Nature as healer: Wilderness experience programs and wilderness therapy with adolescents

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Abstract
Wilderness programs are an innovative approach to treating the problems of adolescents, a notoriously difficult population for mental health providers to work with. Although much research has been done on wilderness programs, many questions remain unanswered. One of these questions has to do with whether wilderness therapy (WT) programs, with their added traditional therapy component, tend to produce different results than more general wilderness experience programs (WEPs), which do not integrate a traditional therapy component. Knowing if these types of programs differ in their effectiveness is important, as it can guide the decisions of consumers and program developers, and because of the impact such programs might have on curtailing adolescent problems before they worsen. In this paper, research on wilderness programs from 1996 until the present is examined in two comprehensive literature reviews—one focusing on WEPs and one on WT programs. The studies are then quantified according to overall outcome, research method utilized, population type, and types of outcomes measured. Although results from a few studies indicated negative outcomes for select individuals, none of the studies produced overall negative outcomes; therefore, program results were categorized as either positive or neutral/mixed. Contrary to what might be expected, a higher proportion of studies on WEPs indicated positive results. Reasons for this counterintuitive finding are discussed, and directions for future research on wilderness programs are suggested.

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NATURE AS HEALER: WILDERNESS EXPERIENCE PROGRAMS
AND WILDERNESS THERAPY WITH ADOLESCENTS

A THESIS
SUBMITTED TO THE FACULTY
OF
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AMANDA KLINGER

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APPROVED:
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Abstract

Wilderness programs are an innovative approach to treating the problems of adolescents, a notoriously difficult population for mental health providers to work with. Although much research has been done on wilderness programs, many questions remain unanswered. One of these questions has to do with whether wilderness therapy (WT) programs, with their added traditional therapy component, tend to produce different results than more general wilderness experience programs (WEPs), which do not integrate a traditional therapy component. Knowing if these types of programs differ in their effectiveness is important, as it can guide the decisions of consumers and program developers, and because of the impact such programs might have on curtailing adolescent problems before they worsen. In this paper, research on wilderness programs from 1996 until the present is examined in two comprehensive literature reviews--one focusing on WEPs and one on WT programs. The studies are then quantified according to overall outcome, research method utilized, population type, and types of outcomes measured. Although results from a few studies indicated negative outcomes for select individuals, none of the studies produced overall negative outcomes; therefore, program results were categorized as either positive or neutral/mixed. Contrary to what might be expected, a higher proportion of studies on WEPs indicated positive results. Reasons for this counterintuitive finding are discussed, and directions for future research on wilderness programs are suggested.

Keywords: Wilderness Experience Programs, Wilderness Therapy, Literature Review
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The word *adolescence* comes from the Latin verb *adolēscere*, meaning “to grow up” (*The American Heritage Dictionary of the English Language*, 2006) As the term implies, adolescence is a transitional stage of life, during which an individual navigates or “grows” away from the relative innocence and simplicity of childhood toward the responsibilities and demands of adulthood. Because it is a transitional period that involves establishing identity and autonomy, adolescence is a particularly vulnerable stage of development, often characterized as being rocky, confusing, and stressful (Wodarski, Smokowski, & Feit, 1996). Furthermore, the way one develops through adolescence has major implications for his or her functioning as an adult. This is especially true when it comes to mental health. Various studies have shown that many emotional and behavioral problems arise during adolescent years and, if left untreated, often translate into serious problems in adulthood (Fergusson, Boden, & Horwood, 2007; McGue & Iacono, 2005).

For example, in a survey of over 9,000 participants, Kessler and colleagues (2005) determined that half of all lifetime cases of anxiety disorders, mood disorders, impulse-control disorders, and substance abuse disorders start by age 14. McGue and Iacono (2005) found that adolescents who engaged in specific problem behaviors (e.g. tobacco use, alcohol use, trouble with police, illicit drug use, sexual intercourse) had a substantially increased risk of nicotine dependence, alcohol abuse or dependence, drug abuse or dependence, major depressive disorder, and antisocial personality disorder during adulthood. Furthermore, they determined that the earlier an adolescent engaged in any of these behaviors, the more likely he or she was to be diagnosed with a disorder as
an adult. Fergusson and colleagues (2007) found a significant association between an increasing number of depressive episodes during adolescence and significantly poorer mental health, educational, and economic outcomes during young adulthood. Overall, adolescent psychopathology has been linked to a wide variety of harmful or dangerous behaviors in adulthood (Patton, 1997).

Negative consequences affect not only the adolescents, but also their families, communities and society as well. Annually in the United States, several billion dollars are spent on crime-related issues (Surgeon General, 2001) and the economic costs of drug and alcohol abuse exceed $110 billion (Cartwright, 1999). In 1997, 11% of total national health care expenditures for adults were for mental health or substance abuse treatment (Mark et al., 2003). Curbing these problems while individuals are still young can help prevent or reduce their future economic toll on society. Therefore, early intervention during adolescence is an important and viable way for mental health professionals and others to curtail problems before they worsen and their effects are felt more broadly.

In addition to being an especially vulnerable population, adolescents present certain challenges for the mental health practitioners who treat them. Many practitioners contend that adolescents are the most difficult clients with whom to work (Church, 1994). Davis-Berman and Berman (1994) noted that traditional counseling interventions may not be effective for at-risk youth, who have difficulty verbalizing and disclosing thoughts and feelings. Therefore, it seems important to have options and innovative interventions to effectively treat adolescents.

Wilderness therapy is one treatment modality used often in the mental health treatment of adolescents. This type of treatment can be a particularly good match for
adolescents because it is innovative and can address some of the issues listed above, such as providing an environment in which adolescents feel more comfortable disclosing. Despite it being fairly extensively researched, several questions regarding the implementation and effectiveness of wilderness therapy remain. For example, what is the definition of wilderness therapy? It is often difficult to distinguish between programs that integrate traditional therapy techniques and those that rely solely on the wilderness experience as the means for therapeutic change, and there is virtually no research comparing the outcomes and effectiveness of these different types of programs. Other issues involve questions about what types of programs are most appropriate for different individuals and what types of outcomes might be expected from different programs. Having answers to questions like these can guide consumer decisions and help people choose the most appropriate and effective programs for diverse adolescents. This, in turn, can have implications for whether adolescent problems are effectively minimized or continue and worsen to the point that they have extremely negative effects on individuals and society as a whole. The current literature review is designed help distinguish between types of wilderness programs and to begin working toward answers to these important questions.

This paper begins with a history of wilderness therapy, including its theoretical bases and a description of different types of wilderness programs. Next there is a brief discussion of the methods utilized in this review. A comprehensive review of the relevant literature is then presented--first involving wilderness programs without a traditional therapy component and then those that employ traditional therapy techniques. Both of these sections are summarized individually and quantified according to outcome result,
research method, population studied, and types of outcomes assessed, with the aim of determining differences in these areas. Finally, overall results are summarized and conclusions are presented.

