Implications for Developing Outdoor-Based Programming*

The results of this study suggest that outdoor adventure programs may offer methods for increasing self-esteem in non-acting out adolescent girls who present with lower initial levels of self-esteem. Additionally, there appears to be a connection between increased overall self-esteem and long-term self-efficacy (i.e., at 6-month

follow-up) and reduced problem behaviors for the group as a whole. The results of this study are also important to consider because much of the outdoor recreation research to date has been conducted on at-risk adolescent males enrolled in therapeutic programs.

If GUTS! and similar outdoor adventure programs are able to offer self-esteem and self-efficacy benefits to adolescent girls, a natural follow-up question involves accessibility and representation. Which adolescent girls are able to access outdoor adventure programs? Issues of cost are important ones. Though GUTS! currently offers scholarships to girls whose families cannot afford to pay their ways, it is unreasonable to think that their current structure could accommodate free tuition for all participants. And what might be the non-financial costs if they did? Is it possible that one of the benefits of the group comes from allowing girls from less privileged backgrounds to mingle with girls from more privileged groups? Research shows that teens typically choose peers from similar sociocultural and behavioral groups (Steinberg, 1996). With its current structure, GUTS! allows for cross group exposure and interaction, which is indicated to be positive if the other girls are supportive, but less so if peers are deviant (Metzler et al., 1994; Werner, 1993).

A drawback of outdoor adventure programs is that they are time-limited and often do not offer follow-up contact to participants, which may limit their benefit over time. Such shortcomings might be remedied by further developing ongoing mentorship programs between middle school and high school participants or through scheduled reunion meetings, especially for participants who report low levels of parental support (currently, about 20% of the summer GUTS! program participants are also involved in the programs academic-year community programs).

*Limitations of Current Study and Suggestions for Future Research*

It is understood that the current study possesses limitations. The sample was not representative of the general population in that most participants were Euro American, middle class, and living with at least one parent, and the trip leaders were mostly Euro American women. Though a minority of girls participated in this outdoor adventure program through scholarships, the majority paid a substantial cost to be involved in GUTS! and various other extracurricular activities throughout the year. The average GUTS! girl has a more privileged lifestyle than many of her peers in the general population (J. Euell, personal communication, June 6, 2006).

With that said, this sample does represents an accurate portrayal of the typical outdoor adventure or wilderness therapy participant. Aside from adjudicated youth, most participants in outdoor programs do come from families from higher SES backgrounds (in large part because the programs are typically expensive) (Beavers and Hampton, as cited in Bandoroff & Scherer, 1994). Lack of diversity is a flaw of the current research project, as well as adolescent psychological research in general (e.g., as discussed in Chapman & Mullis, 2000). It should be noted that the external validity of the study may be lowered when the findings are applied to girls from different racial, class, or family backgrounds. However, given that most outdoors recreation studies have been conducted with Caucasian male adolescents (Russell, 2001), this research at least has the advantage of presenting data from a female sample.

It must also be recognized that the current study was conducted on a sample drawn from a single outdoor adventure program. It is understood that the results may not

apply to adolescent girls in other wilderness recreation programs, and thus the reader should interpret the findings in a responsibly cautious manner.

One of the most striking limitations of the current study was its lack of statistically significant findings and small sample size. The study attempted to avoid a problem common to much of the outdoor intervention research, a lack of longitudinal follow-up. It was anticipated that girls would be more motivated to complete baseline and post-trip measures, in large part because the interviews were administered in person and completion was normalized by peers who were subsequently filling out the same forms. It was hoped that the $5 reimbursement to a store of the participant's choice would act as a desirable incentive to increase the 6-month follow-up completion rate.

As previously noted, the Time 3 response rate was approximately 57%. Though low response rates are not unusual in longitudinal survey research (Sommer & Sommer, 1991), it should be noted that they present two problems at present: First, the lower sample size likely limited the power of the study and may have contributed to Type II errors (i.e., the error of failing to observe a difference that actually exists). Second, the Time 3 data may reflect a selection bias (e.g., girls who were disorganized or disliked GUTS! may not have responded, producing a biased set of responses from those who did). Reviewing participant's qualitative evaluations of the program could prove a valuable method to enhance understanding about the program that did not present as statistically significant due to low power.

Power concerns were not limited to analyses that involved 6-month follow-up data. The between-groups observations (e.g., between girls with and without GUTS! experience or lower and higher family security) also likely suffered from low power

related to small "subsample" sizes. Though it was anticipated from the beginning that this study might be necessarily underpowered due to the size of the GUTS! program, it was not clear that sample sizes would have been as small (and subsequently, power problems as influential) as they ultimately were.

Hendee and Pitstick (1993) have suggested that five conditions must be met in order for individuals to obtain personal growth from their wilderness experiences. The five conditions follow: (1) *receptive participants who are ready to grow*; (2) *optimum stress in the wilderness experience*; (3) *a cultural change in the form of a break from prevailing norms*; (4) *opportunity for attunement with nature and oneself*; and (5) *experiencing wilderness metaphors*. It may have been difficult for participants to meet each of these criteria, which could explain a lack, or minimal experience, of change for some of the girls who completed the GUTS! program. It is possible that girls who were not successful in overcoming challenges could have come to view themselves as physically incompetent, which could have actually *decreased* their senses of self-esteem and self-efficacy (as suggested in Richman & Shaffer, 2000, p. 197).

One methodological weakness of the study was that girls were asked, "Would you recommend GUTS! to a friend? If so, is there anything else (besides what you listed above) that you would want her to know about the program?" However, they were not given an option to talk about what they would want their friends to know if they didn't want to refer them to GUTS!, which could have elicited valuable information regarding complaints about the program. This may have encouraged a positive response bias. Another methodological problem specific to self-efficacy is that the General Self-Efficacy Scale was normed on a sample of adults and adolescents 12 and older.

However, 6 (9.6% of the sample) of the participants in the current study were under 12 years of age.

Additional research is required to determine the outdoor program design optimal for most participants. For example, much variance exists in program length. Some evidence suggests that longer programs produce the most benefit (e.g., Russell, 2001), whereas other research implies they may be problematic. Greenway (1993) found that college-student participants on a 2-week wilderness psychology academic program were inspired to make many life changes upon completion of their trips. However, those who were gone on 3-week journeys often experienced difficulty readapting to the fast pace of life when they returned from their trips. It is possible that girls in the current study would have achieved more benefit from the program if it had lasted for a longer period.

The mentorship offered by GUTS! employees and volunteers could be most appreciated by those who do not find it from other adults in their lives. Unfortunately, such benefits may wane as time passes and the young women lose contact with the GUTS! leaders. This could infer the importance of developing a "booster shot" program that keeps girls in contact with GUTS! (this would be easily implemented by inviting the girls to engage in the existing GUTS! after-school program, which focuses on community involvement rather than wilderness experiences).

Though the current study attempted to avoid some of the historical criticisms of outdoor adventure studies (e.g., Bandoroff & Scherer, 1994; Berman & Davis-Berman, 1989; Burg, 2000; Burns, 2000; Crompton & Sellar, 1981; Hickmon et al., 1997) through the use of standardized measures, a moderate-sized sample, a within-subjects design, and longitudinal data collection, it is clear that a number of critiques could still be made. Not

least among them is the fact that this study drew from a convenience sample of adolescent girls participating in a Missoula-based outdoor adventure program. The findings may or may not be applicable to similar programs aside from GUTS! The current study might best serve the role of exploratory research for a future project that involves a higher sample size drawn from a more diverse group of outdoor adventure programs. Such research could integrate a further-refined version of the modified General Self-Efficacy Scale (which has been subjected to early study with the exploratory PCA conducted in Study 2).

The benefits of adolescent self-esteem and self-efficacy have been well researched. Though the current study results suggest that outdoor adventure programs like GUTS! may have some influence on self-esteem and self-efficacy in adolescent girls, this study did not elicit which aspects contributed most to these constructs. Future research that isolates the specific factors of outdoor adventure programs that contribute to self-esteem and self-efficacy (e.g., outdoor experience, mentorship, or time with other girls) would be very valuable. It would be worthwhile to explore the importance of the role of nature by conducting a randomized trial that separated participants by no-treatment, an indoor mentorship program aimed at influencing self-esteem, self-efficacy, and problem behaviors, and a third group that shared these goals but was conducted in a wilderness setting. It could also prove interesting to repeat the current study with a between-groups design to comparing male and female differences in response to outdoor adventure programs.