Wilderness Programs

History

Although wilderness programs vary in many aspects, they share a historical and theoretical background. Previous researchers have traced the beginnings of these programs to two similar but unrelated events several decades ago (Bryant, 2000; Caplan, 1974). First, in 1901, overcrowding at the Manhattan State Hospital in New York City resulted in forty psychiatric patients with tuberculosis being placed in tents on the hospital lawn (Caplan, 1974). According to this author, patients experienced unexpected substantial improvements in physical, mental, and behavioral health, which was attributed to the change from being kept inside to living outdoors. Then, in 1906, an earthquake destroyed much of an asylum in San Francisco and many patients had to live outside in tents. Like those at the hospital in New York, these patients demonstrated rapid improvements, most notably getting along peacefully with each other while living outdoors instead of exhibiting constant violent behaviors, as they had while confined inside (Caplan, 1974). These two events led to the popularity of “tent therapy,” in which asylums created tent wards on their grounds. Reports of tent therapy declared it successful because of small group interpersonal interactions, the serenity of the outdoors, and a smaller staff-to-patient ratio (Caplan, 1974).
The popularity and use of tent therapy declined as the outdoor wards began to suffer the same overcrowding and understaffing that affected indoor institutions (Caplan 1974). However, the idea of using the outdoors as a therapeutic medium re-emerged during the 1950s and 1960s in response to increased demand for rehabilitation programs for at-risk youth (Cason & Gillis, 1994). At this time, some hospitals and detention centers used adventure therapy -- defined as “the use of outdoor education and recreation activities as a form of therapy,” (Williams, 2000, p. 48) as part of the treatment of psychiatric and adjudicated populations. Like with tent therapy, practitioners believed adventure therapy was effective because of small group interpersonal interactions in the outdoors (Williams, 2000).

A major event in the history of wilderness programs occurred in 1961 when Kurt Hahn, a wilderness educator, founded Outward Bound, a wilderness challenge program that serves participants “through active learning expeditions that inspire character development, self-discovery and service,” (Outward Bound, n.d.). In the late 1960s and early 1970s, Outward Bound became more popular as an alternative form of detention or treatment for delinquent adolescents (Russell, 2001). Subsequently developed wilderness programs were based largely on the Outward Bound model, which emphasized the importance of physically and emotionally demanding group experiences in the wilderness for initiating positive psychological change (Clark, Marmol, Cooley, & Gathercoal, 2004).
Definitions

Although the historical foundation of wilderness programs is rather clear, definition and characterization of these programs has been less so. However, this has recently been a popular area of discussion and research (see Hill, 2007; Russell, 2001). Terms such as “challenge courses,” “adventure-based therapy,” “wilderness experience programs,” “therapeutic wilderness camping,” and “wilderness therapy,” among others, have often been used interchangeably. Distinguishing between these types of programs is incredibly important for consumers, as different programs may have varying degrees of effectiveness depending on the presenting issues of participants and desired outcomes. Knowing what a certain wilderness program entails and what results have been demonstrated can guide people toward choosing the most appropriate treatment approach for individual adolescents.

In this paper, wilderness programs will be categorized as either wilderness experience programs (WEPs) or wilderness therapy (WT) programs. WT programs are actually a subcategory of WEPs, but for the purposes of this paper will be considered a separate type of treatment. WEPs are defined as “organizations that conduct outdoor programs in wilderness or comparable lands for purposes of personal growth, therapy, rehabilitation, education or leadership/organizational development” (Friese, Hendee, & Kinziger, 1998, p. 40). WT programs are differentiated from WEPs in general by the following: (a) the use of traditional therapy techniques, (b) the selection of potential candidates based on clinical assessment, (c) the creation of an individual treatment plan for each participant, (d) the facilitation of individual and group psychotherapy by qualified professionals, and (e) formal evaluation and assessment of participant progress.
These outlined differences guide the format and method of this literature review, in which research on WEPs and WT programs are separately examined and summarized individually. The information from this is used to draw conclusions and offer suggestions for future research.

This separation and examination is important because the results have the potential to guide consumer decisions and program development. For example, WT programs often cost more than WEPs because mental health professionals can charge more for their services than can wilderness leaders or guides. If it can be determined that WEPs are equally as effective as WT programs in addressing certain adolescent problems, consumers may opt for the less expensive program. Conversely, if WT programs seem to produce greater results, especially for certain problems, consumers may decide that more intensive treatment is worth the greater cost. Furthermore, if a service provider is developing a wilderness program to address certain adolescent problems, knowing whether or not an added therapy component is more effective in producing results can affect the decision of whether or not to include such a component and hire personnel accordingly. Therefore, for consumers and service providers alike, the information presented in this paper can be useful.

**Therapeutic Factors**

Several researchers have focused on the process and therapeutic factors of wilderness programs, which encompass both WEPs and WT programs as a specific type of WEP. Herbert (1996) identified five main characteristics of wilderness programs: (a) individual and group goal setting, (b) physical and inter/intrapersonal trust building, (c) adaptation to challenge and stress, (d) problem solving, and (e) fun. In a study by Russell...
(2000), wilderness program participants noted the importance of spending time alone and having opportunities to reflect; a caring and non-confrontational approach by program staff; physical challenges through hiking; and nature and scenery as factors contributing to their positive experience in the wilderness program. Wilson and Lipsey (2000) highlighted two major domains of the therapeutic process of wilderness programs. First, they contended that mastering challenging physical activities empowered participants by building confidence, self-esteem, and a more internalized locus of control, making them more likely to discontinue a pattern of inappropriate or antisocial behavior. The other key aspect highlighted by these authors was group orientation, which facilitated prosocial interpersonal skills.

All of the therapeutic factors listed above may facilitate positive change in any wilderness program. A question that arises, then, is whether WT programs, with their added component of traditional therapy, have outcome effects that differ from other WEPs. The following review of outcome literature addresses this issue. This is important to look at because differential outcomes can guide the imperative choice of what types of program will be most appropriate and effective for different types of adolescents.

The Current Project

First, a comprehensive search of research literature on wilderness programs was conducted using the online databases PsycINFO and ERIC (FirstSearch). This review included research published from 1996 until the present. The practical reason for this was that Gillis and Thomsen (1996) published a review of the literature on wilderness programs from 1992-1995, thus presenting the year 1996 as an appropriate start date. The other reason for starting with this year is more symbolic: 1996 was the year in which a
group of wilderness therapy providers founded the Outdoor Behavioral Healthcare Industry Council (OBHIC), an organization that states as part of its mission the goal to “depict more accurately the range of treatment programs available to adolescents that integrate wilderness therapy practice with traditional treatment approaches (Russell, 2003, p. 356). This paper shares the OBHIC goal of contributing to the clarity and knowledge available to consumers of wilderness therapy.

After the literature search, articles were reviewed and included in the current report if they met the following criteria: (a) published in 1996 or later, (b) addressed one or more wilderness programs, and (c) included a component focusing on outcomes. In total, 39 studies were included in this review; 23 examined wilderness experience programs (WEPs) and 16 focused on wilderness therapy (WT) programs. Each of these studies is summarized in the literature review sections.

To draw all of the information together, certain aspects of the findings from the literature review were categorized. First, outcomes were examined, and the studies were categorized as either having positive results or neutral/mixed results. (Although some studies showed some negative results for a few individuals, no overall results were negative). Next, studies were labeled by research method, as either exclusively quantitative, exclusively qualitative, or mixed quantitative and qualitative. The studies were then broken down by what type of adolescent population was included as the experimental sample. Finally, studies were classified by what types of outcomes were examined.

After these aspects of the studies were categorized, factors were quantified. First, positive and neutral/mixed outcomes were examined as a function of study method. Next,
positive and neutral/mixed outcomes were examined as a function of both population
type and outcome type. These quantified results are presented as numbers of studies and
also calculated into percentages. These numbers and percentages were used to draw
consclusions about different wilderness programs and provide comparisons between
WEPs and WT programs.

Wilderness Experience Programs

*Review of the Literature*

*Studies with neutral/mixed results.* Most research on WEPs has focused on at-risk
adolescent populations. One of the earlier studies of this sort was conducted by Van
Scoyoc (1996), who reported on the process and outcomes of a program for at-risk urban
youth that involves a 2-week wilderness adventure experience to which participants are
invited to return every year. The program also includes reunions throughout the year, a
mentorship program, and continual contact with participant families. The researcher
conducted a longitudinal study on the lives of program participants over an eight year
period and reported the following: of youth who participated in the program for three
years or more, only two dropped out of school; only 2 of the 65 girls who participated
became pregnant over seven years; and one participant was incarcerated and two others
were arrested and released. The researcher noted, “This is an exceptionally positive
picture compared with the city statistics for this population” (Van Scoyoc, 1996, p. 13).
Although some outcome results from behavior and self-concept data were inconclusive in
terms of determining specific changes, there were demonstrated improvements in self-
concept, and participant self-ratings of self-esteem were higher than those of a national
sample of non-participants.
Sklar, Anderson, and Autry (2007) also focused on at-risk adolescents, using semi-structured interviews in their study of outcomes from a wilderness program targeting youth considered at-risk of a problematic transition into high school. The program consisted of an 8-day canoe trip and follow-up programming that included bi-weekly social group meetings throughout the subsequent school year. Through their qualitative case-study approach, the researchers focused on three main themes. First, they highlighted the importance of challenge, noting that overcoming challenges both individually and as a group and experiencing task accomplishment, confidence, and perseverance was personally and socially rewarding for participants. Second, participants experienced gains in trust, social support, and friendship through a strong sense of community. Although these first two components had positive results at program completion, interviews conducted at least three weeks post-trip revealed a trend toward a weakening of personal and social growth and a return to lifestyles lacking in social engagement. Within the third component, adult-youth relationships, the researchers found that, while participants and staff members fostered positive relationships, participants’ parents became outsiders from the community and there was little parent-child or parent-staff communication. Overall, while participants reported strong gains in feelings of personal competence, self-confidence, social confidence, physical strength, skill development, sense of trust, ability to cope with negative events, and optimistic thoughts of self upon trip completion, results at the follow-up period were mixed. The researchers attributed this in part to the social nature of follow-up meetings and lack of challenges offered.
School dropout was also the focus of Pann (2000), who examined outcomes related to academics in a study of an Outward Bound program designed specifically to help prevent high school dropout. The researcher compared the treatment group to a comparison control group and found that participation in the wilderness program was a significant predictor of higher scores on a standardized test of verbal achievement. However, although assessments indicated slight gains in these areas, participants in the program did not demonstrate higher verbal academic, general school, and total self-concept.

Similar mixed outcomes for self-concept were found by McNamara (2002), who examined changes in self-concept and interpersonal skills for pre-adolescent male victims of abuse and/or neglect who participated in a 7-day wilderness program. The researcher used both qualitative and quantitative methods and found mixed results from them. The qualitative methods using interviews and journals revealed that most participants experienced improvements in physical self-concept, social self-concept, general competence, and interpersonal skills. However, quantitative measures gave limited support to these self-reports, showing that although many participants improved in these areas, it was not significant improvement. The researcher also reported that some participants showed significantly lower levels of conduct problems and positive improvements regarding social stress after treatment.

Orren and Werner (2007) also failed to find conclusive positive outcomes for self-concept when they examined the effects of nine brief wilderness programs (1 day to 2 nights) on adolescent psychological issues. The programs they studied included 4 hiking trips, 2 education trips, 1 conservation trip, and 2 backpacking trips. Adolescents who
took part in one of these programs were compared with a wait-list control group. The researchers found that program participants’ externalizing behaviors and environmental attitude improved significantly over time, though not significantly more so than the control group. Participants’ internalizing behaviors and self-concept did not change over time. The researchers also examined effects of the wilderness programs according to participant race, and found that African-American participants demonstrated a significant decrease in self-concept, while Asian-American, Caucasian, and Hispanic participants demonstrated an increase in this domain, although it was not significant. The researchers concluded that adolescents’ participation in a brief wilderness program “neither enhanced their self-concept nor reduced their internalizing and externalizing problem behavior” (Orren & Werner, 2007, p. 127).

Autry (2001) focused her qualitative research exclusively on adolescent females, using in-depth interviews to assess outcomes for participants in a WEP that was incorporated into the programming of a psychiatric rehabilitation center for at-risk adolescent girls. Four main themes and a sub-theme emerged from the girls’ experiences of three to four day backpacking trips and ropes course sessions. First, the activities brought out an awareness and existence of participants’ trust in their selves and in others. Second, the girls developed a sense of empowerment, which the researcher characterized as perceived feelings of control and increased self-determination. Third, teamwork improved. Finally, the girls recognized the personal values they gained from the experiential activities. However, the girls also expressed an awareness of their inability to transfer these values back to life in the treatment center. The researcher posited that this
was due to weak follow-up processes and limited opportunities for the girls to relate their experiences in the adventure program to issues they dealt with at the treatment center.

Another specific population--foster children--was the focus of research by Fischer and Attah (2001), who found inconclusive results in their study of outcomes from an Outward Bound program for adolescents in foster care from the perspectives of the youth participants, their foster parents, and foster care workers. The only significant positive changes were reported by foster parents in the area of self-esteem and by foster care workers in self-confidence. Foster parents reported a nonsignificant improvement in behavior, but foster care workers reported a significant worsening of behaviors. These contradictory outcomes reported by foster parents and foster care workers led to unclear results. Over half of youth participants reported their belief that the wilderness program was a positive experience and over two thirds reported learning something about their selves. About half of foster parents and almost all foster care workers reported that it was a positive experience for youth.

Finally, a study by Bettman (2007) produced mixed results regarding parent-child relationships. The researcher did not specify if the program she examined was true wilderness therapy, but simply described it as a 7-week residential wilderness treatment, in her study of changes in attachment relationships. She found that, although adolescents indicated significantly less anger toward their parents as a result of wilderness treatment, they actually indicated that their attachment relationships with their parents were more problematic and disturbed after completion of the program; specifically, they reported less confidence in the availability and responsiveness of their parents and less empathy for their parents’ needs and feelings. The researchers posited that the likely cause of this
seemingly negative shift was actually the development of a greater sensitivity to the more problematic elements of the parent-child relationship.