*Conclusion*

The findings of this study were consistent with previous research that suggests that problem behaviors are negatively correlated with self-esteem. They also supported the notion that girls from higher family security systems have more self-esteem and fewer problem behaviors than do girls from lower family security systems. The current results suggest that the GUTS! did not have a large impact over time on improving self-efficacy and self-esteem and reducing problem behaviors for adolescent girls. However, it is important to note that the small sample size likely led to an underpowered study with a high chance of Type II error.

It is also worth focusing on *clinically significant* findings that may exist in the absence of *statistically significant* differences. There is an abundant body of literature that suggests that girls' self-esteem and self-efficacy typically dips during adolescence (e.g., Baldwin & Hoffman, 2002; Brooks-Gunn & Paikoff, 1993; Kling et al., 1999; Pipher, 1995). If GUTS! and similar outdoor adventure programs are able just to help girls *maintain* baseline levels of self-efficacy and self-esteem over time, they may be contributing a valuable service. Though a complete analysis of participants' qualitative responses were beyond the scope of this study, they have the potential to act as a powerful adjunct to increase understanding of how GUTS! and similar outdoor adventure programs impact their participants.

The differences between wilderness therapy and outdoor adventure programs have been reviewed in this paper. Whereas the former is typically focused on solving existing problems, the latter are typically growth-oriented in the absence of clinical problems. In recent years, Martin Seligman and his colleagues have gained increasing

attention for their calls to focus on promoting personal growth rather than just reducing mental illness:

> Whatever the personal origins of our conviction that the time has arrived for a positive psychology, our message is to remind our field that psychology is not just the study of pathology, weakness, and damage; it is also the study of strength and virtue. Treatment is not just fixing what is broken; it is nurturing what is best. Psychology is not just a branch of medicine concerned with illness or health; it is much larger. It is about work, education, insight, love, growth, and play. (Seligman & Csikszentmihalyi, 2000, p. 7).

Outdoor adventure programs, and wilderness interventions in general, represent a growing field that allows adolescent participants access to positive adult role models, well-monitored peer interactions, physical exercise, contact with the natural world, and chances to enhance the important variable of self-esteem. GUTS! and similar programs place a strong emphasis on "nurturing what is best." As psychology begins to focus more on developing the positive, programs like GUTS! will benefit from researching how they can maximize the positive influences they have on the lives of young women to promote self-esteem, self-efficacy, and help girls truly find and use their strengths.

References

Achenbach, T.M., & Rescorla, L.A. (2001). *Manual for the ASEBA school-age forms & profiles.* Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families.

Anderson, L., Schleien, S.J., McAvoy, L., Lais, G., & Seligmann, D. (1997). Creating positive change through an integrated outdoor adventure program. *Therapeutic Recreation Journal, 31*(4), 214-229.

Arnett, J.J. (1999). Adolescent storm and stress, reconsidered. *American Psychologist, 54*(5), 317-326.

Baldwin, S.A., & Hoffman, J.P. (2002). The dynamics of self-esteem: A growth-curve analysis. *Journal of Youth and Adolescence, 31,* 101-113.

Bandoroff, S., & Scherer, D.G. (1994). Wilderness family therapy: An innovative treatment approach for problem youth. *Journal of Child and Family Studies, 3,* 175-191.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: Freeman.

Bandura, A. (1999). Social cognitive theory of personality. In L.A. Pervin & O.P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed) (pp. 154-247). New York: Guilford Press.

Bandura, A., Caprara, G.V., Barbaranelli, C., Pastorelli, C., & Regalia, C. (2001). Sociocognitive self-regulatory mechanisms governing transgressive behavior. *Journal of Personality and Social Psychology, 80,* 125-135.

Bandura, A., Pastorelli, C., Barbaranelli, C., & Caprara. G.V. (1999). Self-efficacy pathways to childhood depression. *Journal of Personality and Social Psychology, 76*(2), 258-269.

Baron, R.M., & Kenny, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Bergman, M.M., & Scott, J. (2001). Young adolescents' wellbeing and health-risk behaviours: Gender and socio-economic differences. *Journal of Adolescence, 24,* 183-197.

Berman, D.S., & Davis-Berman, J. (1991). Wilderness therapy and adolescent mental health: Administrative and clinical issues. *Administration and Policy in Mental Health, 18*(5), 373-379.

Berman, D.S., & Davis-Berman, J.L. (1989). Wilderness therapy: A therapeutic adventure for adolescents. *Journal of Independent Social Work, 3*(3), 65-77.

Berube, R.L, & Achenbach, T.M. (2001). *Bibliography of published studies using ASEBA instruments: 2001 edition.* Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families.

Blascovich, J., & Tomaka, J. (1993). Measures of self-esteem. In J.P. Robinson, P.R. Shaver, & L.S. Wightsman (eds.), *Measures of personality and social psychological attitudes* (3rd ed.), 115-160. Ann Arbor: Institute for Social Research.

Borenstein, M., Rothstein, H., Cohen, J., Schoenfield, D., & Berlin, J. (2000). *Sample Power* (Version 2.0) [Computer Software] SPSS.

Bouffard-Bouchard, T., Parent, S., & Larivee, S. (1991). Influence of self-efficacy on self-regulation and performance among junior and senior high school age students. *International Journal of Behavioral Development, 14,* 153-164.

Brooks-Gunn, J., & Paikoff, R. (1993). "Sex is a gamble, kissing is a game": Adolescent sexuality and health promotion. In S. P. Millstein, A.C. Petersen, & E.O. Nightingale (Eds.), *Promoting the health behavior of adolescents* (pp. 180-208). New York: Oxford University Press.

Burg, J.E. (2000). Adventures in family therapy. *Journal of Systemic Therapies, 19,* 18-30.

Burns, G.W. (1998). *Nature guided therapy: Brief integrative strategies for health and well-being.* Bristol, PA: Brunner/Mazel.

Burns, G.W. (2000). When watching a sunset can help a relationship dawn anew: Nature-guided therapy for couples and families. *The Australian and New Zealand Journal of Family Therapy, 21*(4), 184-190.

Byrne, D.G., & Mazanov, J. (2001). Self-esteem, stress, and cigarette smoking in adolescents. *Stress and Health, 17,* 105-110.

Caprara, G.V., Regalia, C., & Bandura, A. (2002). Longitudinal impact of perceived self-regulatory efficacy on violent conduct. *European Psychologist, 7,* 63-69.

Centers for Disease Control and Prevention (2004, May 21). Surveillance summaries. *Morbidity and Mortality Weekly Report, 2004:53*(SS-2).

Chang, E.C. (2001). Life stress and depressed mood among adolescents: Examining a cognitive-afective mediation model. *Journal of Social and Clinical Psychology, 20,* 416-429.

Chapman, P.L., & Mullis, R.L. (2000). Racial differences in adolescent coping and self-esteem. *The Journal of Genetic Psychology, 161*(2), 152-160.

Clark-Carter, D. (1997). *Doing quantitative psychological research: From design to report.* Hove, East Sussex: Taylor & Francis: Psychology Press.

Clay, D., Vignoles, V.L., & Dittmar, H. (2005). Body image and self-esteem among adolescent girls: Testing the influence of sociocultural factors. *Journal of Research on Adolescence, 15*(4), 451-477.

Clements, K., Gleghorn, A., Garcia, D., Katz, M., & Marx, R. (1997). A risk profile of street youth in Northern California: Implications for gender-specific human immunodeficiency virus prevention. *Journal of Adolescent Health, 20*(5), 343-353.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Colarossi, L.G., & Eccles, J.S. (2003). Differential effects of support providers on adolescents' mental health. *Social Work Research, 27*(1), 19-30.