*Studies with positive results.* Although some of the research on WEPs has produced neutral or mixed results, the results of many studies provide more positive evidence for the efficacy of WEPs as a treatment modality. Much of the research that has produced positive results also focused on at-risk adolescents. This population was studied by Cross (1999), who focused his research on perceptions of alienation and locus of control. In his study, adolescents who participated in a 4-day rock climbing program were compared with a control group. The researcher found that those who participated in the adventure program felt significantly less alienated and had a significantly greater sense of personal control than did those in the control group after participating in the program.

Issues for at-risk adolescents were also addressed by Husted (1999), who based his research on previously supported connections between performance being intrinsically driven (as opposed to extrinsically driven) and academic engagement and achievement. He found that at-risk students demonstrated a significantly lower degree of mastery goal orientation and commitment to goal directed aspirations than their mainstream counterparts, but that this gap as significantly reduced as a result of at-risk students’ participation in a 28-day Outward Bound wilderness adventure program. Husted (1998) concluded that “the wilderness model is an effective means of initiating the process of engagement among at-risk students” (p. 102), which hypothetically could be transferred into greater academic achievement.

Optimistic findings came from a study by Larson (2007), who studied the effects of a summer program that provided a 5-day, 4-night adventure camping experience for
adolescents with behavioral problems. The stated goals of this program were social skill development, an appreciation of the natural environment, and, most importantly, improved self-concept through an increased sense of confidence and self-worth.

Adolescents with clinically diagnosed behavioral problems participated in the study, with half of the participants randomly assigned to the treatment group and the other half placed in the control group to receive treatment for behavioral problems at a social services agency. Although the treatment group demonstrated a significant difference on pretest and posttest self-concept gain scores and the control group did not, the difference in gain scores between the treatment and control groups was not significant. Within the measure of self-concept, the treatment group showed significant differences on pretest and posttest subscale gain scores in intellectual and school status, popularity, and happiness and satisfaction. Thus, participants in the adventure program experienced improvements in several aspects of self-concept, but not to a greater extent than did participants in another behavior treatment program.

While many researchers drew their conclusions at least partially from quantitative data, Scaliatine (2004) used an ethnographic, qualitative method involving semi-structured interviews. This researcher examined the effects of a 6-day wilderness trip on four inner-city female adolescents, all of whom came from broken families and unsafe neighborhoods and had been involved in the juvenile justice system. One of the main findings was that the participants discovered a heightened awareness of problems in their community which, the researcher theorized, increased the degree of control they felt over their environment. The researcher also concluded from the interviews that the wilderness experience contributed significantly to participants’ self-concept and helped move them
toward more positive self-perceptions through helping them find new ways of perceiving their abilities, bodies, behavior, and overall feelings about themselves. The participants reported a heightened sense of accomplishment and a greater ability to challenge perceptions of women and gender roles--the combination of which the researcher theorized led to feelings of empowerment. Finally, the researcher found that participants increased their comfort level, improved communication skills, and developed trust, letting down their defenses and being more authentic in their interactions.

Another researcher, Edwards-Leeper (2005), examined outcomes of WEPs for adolescent females. She compared outcomes for a sample who participated in a 2-week canoe trip to a control group of a similar population who instead participated in another 2-week summer program that did not have a wilderness component. Based on both quantitative and qualitative measures, the researcher determined that (a) those in the wilderness group demonstrated a significantly greater acceptance of their bodies compared to the control group, (b) although the finding was not significant, participants in the wilderness group showed a trend toward more liberal attitudes concerning women’s roles, whereas this was not found for the control group, (c) there was a significant increase in perceived self-worth from pre-test to post-test for both the wilderness and the control group, and (d) the wilderness program served as a buffer against negative psychological issues for girls who transitioned to a new school after the summer program, whereas this was not indicated for the control group. The researcher also noted that qualitative self-reports of participants in the wilderness program, compared to the comparison group, indicated greater increases in self-awareness and self-worth, belief that their improved self-concept would transfer to their school and home
lives, perceived improvement in interpersonal relationships and recognition of the importance of friends, and general perceived competence.

Cook (2008), on the other hand, focused her research only on males. The researcher used semi-structured interviews in her qualitative study of the effects, after 4 months, of a year-long residential wilderness program for adolescent males. Participants reported positive changes in self-perception and social competence, namely in the areas of social skills and aggressive behavior. The researcher concluded that, based on participants’ reports, these positive changes were mostly a result of the promotion of social support through cooperative activities and opportunities for emotional expression.

Similarly, Martinez (2003) examined outcomes of a wilderness program for at-risk adolescent boys from low-income families, drawn from six different geographical locations within the state of California, therefore resulting in a very diverse sample representing much of the state. The program consisted of a 13 day wilderness program that took place primarily at a base camp and included a 5-day backpacking trip. The program also included a component in which staff maintained contact and correspondence with participants throughout the year through letters and reunions. The researcher found a significant increase in self-esteem and a significant change toward an internal locus of control both from pre-test to post-test and from post-test to 9-month follow-up assessments. Furthermore, these results were found across the three main represented ethnic groups (Caucasian, Latino, and African American) and did not significantly differ by geographical region.

Diversity and culture were also highlighted in a study by Parzen (2001), who focused primarily on whether a WEP was a culturally appropriate treatment for American
Indian youth, but also included a qualitative assessment of the program’s efficacy. A vast majority of adolescent participants in a 3-day backpacking trip, a river rafting trip, and rock climbing trips reported that the program helped them in a positive way and that they felt they changed for the better as a result of the program. Specifically, they indicated that the program was helpful for cultivating more positive connections with family and friends, developing better communication, making friends more easily, having more trust in others, and providing a positive activity alternative. Furthermore, they reported becoming more open-minded, less judgmental, more confident, more expressive, and more active and involved. The researcher concluded that these results suggest positive outcomes, although he also contended that certain dimensions of the program are incompatible with Navajo cultural practice.

Norton (2007) reported encouraging results from both qualitative and quantitative measures in her study of the effects of an Outward Bound program for at-risk adolescents on depression and psychosocial development. She found that a 21-day wilderness expedition resulted in a statistically significant reduction of both prevalence and actual levels of depression in participants. Using qualitative methods, she explored this change and reported a reduction in learned helplessness and increases in self-worth and sense of future. Participants reported virtually no depressive symptoms during the program and reported an elevation in mood upon course completion. Furthermore, most participants reported maintaining these gains at a follow-up assessment conducted three months after course completion. The researcher also found that participants reported increased coping skills, confidence, competence, connection, and caring, as well as gains in school improvement, decreased substance abuse, and improved family relationships. Of the
participants, 16 of the 21 reported “lasting change” at the 3-month follow-up assessment. It is important to note that the program evaluated in this study blurred the line between wilderness experience programs and wilderness therapy (WT). Although it did not meet full criteria to be considered a WT program, this program had trip leaders who were experienced wilderness instructors trained in group facilitation and basic counseling skills, some of whom had advanced mental health degrees. These instructors met one-on-one with participants to discuss personal goals, help them take responsibility for their own actions, and help them to think about positive changes they and their families could make. Also noteworthy is the high degree of family involvement integrated into this program. However, this program did not incorporate individualized treatment plans for participants and included some non-clinical field staff, and therefore is categorized as a WEP and not a WT program.

Neill and Heubeck (1998) studied the coping strategies used by participants in a 9- or 10-day Outward Bound program. While participants reported a wide range of coping responses, they indicated using more productive and less non-productive coping strategies than did a normative comparison group. Furthermore, the researchers determined that coping styles are useful predictors of mental health outcomes; specifically, use of non-productive coping strategies was a strong predictor of psychological distress during and after the wilderness program, whereas use of productive coping strategies predicted the experience of positive mental states. Given the evidence that wilderness program participants use more productive and less non-productive coping strategies than a normative sample, the researchers concluded that, by
helping move participants to more adaptive coping strategies, wilderness programs can also have a positive impact on mental health.

Gillis, Gass, and Russell (2008) compared three different treatment programs for adjudicated youth. The Behavior Management through Adventure (BMtA) program integrated adventure experiences with group process and experiential learning components. The outdoor therapeutic camping program (OTP) was a residential program in which adolescents lived in base camp cabins, went to school, and participated in short-term adventure programming including challenge ropes courses, backpacking, and rock climbing. The Youth Development Center (YDC) was a 90-day intensive treatment program and was considered “treatment as usual” for this study. The researchers found that BMtA program participants experienced significantly less rates of re-arrest at one, two, and three years following release when compared to OTP and YDC participants. For those who were re-arrested, BMtA participants had the longest average time period from program release until re-arrest, which differed significantly from the other two groups. Finally, BMtA participants had significantly fewer re-arrests over a 3-year period than did participants in the other two programs. Participants in OTP also demonstrated more favorable results than YDC participants, but the researchers did not report on the significance of this finding. Overall, the results suggest that the two programs that included a wilderness/adventure component had a more positive effect on recidivism rates than the one that did not.

Meta-analyses. To date, there have been four meta-analyses conducted on WEP outcomes. A meta-analysis is “a procedure designed to synthesize the findings across many studies, assess the effects of various moderators, and ascertain the major sources of
variability in the program effects” (Hattie, Marsh, Neill, & Richards, 1997, p. 49). Hattie, Marsh, Neill, and Richard (1997) conducted the first of these, using the results of 96 different studies in their meta-analysis of the effects of Outward Bound and other adventure programs on outcomes such as self-concept, locus of control, and leadership. They found an average effect size of 0.34 at the programs’ conclusion, which they liken to 65% of students participating in an adventure program exceeding those who do not participate in one. Additionally, the researchers found a follow-up effect of 0.17, indicating that participants in adventure programs continued to improve in many domains even after completing the program. Effect sizes were calculated for various domains and categories within those domains. These results showed that: (a) most adventure programs impacted leadership competencies, (b) adventure programs affected self-concept, with the greatest effects for independence, confidence, self-efficacy, and self-understandings, all of which were further enhanced during follow-up periods, (c) while the effects on physical ability self-concept were low, effects on actual physical fitness were high, although this was reversed at follow-up, (d) within personality dimensions, high effects were found for assertiveness, reduction of aggression, emotional stability, achievement motivation, internal locus of control, maturity, and reduction in neurosis, and (e) there were marked increases in all interpersonal dimensions, especially social competence, cooperation, and interpersonal communication.

A meta-analysis by Hans (2000) focused more specifically on the effects of adventure programming and adventure therapy on locus of control. The researcher defined adventure therapy as including wilderness therapy, adventure-based activity therapy, and long-term residential camping, and a shift toward internal, as opposed to
external, locus of control indicated a positive outcome. The meta-analysis included 24 studies and generated 30 effect sizes, which reflected the degree of treatment effects on locus of control. The researcher found an overall positive mean effect size of 0.38 which, although generally considered a small to moderate effect size, suggests that subjects across all of the included studies became significantly more internal as a result of adventure programming. Although the researcher did not examine differences between programs that did and did not include a specific therapy component, some of the reported effect sizes across moderator variables are of particular significance to the current review. Different effect sizes were reported according to program goal, revealing that the effect size for programs whose goal was primary therapy ($d = 0.64$) was greater than for those that focused on adjunctive therapy ($d = 0.30$), recreation ($d = 0.44$), and education, development, or prevention ($d = 0.35$). Effect sizes also varied by program philosophy, with expedition based programs demonstrating a greater effect size ($d = 0.47$) than programs that utilized a base came ($d = 0.31$) and those that were purely activity based ($d = 0.34$). Finally, results showed that programs with mixed residential and out-patient components and those that were primarily residential had significantly greater effect sizes ($d = 0.53$ and 0.40, respectively) than those that were primarily out-patient ($d = 0.20$).

Wilson and Lipsey (2000) also conducted a meta-analysis, but theirs focused specifically on wilderness programs for juvenile delinquents. Of the 28 studies of over 3,000 subjects included in the meta-analysis, all involved programs directed toward changing antisocial and delinquent behavior, and all included a comparison group. They found an overall effect size of 0.18 for wilderness treatments, which was statistically significant and which indicated that, on average, treatment groups showed less antisocial
and delinquent behavior after involvement in a wilderness program than did comparison groups. This also indicated that, while 37% of comparison group subjects recidivated, only 29% of those in the treatment group did. The researchers also found significantly greater improvements in social skills, self-esteem, school adjustment, and other psychological adjustment for treatment groups than for comparison groups. Finally, and most relevant to the current study, the researchers reported that those wilderness programs with a distinct therapeutic component, such as individual counseling, family therapy, or therapeutic group sessions, led to greater behavioral improvements than those programs that lacked any therapy. The researchers noted that these results were based primarily on white males who had already committed offense, and therefore generalizability to females, other ethnic groups, and pre-delinquent populations was limited.

Bedard (2005) conducted her meta-analysis of the effects of wilderness programs with delinquent populations as a follow-up to Wilson and Lipsey’s (1999), but this researcher included studies that did not use a comparison group. Using 23 studies, she reported moderate effect sizes for behavioral change/interpersonal skills \(d = 0.50\) and self-esteem/self-concept \(d = 0.54\) and a small but significant effect size for recidivism \(d = 0.31\), and concluded that wilderness programs were more effective in improving these areas than traditional means of incarceration and probation for delinquent youth.

**Summary of General Results**

The 23 studies included in this review examined a variety of populations and outcomes using different types of research methods. There were three basic categories within the adolescent population included in the studies. Nearly half (48% or 11 studies)
focused on at-risk adolescents and the rest were evenly split between adolescents with emotional and/or behavioral problems and adolescents that were either considered “normal” or for whom no description was given by the researchers (26% or 6 studies each).

The majority of these studies (65% or 15 studies) demonstrated positive results. The remainder (35% or 8 studies) showed neutral/mixed results, and no studies indicated any negative outcomes as a result of participation in a wilderness experience program. The most common source of neutral/mixed results was demonstrated improvement in some measured areas but not others. Other factors that led to a conclusion that results were mixed were positive results at program conclusion that were not maintained over time; conflicting reports from different sources, such as participants, parents, and care providers; and positive qualitative data not being upheld by quantitative measures of the same construct.