Comrey, A.L., & Lee, H.B. (1992). *A first course in factor analysis.* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Conn, S.A. (1998). Living in the Earth: Ecopsychology, health and psychotherapy. *The Humanistic Psychologist, 26,* 179-198.

Crompton, J.L., & Sellar, C. (1981). Do outdoor education experiences contribute to positive development in the affective domain? *Journal of Environmental Education, 12*(4), 21-29.

Davis-Berman, J., & Berman, D.S. (1994). *Wilderness therapy: Foundations, theories, and research.* Dubuque, IA: Kendall/Hunt.

Davison, T.E., & McCabe, M.P. (2006). Adolescent body image and psychosocial functioning. *The Journal of Social Psychology, 146*(1), 15-30.

Dittus, P., Jaccard, J., & Gordon, V. (1997). The impact of African-American fathers on adolescent sexual behavior. *Journal of Youth and Adolescence, 26,* 445-465.

Dodge, T., & Jaccard, J. (2002). Participation in athletics and female sexual risk behavior: The evaluation of four causal structures. *Journal of Adolescent Research, 17*(1), 42-67.

Ewert, A. (1989). *Outdoor adventure pursuits: Foundations, models, and theories.* Worthington, OH: Publishing Horizons.

Forman, E.M., & Davies, P.T. (2003). Family instability and young adolescent maladjustment: The mediating effects of parenting quality and adolescent appraisals of family security. *Journal of Clinical Child and Adolescent Psychology, 32*(1), 94-105.

Forman, E.M., & Davies, P.T. (2005). Assessing children's appraisals of security in the family system: The development of the Security in the Family System (SIFS) scales. *Journal of Child Psychology and Psychiatry, 45,* 900-916.

Friese, G.T., Pittman, J.T., & Hendee, J.C. (September, 1995). Studies of the use of wilderness for personal growth, therapy, education, and leadership development: An annotation and evaluation. Available from the U-I Wilderness Research Center—Outdoor Behavioral Healthcare Research Cooperative (http://www.its.uidaho.edu/wrc).

Garson, G.D. (2008). Data imputation for missing values. Retrieved March 26, 2008, from http://www2.chass.ncsu.edu/garson/pa765/missing.htm

Gass, M.A. (Ed.). (1993). *Adventure therapy: Therapeutic applications of adventure programming.* Dubuque, IA: Kendall/Hunt.

Gillis, H.L., & Gass, M.A. (1993). Bringing adventure into marriage and family therapy: An innovative experiential approach. *Journal of Marital and Family Therapy, 19,* 273-286.

Gillmore, M.R., Butler, S.S., Lohr, M.J., & Gilchrist, L. (1992). Substance use and other factors associated with risky sexual behavior among pregnant adolescents. *Family Planning Perspectives,24,* 255-261, 268.

Girls Using Their Strengths! (n.d.) *GUTS! Girls Using Their Strengths!* Retrieved April 25, 2006, from http://www.womenandenvironment.org/guts

Gomes, M.E., & Kanner, A.D. (1995). In T. Roszak, M.E. Gomes, & A.D. Kanner (Eds.), *Ecopsychology: Restoring the earth, healing the mind* (pp. 111-121). San Francisco: Sierra Club Books.

Greenway, R. (1993). On crossing and not crossing the wilderness boundary. Paper presented at 5th World Congress—Symposium on International Wilderness Allocation, Management, and Research, 26 September – 2 October, at Tromso, Norway.

Grotevant, H.D. (1998). Adolescent development in family contexts. In N. Eisenberg (Ed.), *Handbook of child psychology (5th ed.): Vol. 3. Social, emotional, and personality development* (pp. 1097-1149). New York: John Wiley & Sons.

Guillon, M.S., Crocq, M-A, & Bailey, P.E. (2003). The relationship between self-esteem and psychiatric disorders in adolescents. *European Psychiatrist, 18,* 59-62.

Hall, G.S. (1904). *Adolescence: Its psychology and its relation to physiology, anthropology, sociology, sex, crime, religion, and education (Vols. I & II).* Englewood Cliffs, NJ: Prentice-Hall.

Hamill, S.K. (2003). Resilience and self-efficacy: The importance of efficacy beliefs and coping mechanisms in resilient adolescents. *Colgate University Journal of the Sciences, 35,* 115-146.

Hattie, J., Marsh, H.W., Neill, J.T., & Richards, G.E. (1997). Adventure education and Outward Bound: Out-of-class experiences that make a lasting difference. *Review of Educational Research,67*(1), 43-87.

Hendee, J.C., & Pitstick, R. (1993). The use of wilderness for personal growth and inspiration. Paper presented at the 5th World Wilderness Congress, Tromso, Norway.

Hickmon, W.A., Protinsky, H.O., & Singh, K. (1997). Increasing marital intimacy: Lessons from marital enrichment. *Contemporary Family Therapy, 19,* 581-589.

Holden, G.W., Moncher, M.S., Schinke, S.P., & Barker, K.M. (1990). Self-efficacy of children and adolescents. *Psychological Reports, 66,* 1044-1046.

Horn, B.R. (1969). Report of research: A factor analysis of attitudes toward the term Outdoor Education. *Journal of Education, 4,* 15-17.

Hullett, C.R., & Levine, T.R. (2003). The overestimation of effect sizes from *F* values in meta-analysis: The cause and a solution. *Communication Monographs, 70*(1), 52-67.

Hunter, I.R. (1987). The impact of an outdoor rehabilitation program for adjudicated juveniles. *Therapeutic Recreation Journal, 21*(3), 30-43.

Jaccard, , J., Dittus, P., & Gordon, V. (1996). Maternal correlates of adolescent sexual behavior. *Family Planning Perspectives, 28,* 159-165.

Jaccard, J., & Dittus, P. (1991). *Parent-teenager communication: Towards the prevention of unintended pregnancies.* New York: Springer-Verlag.

Jaccard, J., Dittus, P., & Litardo, H. (1999). Parent-adolescent communication about sex and birth control. Implications for parent-based interventions to reduce unintended adolescent pregnancy. In L. Severy & W. Miller (Eds.), *Advances in population: Psychosocial perspectives.* London: Kingsley.

Juang, L.P., & Silbereisen, R.K. (1999). Supportive parenting and adolescent adjustment across time in former East and West Germany. *Journal of Adolescence, 22,* 719-736.

Kimball, R.O., & Bacon, S.B. (1993). The wilderness challenge model. In M. Gass (Ed.), *Adventure therapy: Therapeutic applications of adventure programming.* Dubuque, IA: Kendall-Hunt.

Kinnear, P.R., & Gray, C.D. (2004). SPSS 12 made simple. New York: Psychology Press.

Kling, K.C., Hyde, J.S., Showers, C.J., & Buswell, B.N. (1999). Gender differences in self-esteem: A meta-analysis. *Psychological Bulletin, 123,* 470-500.

Kreuger, N.F., Jr., & Dickson, P.R. (1993). Self-efficacy and perceptions of opportunities and threats. *Psychological Reports, 72,* 1235-1240.

Kreuger, N.F., Jr., & Dickson, P.R. (1994). How believing in ourselves increases risk taking: Perceived self-efficacy and opportunity recognition. *Decision Sciences, 25,* 385-400.

Little, R.J.A., & Rubin, D.B. (1987). *Statistical analysis with missing data.* New York: John Wiley & Sons.

Mason, L. (2005). 'They haven't a clue!' A qualitative study of staff perceptions of 11-14 year-old female clinic attenders. *Primary Health Care Research and Development, 6,* 199-207.

Mason, M.J. (1987). Wilderness family therapy: Experiential dimensions. *Contemporary Family Therapy, 9,* 90-105.

Mason, W.A. (2001). Self-esteem and delinquency revisited (again): A test of Kaplan's self-derogation theory of delinquency using latent growth curve modeling. *Journal of Youth and Adolescence, 30,* 83-102.

McAvoy, L., Schatz, C., Stutz, M., Schleien, S., & Lais, G. (1989). Integrated wilderness adventure: Effects on personal and lifestyle traits of persons with and without disabilities. *Therapeutic Recreation Journal, 23*(3), 50-64.