Results by Research Method

Of the studies included in this review, 8 used a quantitative research method (35%), 6 used a qualitative research method (26%), 5 used a mixed-methods approach with both quantitative and qualitative data (22%), and 4 were meta-analyses (17%). Quantitative data were collected through a variety of both standardized and informal measures and questionnaires. The most common means of collecting qualitative data was through semi-structured interviews. Of those studies that utilized only quantitative data, five had positive outcomes and three showed neutral/mixed results. There was an equal of positive and neutral/mixed outcomes for studies that used a qualitative method. There was only one neutral/mixed-results outcome from the studies that used both quantitative
and qualitative data, and the rest indicated positive results. Finally, all four meta-analyses indicated positive outcomes for wilderness experience programs.

Results by Outcome and Population Type

In addition to studying different populations, the studies examined different outcomes; some studies focused on just one type of outcome, while others looked at multiple constructs. Just over half (55% or 6 studies) of the studies of at-risk populations indicated positive results. Of these, the majority (83% or 5 studies) included a focus on outcomes associated with aspects of the self, such as self-esteem, self-confidence, and locus of control. Meanwhile, 2 studies (33%) measured emotional and/or behavioral outcomes, 1 (17%) looked at social/interpersonal outcomes, and 2 (33%) studied “other” outcomes, such as coping styles, academic factors, and attachment relationships. The majority of studies of at-risk populations that produced neutral/mixed results also focused on aspects of the self (80% or 4 studies), while 1 (20%) looked at emotional/behavioral outcomes, 2 (40%) examined social/interpersonal outcomes, and 3 (60%) included “other” outcomes. Therefore, studies of at-risk adolescent populations focused most often on outcomes associated with aspects of the self, and results were mostly positive.

Positive results were produced by all of the studies of populations with emotional and/or behavioral problems, which included delinquent populations. Of these, 4 (67%) examined outcomes associated with the self, 2 (33%) focused on emotional and/or behavioral outcomes, and 1 (17%) looked at social/interpersonal outcomes. Overall, although studies of adolescents with emotional and/or behavioral problems produced positive results in that domain, the majority of studies focused instead on aspects of the self, also with positive results.
Finally, 4 (67%) studies of “normal” or unspecified populations were positive. Again, the majority of these focused on aspects of the self (75% or 3 studies), while 1 study (25%) included an assessment of emotional/behavioral, social/interpersonal, or other outcomes. Meanwhile, of the 2 studies of this population that found neutral/mixed results (33% of studies), one examined outcomes on aspects of the self and one looked at other outcomes (50% each).

Although research on outcomes of wilderness experience programs (WEPs) for adolescents has focused on diverse populations and outcomes, some general trends have emerged. The most common population for this type of research has been at-risk adolescents, although studies have also been done with youth with emotional and/or behavioral problems as well as those for whom no clinical problems or other issues were indicated. Interestingly, although those with emotional/behavioral problems might be considered the most difficult population to work with because of their preexisting issues, all of the studies with this group indicated positive outcomes. Within all of these populations, the most common outcomes to be examined were those associated with aspects of the self, such as self-esteem, self-confidence, and locus of control, and 71% of the studies of this outcome indicated positive results. Although outcomes related to emotional and/or behavioral problems were not assessed as often, they were more likely to indicate positive results (83%). Overall, the results of these studies all contribute to the body of research indicating that wilderness experience programs (WEPs) can produce positive outcomes for adolescent participants. The question remains, then, whether different results have come from research on WT programs
Wilderness Therapy

Review of the Literature

Studies with neutral/mixed results. Keith Russell has emerged as the premier wilderness therapy (WT) researcher. In 2003 he conducted a large-scale outcome assessment of 858 adolescents who participated in one of seven WT programs. He found a statistically significant reduction in behavioral symptoms, as reported both by participants and their parents. Additionally, 55% of participants and 85% of parents reported clinically significant change, and scores at discharge came very close to the clinical cutoff score that would indicate normal functioning. Significant score reductions were reported among all of the measure’s subscales, and both participants and parents had discharge scores below the clinical cutoff in the domains of critical items and behavioral dysfunction. In addition to gathering data at discharge, Russell completed a follow-up assessment with a random sampling of the original participants 12 months after completion of the program. Participant self-report scores improved, falling below clinical cutoff on average, although this was not statistically significant change. On the other hand, parents’ scores increased slightly, indicating a worsening of symptoms, although this finding was not significant. Despite some of the study’s limitations, Russell concluded that his findings “are consistent with the goals of [WT] treatment: stabilizing adolescents emotionally and helping them address their patterns of problem behavior” (p. 374).

Russell (2005) conducted another follow-up assessment 24 months after program completion, this time using a qualitative method. In interviews, an overwhelming majority of youth reported that they were doing well and that the WT process was
effective. However, over 60% of the 47 respondents reported that they were still using drugs and alcohol. Most parents believed that their children were doing well and the majority indicated that they thought WT was effective. The 20% who indicated that it was not effective noted that the impact wore off too soon, there was a lack of post-program support, and aftercare recommendations were not appropriate. The majority of both parents and children indicated that communication was going well. The researcher noted that WT appeared to be a necessary beginning to a longer process of recovery and emphasized the critical role of after-care services in maintaining and continuing gains made during WT treatment.

In addition to his solo research, Russell collaborated with other researchers on a number of studies. Harper, Russell, Cooley, and Cupples (2007) examined outcomes from a 21-day WT program that stressed family involvement in the domains of family functioning, adolescent behavior, adolescent mental health, school success, and social engagement. Assessments were conducted pre-trip, 2 months post-trip, and 12 months post-trip. Results indicated some degree of improvement in almost all items measured. In the family functioning domain, there was a significant improvement in child participating more actively in chores at the 2-month assessment. However, adolescents did not improve significantly on other measures, such as family communication and parent-child conversations, and family arguments worsened significantly. At the 12-month follow-up, there was a significant regression in family eating together and family spending time in the evening together, but no other significant changes. At the 2-month assessment, males showed significant improvement on seven of the eight items in the behavioral domain: following house rules, communicating with parents, impulsivity, anger management,
runaway, violence, and criminal activity. Females showed significant improvement on all of those items with the exception of anger management. No significant differences were found for any of the items at the 12-month follow-up. In the mental health domain, adolescents showed significant improvement in emotional problems and problems with drugs and alcohol two months after treatment. Significant results were not found for any other items in this domain, but they were not perceived as really being a problem pre-treatment. At the 12-month follow-up, adolescents showed a significant improvement in suicide thoughts and ideation. Males demonstrated significant improvement on both items in the school success domain, school performance and attendance, but females did not. However, both showed significant improvement in school performance after 12 months. Finally, in the social engagement domain, adolescents showed significant improvements in choice of more appropriate friends, but not in being involved in activities with friends outside home or school. There were no significant changes in this domain at the 12-month follow-up. The researchers pointed out that, while adolescents demonstrated significant improvements in many areas, most of their problems still persisted, just to a lesser degree. Overall, they concluded that WT treatment may significantly contribute to the stabilization of adolescent problem behavior, a positive change that seems to last over time. However, they also added that this behavioral improvement may not translate into improved family functioning.

One of the researchers from the previous study also focused on family involvement and adolescent and family outcomes in another study. Harper (2008) studied two WT programs and found mixed results. Program participants showed statistically significant improvement on the outcome measure, and although post-treatment mean
scores were still in the clinical range, they neared the non-clinical cutoff. Adolescents reported improvements in family functioning, but these results were not supported by parent reports. Qualitative methods revealed that families expressed strong positive impacts from the programs, namely through the recognition of gains in self-confidence and the related effect on the family; increased clarity of mind and focus; improved assertive communication; and the feeling of having a “new beginning” and reorganizing family roles. While overall results showed a general trend of improvement, this was inconsistent among certain participant demographics and specific measures.

Another researcher who emphasized the importance of family involvement in WT was Edgmon (2002), who compared outcomes from a WT program to outcomes from a therapeutic community (TC) program. Both of these programs were based on 12-step recovery and emphasized the role of family in treatment. The researcher used interviews and a behavior rating scale to assess outcomes, but did not collect ratings prior to treatment; therefore, change could not be assessed. For the WT group, the data showed positive youth behavior in the areas of family relations, school/education, and job/work; and mixed results for substance abuse and peer relations. The researcher concluded that this indicated a generally positive trend when compared to the negative behavioral trends of a typical WT client prior to treatment. In interviews, both youth and their parents reported gains in youth’s self-confidence and accomplishment and improved communication and closeness. Youth also reported increased self-awareness, and parents reported a period of sobriety for their children, increased responsibility/accountability, and spirituality. The researcher compared findings from the WT group with findings from the TC group and found that behavior was roughly similar in family relations,
school/education, and job/work. Participants in the TC group received a full rating higher (better) for substance abuse and were slightly better in peer relations. Overall, behaviors appeared to be a little better for the TC group, but both groups were in the range of “slightly positive.” The transition back from the programs was similar for both groups, with a number of participants regressing back to negative behaviors shortly after program completion. The researcher noted that the main difference in outcomes between the programs, according to parent and youth report, was that WT participants had a “pivotal experience” in which their worldviews and possibly motivation changed, whereas TC participants had a “pivotal change” that led to and helped mold a changed lifestyle. This difference may be attributed to the length and intensity of programs, as the TC program lasted an average of 9 months and focused on gradually transitioning youth back into their own communities, whereas the WT program lasted only 6 weeks. The researcher also addressed the importance of aftercare services in helping maintain treatment gains.

Although Hagan (2003) did not focus on family involvement, this researcher also included data from parent reports to assess the efficacy of two 6-week WT programs and concluded that, in general they were effective in treating adolescents with severe emotional and behavioral problems, although her evidence was limited. Parents and program counselors both indicated significant positive change from pre- to post-treatment administration of the outcome measure, with the most dramatic changes in the area of severe emotional/cognitive symptoms and interpersonal relations. Parents reported a greater degree of change than did counselors, but the researcher noted that parents also indicated a higher degree of problems pre-treatment. Adolescent participants, on the other hand, actually showed a trend toward increased scores on the outcome measure,
indicating a worsening of problems, although this was not significant. However, the adolescents typically placed into the non-clinical range on the pre-trip self-report assessment; this contradicted their placement in a treatment program for severe emotional and behavioral problems and suggested that these adolescents underreported their problems. This statistic, coupled with the fact that one hundred percent of those who completed a post-experience questionnaire reported a belief that they benefited from the experience, led the researcher to hypothesize that the trend toward a seeming worsening of symptoms could actually be due to increased self-awareness. The adolescents reported that they gained new perspectives on themselves and their lives, learned how their behavior affected others, became more honest with themselves and their families, and developed a better awareness of their problems.

Vissell (2005) used comparative data in examining how three different wilderness programs differentially benefited participants. One program, Synergia Learning Ventures (SLV), had a base camp and used canoe and rock climbing trips, a ropes course, and other adventure challenges but did not have a backpacking component. This program also did not include a distinct therapy component and was used as a comparison group. The other two programs, Sage Walk (SW) and Catherine Freer Wilderness Therapy Expeditions (CFWTE) both utilized traditional therapy techniques on backpacking trips, and SW also integrated a strong spiritual component through Native American philosophy. The researcher found that participants in all three programs experienced significant positive changes in their relationships with nature, with SW and CFWTE participants demonstrating greater change than those in SLV. The researcher also assessed ego grasping orientation, which was defined as the extent to which an individual
“fights against the ebb and flow of life” (Vissell, 2004, p. 61), and found that CFWTE was the only group to show significant increases in ego grasping, which suggested an increased effort to make things positive and eliminate the negatives of life. The CFWTE group was also the only one to show significant changes in depression and actually demonstrated a worsening in this area; however, the researcher posited that this reflected an increase in state depression but not necessarily a depressive trait. Finally, the researcher reported significant reductions in psychopathy for SW and CFWTE participants and a significant increase in self-esteem only for SW participants. The qualitative phase of this study led the researcher to identify common themes in participant self-reports. Participants in all three programs reported changes in self-awareness, self-confidence, and openness. While SLV participants focused more on changes in making friends, overcoming fears and shyness, and leadership skills, CFWTE and SW participants reported appreciating and respecting their parents more, improved anger management, a new sense of motivation or direction in life, a positive attitude, and honesty. Participants in these latter two programs also reported common themes regarding their plans to maintain changes, including doing better in and finishing school, not doing drugs, respecting others, and managing anger. Overall, this researcher found mixed results for the benefits of wilderness programs and was not able to fully support the hypothesis that the program with a spiritual component would produce greater positive change.

Finally, comparative research was also conducted by Deschenes and Greenwood (1998) in their longitudinal study on a program for delinquent adolescents that consisted of three months of residential treatment in a rural wilderness setting that integrated
outdoor challenge programming, followed by nine months of community-based aftercare. The researchers looked at outcomes at 12 and 24 months and compared them with outcomes of a comparison group that was placed in training schools or private residential programs. Of interest to the researchers was cost effectiveness, since the wilderness program involved less time in residential placement and therefore cost less. They determined that the wilderness treatment was almost equally as effective as other residential placements in providing cognitive and behavioral skills, as both groups reported increases in goals, self-esteem, and coping skills, and decreases in antisocial behavior. However, although these positive results were found at the 12-month assessment, they disappeared before the follow-up at 24 months. There was also little difference between groups at 24 months in rates of recidivism and substance use. Overall, the researchers concluded that the wilderness treatment program may be more cost effective than long-term residential placement, but that the positive changes facilitated by both types of program disappeared over time.

Studies with positive results. Although his first two studies produced neutral or mixed results (Russell, 2003; Russell, 2005), several years later Russell (2007) found positive results when he studied outcomes from five WT programs, with a special focus on substance use. First, he reported that WT was effective in helping participants develop motivation to change. Next, participants demonstrated significant reductions in depression, anxiety, and stress from pre- to post-treatment. At a 6-month follow-up, females showed a significant reduction in stress and reductions, though not significant, in depression and anxiety; males showed a significant decrease in depressive symptoms but a significant increase in stress. Finally, participants who entered treatment with a
substance-use disorder showed significant reductions in psychological involvement with substances. At the 6-month follow-up, the percentage of those who entered treatment with a substance-use diagnosis who reported not using substances in the past three months increased significantly and the percentage who reported using three or more times in the past three months decreased. This study supported WT as a viable alternative treatment for adolescent drug use problems.