Metzler, C. W., Noell, J., Biglan, A., Ary, D., & Smolkowski, K. (1994). The social context for risky sexual behavior among adolescents. *Journal of Behavioral Medicine, 17*(4), 419-438.

Metzner, R. (1999). Green psychology: *Transforming our relationship to the earth*. Rochester, VT: Park Street Press.

Moore, T., & Russell, K.C. (2002). Studies of the use of wilderness for personal growth, therapy, education, and leadership development: An annotation and evaluation. Idaho Forest, Wildlife, & Range Experiment Station, Moscow, ID: Available from the U-I Wilderness Research Center—Outdoor Behavioral Healthcare Research Cooperative (http://www.its.uidaho.edu/wrc).

New York Times. (2005). *How class works.* Retrieved March 24, 2008, from http://www.nytimes.com/packages/html/national/20050515_CLASS_GRAPHIC/index_01.html

Nirelli, L.M., Larsen, M.D., Croghan, I.T., Schroeder, D.R., Offord, K.P., & Hurt, R.D. (2005). Comparison of methods for handling missing data in a collegiate survey of tobbaco use. Proceedings of the Survey Research Methods Section, American Statistical Association. Alexandria, VA: American Statistical Association.

Nunnaly, J. (1978). Psychometric theory. NY, McGraw-Hill.

Outward Bound USA. (n.d.). *Outward bound then and now.* Retrieved April 30, 2005, from http://www.outwardbound.com/about.html

Ozer, E.M., & Bandura, A. (1990). Mechanisms governing empowerment effects: A self-efficacy analysis. *Journal of Personality and Social Psychology, 58*(3), 472-486.

Pipher, M.B. (1995). *Reviving Ophelia: Saving the selves of adolescent girls.* Westminster, MD: Ballantine Books.

Plotkin, B. (2003). Soulcraft: Crossing into the mysteries of nature and psyche. Novato, CA: New World Library.

Relich, J.D., Debus, R.L., & Walker, R. (1986). The mediating role of attribution and self-efficacy variables for treatment effects on achievement outcomes. *Contemporary Educational Psychology, 11,* 195-216.

Richman, E.L., & Shaffer, D.R. (2000). "If you let me play sports": How might sports participation influence the self-esteem of adolescent females? *Psychology of Women Quarterly, 24*, 189-199.

Rohwer, J., & Massey-Stokes, M.S. (2001). Eating disorders in women and children: Prevention, stress management, and treatment. In J. Robert-McComb (Ed.), *Eating disorders in women and children: Prevention, stress management, and treatment* (pp. 211-224). Boca Raton, FL: CRC Press.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton, NJ: Princeton University Press.

Rosenberg, M. (1986). *Conceiving the self.* Malabar, FL: Krieger.

Rosenberg, M. (1989). *Society and the adolescent self-image* (revised edition). Middletown, CT: Wesleyan University Press.

Roszak, T. (2001). *The voice of the Earth: An exploration of ecopsychology* (2nd ed.). Grand Rapids, MI: Phanes Press.

Roszak, T., Gomes, M.E., & Kanner, A.D. (eds.) (1995). *Ecopsychology: Restoring the Earth, healing the mind.* Berkeley, CA: Sierra Club Books, The University of California Press.

Russell, K.C. (2001). What is wilderness therapy? *The Journal of Experiential Education, 24*(2), 70-79.

Russell, K.C. (2002). Longitudinal assessment of treatment outcomes in outdoor behavioral healthcare. (Technical Report 28). Idaho Forest, Wildlife, & Range Experiment Station, Moscow, ID: Available from the U-I Wilderness Research Center—Outdoor Behavioral Healthcare Research Cooperative (http://www.its.uidaho.edu/wrc).

Russell, K.C., & Hendee, J.C. (2000). Outdoor Behavioral Healthcare: Definitions, common practice, expected outcomes, and a nationwide survey of programs. (Technical Report 26). Idaho Forest, Wildlife, & Range Experiment Station, Moscow, ID: Available from the U-I Wilderness Research Center—Outdoor Behavioral Healthcare Research Cooperative (http://www.its.uidaho.edu/wrc).

Salazar, L.F., Crosby, R.A., DiClemente, R.J., Wingood, G.M., Lescano, C.M., Brown, L.K., et al. (2005). Self-esteem and theoretical mediators of safer sex among African American female adolescents: Implications for sexual risk reduction interventions. *Health Education & Behavior, 32*(3), 413-427.

Saunders-Ferguson, K.E., Barnett, R.V., Culen, G., & TenBroecks, S. (2006). Self-esteem of adolescents involved in horsemanship activities. *University of Florida IFAS Research Newsletter.* Retrieved March 10, 2008, from http://fycs.ifas.ufl.edu/newsletters/rnycu06/2006/10/horses-teens-and-self-esteem.html

Schleien, S.J., Fahnestock, M., Green, F., & Rynders, J. (1990). Building positive social networks through environmental interventions in integrated recreation programs. *Therapeutic Recreation Journal, 24*(4), 42-52.

Scholte, R.H.J., Van Lieshout, C.F.M., & Van Aken, M.A.G. (2001). Perceived relational support in adolescence: Dimensions, configurations, and adolescent adjustment. *Journal of Research on Adolescence, 11,* 72-94.

Schonert-Reichl, K.A., & Muller, J.R. (1996). Correlates of help-seeking in adolescence. *Journal of Youth and Adolescence, 25*(6), 705-732.

Schunk, D.H., & Gunn, T.P. (1986). Self-efficacy and skill development: Influence of taks strategies and attributions. *Journal of Educational Research, 79,* 238-244.

Schunk, D.H., & Rice, J.M. (1986). Extended attributional feedback: Sequence effects during remedial reading instruction. *Journal of Early Adolescence, 6,* 55-66.

Schwarzer, R. (2005). Everything you always wanted to know about the self-efficacy scale but were afraid to ask. Retrieved May 25, 2006, from userpage.fu-berlin.de/~health/materials/faq_gse_220405.pdf

Schwarzer, R. (n.d.). The General Self-Efficacy Scale (GSE). Retrieved May 25, 2006, from userpage.fu-berlin.de/~health/engscal.htm

Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, UK: NFER-NELSON.

Seligman, M.E.P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*(1), 5-14.

Sieving, R., Resnick, M.D., Bearinger, L., Remafedi, G., Taylor, B.A., & Harmon, B. (1997). Cognitive and behavioral predictors of sexually transmitted disease risk behavior among sexually active adolescents. *Archives of Pediatrics and Adolescent Medicine, 151,* 243-251.

Smith, E.P., Walker, K., Fields, L., Brookins, C.C., & Seay, R.C. (1999). Ethnic identity and its relationship to self-esteem, perceived efficacy and prosocial attitudes in early adolescence. *Journal of Adolescence, 22,* 867-880.

Sommer, B., & Sommer, R. (1991). *A practical guide to behavioral research: Tools and techniques (*3rd ed.). NY: Oxford University Press.

Spence, J. T., & Helmreich, R. L. (1978). *Masculinity and femininity: Their psychological dimensions, correlates and antecedents.* Austin: University of Texas Press.

Spence, S.H., Sheffield, J.K., & Donovan, C.L. (2003). Preventing adolescent depression: An evaluation of the Problem Solving for Life program. *Journal of Consulting and Clinical Psychology, 71*(1), 3-13.

St. Lawrence, J.S., Brasfield, T.L., Jefferson, K.W., Allyene, E. & Shirley, A. (1994). Social support as a factor in African-American adolescents' sexual risk behavior. *Journal of Adolescent Research, 9*, 292-310.

Steinberg, L. (1996). *Adolescence*. NY: McGraw-Hill.

Sweeting, H., West, P., & Richards, M. (1998). Teenage-family life, lifestyles, and life chances: Associations with family structure, conflict with parents, and joint family activity. *International Journal of Law, Policy, and the Family, 12,* 15-16.

Swenson, R.R., & Prelow, H.M. (2004). Ethnic identity, self-esteem, and perceived efficacy as mediators of the relation of supportive parenting to psychosocial outcomes among urban adolescents. *Journal of Adolescence, 28,* 465-477.

Tabachnick, B.G., & Fidell, L.S. (2001). Using multivariate statistics (4th ed.). Needham Heights, MA: Allyn & Bacon.

Taylor-Seehafer, M., & Rew, L. (2000). Risky sexual behavior among adolescent women. *Journal for Specialists in Pediatric Nursing , 5*(1), 15-24.

Turner, R.A., Irwin, C.E., Tschann, J.M., & Millstein, S.G. (1993). Autonomy, relatedness, and the initiation of health risk behaviors in early adolescence. *Health Psychology, 12*(3), 200-208.

United States Department of Labor: Bureau of Labor Statistics. (2001). *SOC major groups.* Retrieved January 10, 2008, from http://www.bls.gov/soc/soc_majo.htm

UCLA: Academic Technology Centers, Statistical Consulting Group. (n.d.). *Annotated SPSS output: Principal components analysis.* Retrieved April 1, 2008, from http://www.ats.ucla.edu/stat/SPSS/output/principal_components.htm

University of Maryland (n.d.). *The Rosenberg Self-Esteem Scale.* Retrieved May 25, 2006, from University of Maryland, Department of Sociology website: http://www.bsos.umd.edu/socy/grad/socpsy_rosenberg.html

Werner, E. E. (1993). Risk, resilience, and recovery: Perspectives from the Kauai Longitudinal Study. *Development & Psychopathology, 5*, 503-515.

Whiteside-Mansell, L., & Corwyn, R.F. (2003). Mean and covariance structures analyses: An examination of the Rosenberg Self-Esteem Scale among

adolescents and adults. *Educational and Psychological Measurement, 63*(1), 163-173.

Wild, L.G., Flisher, A.J., Bhana, A., & Lombard, C. (2004). Associations among adolescent risk behaviours and self-esteem in six domains. *Journal of Child Psychology and Psychiatry, 45*(8), 1454-1467.

Wilson, S.J., & Lipsey, M.W. (2000). Wilderness challenge programs for delinquent youth: A metanalysis of outcome evaluations. *Evaluation and Program Planning, 23*(1), 1-12.

Wood, R.E., & Bandura, A. (1989). Social cognitive theory of organizational management. *Academy of Management Review, 14,* 361-384.

# Appendix A

Date

Dear GUTS! Participant,

I am writing to invite you to help with a new GUTS! project. I'm working with Jen and Ashley to find out what it is that makes the GUTS! summer program so special. We truly believe that it helps girls find their strengths, but we want to know more about how. I'm currently organizing a study to find answers to our many questions, and I can't do it without you (you knew I wanted something, right?)!

Who: Any GUTS! girl who wants to help!

What: If you decide to participate in this study, I will ask you to fill out a few different questionnaires. The whole thing should take about 25-35 minutes the first time, and less the second and third time. The questions will ask about you (like your age and how you like to spend your free time) and some about how you think of yourself and your interactions with others.

When: Questionnaires will be completed three different times: 1) Before you go on your trip. 2) When you come back from your trip. 3) Six months after your trip (I'll mail them to you).

Why: Part I: We're conducting this study to find out more about what GUTS! gives girls. By joining, you're helping to tell others about what makes GUTS! great! Part II: When you participate, you get a little thank you gift ($5 after your second survey and another $5 after the third).

If you'd like to be a part of this project, just let me know when you show up for your GUTS! trip (and check to make sure that your parent or caregiver has signed a consent form for you to participate). If you have any questions, you can call me at 243-6513 or send me an e-mail at kristen.oshea@umontana.edu .

Thanks for reading this far. I hope to see you soon!

Have a Great Summer,

Kristen O'Shea
Clinical Psychology Graduate Student
The University of Montana

Appendix B

Date

Dear Parent/Guardian,

I am a graduate student in the clinical psychology program at The University of Montana. I'm writing to invite you to allow your daughter to participate in an ongoing GUTS! project. I've been working with Jen Euell to design a study that will help evaluate the GUTS! summer program. We're interested in GUTS! strengths, as well as areas that could benefit from change. We plan to administer questionnaires that have already been tested in programs similar to GUTS! By doing this, we hope we'll be in a better position to compare the GUTS! program to other prevention and intervention programs, which could increase GUTS! funding opportunities and allow the program to offer even more benefits to its participants.

I have attached a parental consent form that outlines the details of the study. If you have questions, please do not hesitate to contact me at 243-6513 or kristen.oshea@umontana.edu . We hope this study will help make an already great program even better! Thank you for considering the possibility of allowing your child to participate in this project.

Sincerely,

Kristen O'Shea, MA
Clinical Psychology Graduate Student
The University of Montana

Appendix C

**The Rosenberg Self-Esteem Scale**

Below is a list of statements dealing with your general feelings about yourself. If you **STRONGLY AGREE**, circle **SA**. If you **AGREE** with the statement, circle **A**. If you **DISAGREE**, circle **D**. If you **STRONGLY DISAGREE**, circle **SD**.

| | | 1. **STRONGLY AGREE** | 2. **AGREE** | 3. **DISAGREE** | 4. **STRONGLY DISAGREE** |
|---|---|---|---|---|---|
| 1. | I feel that I'm a person of worth, at least on an equal plane with others. | **SA** | **A** | **D** | **SD** |
| 2. | I feel that I have a number of good qualities. | **SA** | **A** | **D** | **SD** |
| 3. | All in all, I am inclined to feel that I am a failure. | **SA** | **A** | **D** | **SD** |
| 4. | I am able to do things as well as most other people. | **SA** | **A** | **D** | **SD** |
| 5. | I feel I do not have much to be proud of. | **SA** | **A** | **D** | **SD** |
| 6. | I take a positive attitude toward myself. | **SA** | **A** | **D** | **SD** |
| 7. | On the whole, I am satisfied with myself. | **SA** | **A** | **D** | **SD** |
| 8. | I wish I could have more respect for myself. | **SA** | **A** | **D** | **SD** |
| 9. | I certainly feel useless at times. | **SA** | **A** | **D** | **SD** |
| 10. | At times, I think I am no good at all. | **SA** | **A** | **D** | **SD** |

## The Modified General Self-Efficacy Scale

Please use the following scale to respond to these questions:

**1 = Not at all true**
**2 = Hardly true**
**3 = Moderately true**
**4 = Exactly true**

| | | Not at all true | Hardly true | Moderately true | Exactly true |
|---|---|---|---|---|---|
| **1** | **I can always manage to solve difficult problems if I try hard enough.** | **1** | **2** | **3** | **4** |
| 2 | I dislike spending time outdoors. | 1 | 2 | 3 | 4 |
| 3 | I never disagree with others. | 1 | 2 | 3 | 4 |
| **4** | **If someone opposes me, I can find the means and ways to get what I want.** | **1** | **2** | **3** | **4** |
| 5 | I always tell the truth. | 1 | 2 | 3 | 4 |
| **6** | **It is easy for me to stick to my aims and accomplish my goals.** | **1** | **2** | **3** | **4** |
| 7 | Others would describe me as a leader. | 1 | 2 | 3 | 4 |
| 8 | I am passionate about my beliefs. | 1 | 2 | 3 | 4 |
| **9** | **I am confident that I could deal efficiently with unexpected events.** | **1** | **2** | **3** | **4** |
| 10 | I pay attention to what is happening in my community. | 1 | 2 | 3 | 4 |
| **11** | **Thanks to my resourcefulness, I know how to handle unforeseen situations.** | **1** | **2** | **3** | **4** |
| 12 | I dislike unfamiliar experiences. | 1 | 2 | 3 | 4 |
| **13** | **I can solve most problems if I invest the necessary effort.** | **1** | **2** | **3** | **4** |
| 14 | It is important to help humans who have less than I do. | 1 | 2 | 3 | 4 |
| **15** | **I can remain calm when facing difficulties because I can rely on my coping abilities.** | **1** | **2** | **3** | **4** |
| 16 | I enjoy time spent in nature. | 1 | 2 | 3 | 4 |
| 17 | I am adventurous. | 1 | 2 | 3 | 4 |
| 18 | I have a clean bedroom. | 1 | 2 | 3 | 4 |
| 19 | I can make a difference in improving my community. | 1 | 2 | 3 | 4 |
| **20** | **When I am confronted with a problem, I can usually find several solutions.** | **1** | **2** | **3** | **4** |
| 21 | I like my body. | 1 | 2 | 3 | 4 |
| 22 | I am scared to try new things. | 1 | 2 | 3 | 4 |
| 23 | I speak up to others when I disagree with their opinions. | 1 | 2 | 3 | 4 |
| 24 | I like to do homework. | 1 | 2 | 3 | 4 |
| **25** | **If I am in trouble, I can usually think of a solution** | **1** | **2** | **3** | **4** |
| 26 | I dislike leading others. | 1 | 2 | 3 | 4 |
| 27 | I am sloppy. | 1 | 2 | 3 | 4 |
| 28 | I rarely pay attention to the news or current events. | 1 | 2 | 3 | 4 |
| **29** | **I can usually handle whatever comes my way.** | **1** | **2** | **3** | **4** |
| 30 | I have strong ideas about what I want to do with my future. | 1 | 2 | 3 | 4 |
| 31 | I feel a responsibility to care for the natural environment. | 1 | 2 | 3 | 4 |

## The Security in the Family Systems Scales

Please **rate by circling on the scale** how much you agree or disagree with the following statements about you and your family:

| | | **1 Strongly Disagree** | **2 Disagree** | **3 Somewhat Agree** | **4 Agree** | **5 Strongly Agree** |
|---|---|---|---|---|---|---|
| 1. | I'm glad to be a part of my family because there are more good things about it than bad things. | **1** | **2** | **3** | **4** | **5** |
| 2. | In the past few years, my family changed so much that I felt unsure about what was going to happen next. | **1** | **2** | **3** | **4** | **5** |
| 3. | When something bad happens in my family, I wish I could live with a different family | **1** | **2** | **3** | **4** | **5** |
| 4. | I don't know why I put up with all the times my family makes me upset. | **1** | **2** | **3** | **4** | **5** |
| 5. | I feel I can count on my family to give me help and advice when I need it. | **1** | **2** | **3** | **4** | **5** |
| 6. | I have the feeling that my family will go through many changes that I won't expect. | **1** | **2** | **3** | **4** | **5** |
| 7. | I feel that I won't be able to handle some family problems that come up in the future. | **1** | **2** | **3** | **4** | **5** |
| 8. | When things in my family upset me, I can do something to make myself feel better. | **1** | **2** | **3** | **4** | **5** |
| 9. | I don't know what to do about things that are happening in my family. | **1** | **2** | **3** | **4** | **5** |
| 10. | The things that go on in my family don't seem to make any sense. | **1** | **2** | **3** | **4** | **5** |
| 11. | When I have disagreements with family members, it's not worth trying to understand their point of view. | **1** | **2** | **3** | **4** | **5** |
| 12. | It's worth caring about family members, even when things go wrong. | **1** | **2** | **3** | **4** | **5** |
| 13. | I feel like something could go very wrong in my family at any time. | **1** | **2** | **3** | **4** | **5** |
| 14. | When something I don't like happens in my family, I think about it over and over again. | **1** | **2** | **3** | **4** | **5** |
| 15. | It's hard to know how people in my family will react to each other. | **1** | **2** | **3** | **4** | **5** |
| 16. | When I think about the problems in my family, I feel that things will work out in the end. | **1** | **2** | **3** | **4** | **5** |
| 17. | When I'm upset, there's no one in my family who can make me feel better. | **1** | **2** | **3** | **4** | **5** |
| 18. | I don't care what goes on in my family. | **1** | **2** | **3** | **4** | **5** |
| 19. | I am proud of my family. | **1** | **2** | **3** | **4** | **5** |
| 20. | I believe that family members will be around to help me in the future. | **1** | **2** | **3** | **4** | **5** |
| 21. | Sometimes I feel that something very bad is going to happen in my family. | **1** | **2** | **3** | **4** | **5** |
| 22. | When something bad happens in my family, I feel like running away. | **1** | **2** | **3** | **4** | **5** |

Program Questions

What did you enjoy most about GUTS!?

_____

If you could change anything about GUTS!, what would it be?

_____

Would you recommend GUTS! to a friend (circle one)? **Yes No**

If so, is there anything else (besides what you listed above) that you would want her to know about the program?

_____

***Thank you for your help! GUTS! girls are amazing!!!!!!***

Appendix D

**Please print**

Your Full Name_____ Your Age_____
First Middle Last

Your ethnic group or race (please circle):

*Caucasian/White African American Native American Latina Asian/Pacific Islander*

*Biracial Other:* _____

Today's Date_____/_____/_____ Your Birthdate_____/_____/_____

Grade in School_____ □ Not Attending School

If you are working, please state your type of work:

_____

_____

_____

Parent's usual type of work, even if not working now. (Please be specific—for example, auto mechanic, high school teacher, homemaker, laborer, lathe operator, shoe salesman, army sergeant.)

Father's Type of Work_____
Is he currently employed? □ YES □ NO

Mother's Type of Work_____
Is she currently employed? □ YES □ NO

*Original Source: T. Achenbach, 2001, *Youth Self Report for Ages 11-18*

Total # of Persons Living in Your Household_____

Please describe the relationships you share with the others in your household (circle all that apply):

| Mother | Father | Aunt | Uncle | Grandmother | Grandfather | |
|---|---|---|---|---|---|---|
| Foster Mother | Foster Father | Sister(s) (# _____) | Brother(s) (# _____) | Stepsister(s) (# _____) | Stepbrother(s) (# _____) | Other (describe): _____ |

Ages of Siblings (if applicable) _____

Do you participate in any special academic classes? If so, what are they?

_____

_____

_____

Appendix E

**Qualitative Responses**

**Time 2 (Post-Trip)**

**Post-Trip Summer 2006**
(n = 16)

*What did you enjoy most about GUTS?!*

- I enjoyed coming & swimming.
- Trying new things and making new friends.
- Not much.
- EVERYTHING. Camping, swimming, playing, weeding.
- Making crepes, swimming, rock climbing… Virtually everything!!!
- It was really fun to "rough it" for a week and meet a whole bunch of girls.
- Getting to be able to do exciting things that I might not do on my own (like going river rafting and backpacking) with a group of fun girls.
- I loved doing things I've never done before, and the girls are awesome. I also loved the leaders.
- What I enjoyed was meeting new friends. I really liked the camping. It was a lot of fun doing and trying new things I never did before. It was really a lot of fun to do.
- I really enjoyed becoming friends with everyone, and SWIMMING!
- I got to meet new people and make new friends.
- I liked camping and meeting new people. Had FUN on the whole trip.
- Making new friends and being in the outdoors.
- Getting to know the "counselors" and all the girls.
- Meeting new people, working hard, swimming.
- The girls. All the girls were my age and, therefore, could relate to most of my problems. They were all really optimistic, happy, funny, etc.

*If you could change anything about GUTS!, what would it be?*

- Having people stop saying cuss words. If you say one aloud, you lose a bead.
- I would want to make it a longer time and somehow be able to take showers.
- Changing the fact that we hiked for 7 miles carrying a really heavy pack, pointlessly to go to a worse campsite than the one our trip began at. The fact that we can't go barefoot, because people got blisters from their shoes. Not being able to go in the creek because someone got an earache.
- I would probably change the intro letter. I think it didn't let us know what we were getting into. It was almost deceptive.
- No more swimming, less bugs, more time to just hang out.
- To make the activities we do more fun.
- I would have their website changed: more info & packing lists.

- More rural.
- I felt that GUTS! was trying to tell us, in a way, what to do with our futures, how to act, and how to think, and I hated it. They might not want to say stuff like, "It makes me excited that you are the next generation of people that can control our future" and "There aren't enough girls working or in high positions." They make it sound like it's a war between men and women and they want women to rule the world!

*Would you recommend GUTS! to a friend?* _14__ yes __1__ no __1__ maybe

*If so, is there anything else (besides what you listed above) that you would want your friend to know about the program?*

- You challenge yourself a lot.
- That you shouldn't go unless you're a preppy jock, tree-hugging Grandma.
- It's REALLY FUN!
- It's super fun.
- What the trips are like (difficulty, etc.).
- It's a lot of hard, dirty work, but it's also a complete blast!
- It was a lot of fun. You meet a lot of new people. You do a lot of fun things.
- It feels really comfortable in the GUTS! environment.
- How great the adults were.
- It's really fun!!! Be open-minded.
- GUTS! has a lot of teamwork and games. You meet a lot of girls, and you learn to love nature.
- Just that it may sound not so much fun, but in the end you will think it is awesome. Just having great positive attitudes really helps.
- The places you travel and the things you do are mostly fun.

*We might continue this research project next summer. If we do, what suggestions do you have to help make it better for future GUTS! girls?*

- The questions. Some of them were a bit strange.
- A little shorter.
- Maybe give more time to fill these out.
- Word questions better.
- I think it's good the way it is at the beginning and the end.
- Shorter.
- If possible, make questions more relevant.

**Post-Trip Responses**
**(Summer 2007 Trips)**
**n = 41**

*What did you enjoy most about GUTS!?*

**Activities**

- Backpacking and swimming.
- I enjoyed staying on Wild Horse Island the most.
- I enjoyed the fact that we got to sleep outside.
- The swimming. I liked the canoeing.
- Cleaning the lettuce.
- Everything, especially rafting.
- Hanging out with different people.
- Meeting new people and doing fun activities.
- I enjoy being able to be with girls, alone. And getting to learn new things.
- Interacting, hiking, camping, ad rafting; just everything in general.
- All the different activities we get to do. The whole camping experience and the fun and interesting games.
- Rock climbing. Hanging out with [named two girls].
- The rafting trips.
- I really liked the rafting this trip, but I also liked everything about it.

**Social Experience**

- The girls who went.
- Well, I enjoyed all the camping, meeting new people, and outdoor activities!
- The camping, the swimming, meeting other girls like me.
- Getting to meet the friends I did and going swimming and camping when I did.
- I enjoyed meeting new people and learning my strengths.
- I enjoyed how we had to work together and include everyone.
- I loved being around all girls my age. They had great personalities. I also loved Wild Horse Island.
- Meeting other girls and farming. I feel that our group really bonded and that felt really good!
- Meeting and learning about new people at camp.
- Meeting new people (2 responses).
- I really enjoyed making new friends. I loved going skinny dipping.
- I enjoyed just being around the other girls and having fun with them. Just being around them and talking to them made me feel good.
- Meeting people and rafting.
- Meeting new people.
- Meeting new people and doing challenges.
- Teamwork, swimming, hiking, laughing…
- Meeting new people.

- Becoming adventurous and making lots of new friends, being with fun people, and learning how to do things I didn't know about before.
- Meeting my two best friends now.
- Getting to know all the different girls.

**Nature**

- I like being in the outdoors, because that is like my place.
- Being outside with friends and having fun outdoors.
- The outdoors, people.
- Getting to be outdoors.

**General**

- I enjoyed everything (except digging holes and getting blisters) the most.

*If you could change anything about GUTS?!, what would it be?*

**Activities**

- I would go rafting more.
- No backpacking… less being bored… more swimming… less emotional stuff.
- Go horseback riding and rock climbing.
- More rafting.
- The backpacking trip.
- More free time.
- The backpacking trip. And K, who yelled at me a lot!

**Access to Food & Other Resources**

- Less drama… More food. Less backpacking.
- Shower resources.
- Less backpacking and more food.
- The breakfast, because having oatmeal every day gets old.
- Well maybe the breakfast. Yeah, I kinda get sick of oatmeal.
- I would change the fact we could not take showers or eat in lunchrooms or sleep in cabins.
- Not so long. To stay in cabins.
- I think we should have a list of food options before the trip so we could select which ones we want.
- Most likely nothing except for some of the food. But besides that, it's a great program.☺
- A food list so we can choose what to eat before GUTS!

**Currently Satisfied**

- I wouldn't change anything (3 responses).
- Nothing. It's perfect the way it is.
- Nothing, it was all great.
- I don't think I would change anything about GUTS!

- Nothing. (6 responses)
- I don't know. I like the way it is.
- I wouldn't change anything about GUTS! because it is great the way it is.

**Level of Difficulty**

- Having a lighter backpack on the trip.
- I would change how much hiking we had to do because I felt very tired after all of the hiking.
- I would make it a lot harder, but I understand I'm not the only one on the trip.

**Other**

- Maybe they could be more organized.
- That we didn't pay as much to get in.
- I would change the time of year, because it's really hot.
- Tight schedule.
- The really intense schedule.

*Would you recommend GUTS! to a friend?*

***Yes*** = 38 ***; No*** = 1; ***Maybe*** = 1; ***Did not Answer*** = 1

*If so, is there anything else (besides what you listed above) that you would want her to know about the program?*

**Social Experience**

- That you can do things that you never new before, meet a lot of different, cool people, and you can really be yourself and have fun.
- You learn great social skills and you get exercise and you have fun.
- It is a great way to have fun with girls.
- You get to meet great girls and everyone is nice.
- Don't be scared about making friends – everyone's great!
- There is still girl drama.
- It's great to interact with a group of women in nature without harsh judgment.
- You meet new people and have fun challenges and get to camp in scenic places.

**Nature**

- Just that you get to learn about plants and camping while having a lot of fun.
- Only if you like outdoors!

**General Program Satisfaction**

- That GUTS! is amazing and it gives me inspiration throughout the year.
- It's super fun and exciting!
- That it's awesome!
- It's very fun and you're never bored.
- It is a great learning experience!
- That it will be one of the best experiences of her life.

- How fun the trip is.
- Well, it is one of my favorite camps!
- That I enjoyed it very much! And it was quite an experience!
- It is fun and a new experience.
- It's a lot of fun.
- It is fun!! ☺
- It's freakin' awesome!!
- That it is a great place to be.
- That it is fabulous.

**Other**

- Be prepared for the backpacking trip. At first, it's intense, but on the way down, it's simple.
- It is very fun and keeps you in shape.
- Bring snacks, have fun.
- It feeling really rewarding.

**********

**Time 3 (6-Month Follow-Up)**

**6-Month Follow-Up Responses**
**(Summer 2006 Trips)**
**n = 8**

*Do you think your life has changed as a result of your participation in GUTS!?*

***Yes***

- I have met new people, and I still keep in touch with them. It was good for me to meet more people outside my group at school.
- I am a lot more confident in my abilities and my actions. I know what I can handle and I learned a lot about my strengths. All thanks to GUTS! ☺ [sic]
- By going to GUTS!, I feel that I can better myself, and I try to focus on the positive features in people. Also, I am able to make friends quicker than before because I am not as shy. I am more willing to be myself and not be so concerned about what others think of me. Furthermore, I am more appreciative of what I have, and I am more physically fit.
- I think simply by giving me a chance to do something new and different. Before GUTS!, I had never been away from my family for more than a few days. So that was new. And I also made new friends by participating in GUTS!
- It's helped me be much more open when making friends with other girls.
- It has because I showed myself differently, and I showed people I don't just have a mean side, that I also have a nice side.

- Because it gave me a whole new idea of what the world is like. And it gave me a whole new meaning to nature.

***No***

- Sorry. No, I don't.

**6-Month Follow-Up Responses**
**(Summer 2007 Trips)**
**n = (28)**

*Do you think your life has changed as a result of your participation in GUTS!?*

***Yes***

- It made a lot of people, including me, gain more of an appreciation for food.
- Liked being outside hiking and being active with a bunch of other girls.
- GUTS! has given me new people skills and the confidence I can backpack. It has boosted my self-esteem and given me an insight into who I am and what I can do.
- Met new people, learned new things, the basics.
- Yes, I feel a bit better about myself.
- It taught me how to communicate better and to learn to accept people that are different. The program also helped by providing challenges, creating a good feeling after I completed those challenges.
- My life has been changed because it taught me to be respectful and gave me a new perspective of this world and nature. Even though I did have respect, it gave me more. Thanks GUTS! ☺
- Now I know how to do more exciting things and I am proud of the stuff I learned in GUTS! GUTS! has made me more confident and sure of myself. GUTS! rox.
- I think my life has changed from the GUTS! trip because I'm able to handle situations with people I don't like more easily. GUTS! was also a good experience to learn about the environment and make new friends. GUTS! is a great program and I'm definitely doing it again.
- It helps a lot to meet other girls and women who are going through or have gone through the same things that I am and to do fun outdoor activities with them and my nature skills are better now. Thank you so much. I learned a lot about myself and life.
- I have become less athletic and I don't "work out" as much.
- I really like GUTS! It's a great way to meet up with girls. I like being able to talk about and share our differences. It has helped me to try new things. I think GUTS! is such a great program. I am bringing two of my friends this coming summer and I suggest it to all my friends.
- I think it helped a lot with the self-esteem I have now.
- It gives me ideas for things I can do on my own and is very empowering.
- It has made me more self-confident and more light-hearted. It is because of the great women on the trip, who give me courage and make me feel good about

myself. But it is mostly because of all of the great friends I have made, and how they love me and appreciate me for who I am.

- I learned more about nature and what to do in nature and that nature brings people closer and, well, frankly apart, too. But I had so much fun and met new people.
- I know how to pack a hiking backpack, and I know I can hike miles through the mountains, and that I will be back next year to do it again!
- My life has changed a tad bit… It was a great experience.
- I have participated in GUTS! for 3 years now and it has definitely made me feel more comfortable with myself and whenever I am feeling like I'm not good enough, I just think of the weeks at GUTS! and remember that I do in fact have what it takes.
- I'm more confident in where I am and what I want, as well as having made several lifelong friends.
- I believe GUTS! has changed my life because I treat myself, others, and nature with more respect and compassion. I have better learned what makes me happy and what I can do to improve the situation that I have been put into. I have also learned that it does not matter what others think of you, if you enjoy something and are happy, pursue your interests. From GUTS!, I have learned that you need to stand up for what you believe in. Stand up for your rights and others. GUTS! has made me think more positively about myself and what I can do to make a difference in this world. GUTS! has by far been the most influential experience of my life. Without it, I would not be the person that I am today. I wish that every girl and person could experience a life-changing event such as GUTS! has been for me.
- I learned I could survive a week without being in a house or using a toilet or washing my stinky clothes. But I guess that really depends on what GUTS! trip I was on. I learned I could live with someone I hated, or someone I liked so much I got sick of, for days on end. It taught me to be strong when I needed to, but at the same time not be controlling over everyone and be bossy, because I KNOW I get that way. I learned that I'm not the only one who likes to be the center of attention and that other peoples' lives are just as important and interesting as mine. Jen was great and I was lucky enough to have her on all my trips so far. Can't wait 'til my next trip!
- Because I realized the importance of fun and laughter.
- It showed me how much we stink after being in the woods. Anyway, it really showed me how close people get when you are together for a week and we learn a lot about each other. I have more awareness about what is going on around me and in my community.
- I love GUTS! It's my favorite part of the summer. I love the environment that GUTS! creates and it shows people can get along no matter their differences and still work as a team. I don't know if I would have realized that it was possible without GUTS! GUTS! gives me hope that the world won't always be a violent, scary place. GUTS! is improving humankind one girl at a time in a way.
- GUTS! has helped me realize some of my strongest interests, such as backpacking and the outdoors in general. On GUTS! trips, I can feel totally comfortable and confident with myself. I am also able to make really great friends quickly, which

is something I usually am not able to do. Overall, GUTS! has been a majorly positive influence on my life by helping me discover more about myself and what I love to do.

***No***

- "No."
- Nothing at my house has changed my mood or anything. I've never been a troubled child.
- GUTS! was a good experience and I met a lot of new friends. I'm not sure if it was utterly life-altering.
- Well, I loved GUTS! But it didn't change anything in my life. It was a great camp, and nothing could make it better. I think it's just perfect! But it didn't change my life. I am very lucky to have a healthy, happy family that is always there. My mom works at home. My dad has a really successful job. My mom cooks every meal I eat. So am lucky I got to go to GUTS!, but it didn't make a life changing experience for me.

***What could have been done to improve your experience?***

- Stronger leadership.

# Appendix F

*PCA Rotated Component Matrix*

| Question | Component | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 29 | .756 | -.140 | .057 | -.020 | .098 | .064 | -.046 | -.087 | -.012 | -.103 |
| 20 | .728 | -.016 | .196 | .048 | -.012 | .084 | .021 | .128 | .026 | .062 |
| 9 | .687 | .318 | .099 | .112 | .141 | -.007 | -.132 | -.139 | .098 | -.025 |
| 25 | .596 | -.272 | -.237 | .195 | -.063 | -.231 | -.029 | .165 | -.018 | -.117 |
| 23 | .565 | .138 | -.094 | .009 | .015 | .181 | .058 | .313 | .007 | -.059 |
| 13 | .557 | -.135 | -.020 | .287 | .145 | .213 | .128 | .085 | .183 | .101 |
| 11 | .504 | .375 | -.039 | .314 | .069 | -.020 | -.246 | -.184 | .040 | .132 |
| 15 | .500 | .143 | -.088 | .226 | .259 | -.296 | -.166 | .046 | -.104 | .201 |
| 16 | .045 | .846 | -.023 | .084 | .010 | -.044 | -.023 | .132 | .045 | .075 |
| 2 | -.047 | .805 | .092 | -.196 | -.048 | .100 | -.022 | -.011 | -.015 | -.044 |
| 17 | .006 | .667 | -.005 | .210 | .226 | .054 | .051 | .019 | .103 | .090 |
| 18 | -.120 | .089 | .842 | .050 | -.084 | -.102 | .001 | -.075 | .067 | -.046 |
| 27 | -.112 | .076 | -.743 | -.169 | -.076 | -.009 | .102 | -.226 | .098 | .067 |
| 6 | .403 | .070 | .478 | -.080 | .039 | .238 | -.240 | -.050 | .105 | .043 |
| 1 | .199 | .088 | .142 | .651 | .191 | .018 | .045 | .094 | -.111 | .096 |
| 7 | .232 | .050 | .041 | .575 | -.245 | .321 | -.106 | -.025 | -.087 | -.287 |
| 4 | .313 | -.116 | -.021 | -.362 | -.282 | .254 | .126 | -.273 | -.189 | -.080 |
| 22 | .108 | -.021 | .027 | -.015 | .778 | .156 | .124 | -.014 | -.033 | -.055 |
| 12 | .194 | .176 | -.032 | .079 | .720 | -.075 | -.077 | .140 | .171 | -.010 |
| 26 | -.004 | .141 | .044 | .109 | .108 | .790 | .131 | .010 | -.082 | .020 |
| 8 | .180 | -.027 | -.085 | -.012 | -.002 | .663 | -.050 | .287 | .112 | .049 |
| 3 | -.005 | -.060 | -.019 | .038 | .005 | .171 | .763 | -.121 | -.068 | .095 |
| 5 | -.134 | .069 | -.178 | -.075 | .064 | -.083 | .730 | .260 | .054 | -.056 |
| 21 | .066 | .048 | .137 | .046 | .181 | .154 | .087 | .619 | -.168 | .014 |
| 31 | -.007 | .445 | -.198 | .152 | -.063 | .119 | -.012 | .554 | .337 | -.025 |
| 30 | .291 | -.207 | .273 | -.227 | -.156 | .099 | -.047 | .394 | .285 | .048 |
| 14 | .010 | .183 | -.034 | -.159 | .235 | .027 | -.117 | -.005 | .776 | .033 |
| 19 | .251 | -.016 | .178 | .409 | -.167 | -.081 | .325 | -.099 | .579 | -.041 |
| 28 | -.100 | .062 | -.117 | -.027 | .025 | .056 | .007 | -.015 | -.018 | .781 |
| 10 | .159 | -.064 | .030 | .496 | -.092 | .012 | -.037 | -.079 | .296 | .563 |
| 24 | -.161 | -.310 | -.199 | .040 | .327 | .058 | -.197 | -.323 | .174 | -.512 |