Russell and Phillips-Miller (2002) used a qualitative case-study approach to explore the process and benefits of four WT programs. In a structured interview, all of the study participants reported that wilderness treatment helped them. The positive changes they experienced seem to stem from a heightened awareness of their previous behaviors and a desire to change them. The researchers reported three emergent desires: to change behaviors, to discontinue drug and alcohol use, and to be a “better person.”

In another case study, Caulkins, White, and Russell (2006) examined the emotional, cognitive, and physical impacts that adolescent female participants attributed to the backpacking component of the therapeutic process of a WT program. The researchers concluded that there were eight central positive impacts on participants: reflection; perceived competence; sense of accomplishment; \textit{timelessness}; awareness of surroundings, self, and others; and self-efficacy.

Lambie, Hickling, Seymour, Simmonds, Robson, and Houlan (2000) used a delinquent population when they studied outcomes from a community treatment program for male adolescent sex offenders in New Zealand that used wilderness group therapy as a core treatment approach. The researchers found that, two years after treatment, none of the 14 participants had reoffended. Furthermore, the majority of participants reported
increases in self-esteem and that treatment had increased their self-awareness of high-risk behaviors and taught them strategies to stop offending. The majority of participants’ parents reported that their relationships with their sons had improved, and that they believed that if not for this treatment, their sons would have reoffended.

Romi and Kohan (2004) compared the effects of a 6-day wilderness program, a 6-day alternative residential program, and a contrast treatment that did not include a specific intervention program on self-esteem and locus of control with adolescents in Israel. They found that, while there was not a significant different between overall pre-treatment and post-treatment self-esteem for wilderness participants, there were significant differences in four of the six components measured to make up the self-esteem construct; these were happiness and satisfaction, behavior, looks and abilities, and popularity. Wilderness participants’ changes in self-esteem were significantly greater than those in the contrast group, but did not differ from the alternative program group. The researchers found no significant differences between groups or over time for locus of control, but did report that wilderness program participants were the only group to move in a positive direction toward internal locus of control.

Hanna (1996) examined some similar outcomes in his qualitative study of a WT program through interviews with 27 adolescents and young adults who had graduated from such a program at least two years prior to his study. Through comparisons of participants’ archival data and their self-reports from the interview, the researcher reported the following themes: gains in sense of self, self-esteem, self-confidence, sense of accomplishment, and self-efficacy; greater appreciation and respect for family; improved interpersonal skills, problem solving, coping skills, and social skills;
appreciation for nature; increased sense of spirituality; and improved positive life skills, such as goal setting, a desire to change, responsibility, and improved work ethic.

Christensen (2008) found overwhelmingly positive results in his longitudinal study of at-risk adolescents who participated in a WT program for an average of 57 days. According to results from several standardized questionnaires, the 26 adolescent participants experienced significant positive changes in overall hope, agency, locus of control, emotional and behavioral symptoms, and motivation upon discharge from the program, all of which were maintained approximately 2.5 months after program completion.

Finally, in a study that provides much evidence of the benefits of WT, Clark, Marmol, Cooley, and Gathercoal (2004) found that a WT program had positive significant effects on immature defenses, dysfunctional personality patterns, expressed concerns, clinical syndromes, and maladaptive behaviors of adolescent participants. The researchers highlighted the importance of their finding of improved personality patterns, due to the rarity of positive character change as a result of short-term interventions. This finding was also significant because clients with the types of personalities that most frequently come to the attention of mental health and legal systems – Dramatizing/Histrionic, Egotistic/Narcissistic, Unruly/Antisocial, Forceful/Sadistic, Oppositional, and Borderline – showed great improvements.

**Summary of General Results**

This review included 16 studies on wilderness therapy (WT) programs, which utilized a diversity of populations, outcomes, and research methods. The vast majority of WT research (88% of studies) was done with adolescents with emotional and/or
behavioral problems, including delinquent youth. The remaining 12% used at-risk populations.

Exactly half (50%) of the studies indicated positive outcomes, and the other half found neutral/mixed results. None of the studies found negative results, further promoting the idea of WT as a viable alternative treatment for adolescents. The most common cause of neutral/mixed results was improvement found upon program completion that was not maintained over time. Other factors that led to a conclusion of neutral/mixed results were improvement in some areas but not others; conflicting reports from different sources; change that was positive but not statistically significant; and difficulty interpreting results.

Results by Research Method

Of the studies included in this review, 9 used a quantitative research method (56%), 4 used a qualitative research method (25%), and 3 used a mixed-methods approach with both quantitative and qualitative data (19%). Quantitative data were collected through a variety of both standardized and informal measures, with 4 studies (44%) showing positive results and 5 studies (56%) showing neutral/mixed results. Utilizing mostly semi-structured interviews, outcomes of studies with only qualitative data were 75% positive (3 studies) and 25% neutral/mixed (1 study). Finally, studies incorporating both quantitative and qualitative measures were 33% positive (1 study) and 67% neutral/mixed (2 studies).

Results by Outcome and Population Type

Research on WT also examined a variety of outcomes. Of the 2 studies done with at-risk populations, one had a positive outcome (50%) and the other had a neutral/mixed
outcome (50%). Both of these studies looked at outcomes related both to aspects of the self, such as self-esteem, self-confidence, and locus of control, and outcomes related to emotional/behavioral problems.

As there was more research on this population, studies of adolescents with emotional and/or behavioral problems also examined a wider variety of outcomes. Overall, 43% (6 studies) showed positive results. All of these studies (100%) included an outcome measurement related to aspects of the self. Additionally, half (50% or 3 studies) also looked at emotional/behavioral outcomes, 7% (1 study) looked at social/interpersonal outcomes, and 14% (2 studies) examined other outcomes, such as coping skills and personality patterns. Of the 8 studies of this population that found neutral/mixed results (57%), the majority focused on emotional/behavioral outcomes (75% or 6 studies). Meanwhile, 25% included a measure of an aspect of the self or social/interpersonal outcomes (2 studies each) and half (50% or 4 studies) included other outcomes, such as coping skills, family functioning, and school functioning.

Despite the range of populations, methods, and outcomes examined, some general trends can be gleaned from the research on WT programs. Perhaps because WT programs are often seen as a “last resort” for adolescents for whom traditional therapy has been effective, the overwhelming majority of research has focused on adolescents with emotional and/or behavioral problems. Not surprisingly, then, the most commonly studied outcome had to do with emotional/behavioral issues (69% or 11 studies). The majority of these studies (64% or 7 studies) produced neutral/mixed results. However, nearly as many studies included a component assessing outcomes regarding aspects of the self (63% or 10 studies), and the majority of these showed positive results (70% or 7
studies). Therefore, it appears that WT programs may be limited in their ability to improve emotional and behavioral problems but are more effective in improving adolescents’ images and ideas of themselves.

Summary and Conclusions

The purpose of this review was to consolidate the large body of research on wilderness programs for adolescents into a single document and examine outcomes in order to better clarify what types of programs might be most appropriate and effective for certain adolescents, and therefore guide those making decisions of where to place adolescents in need of help. It began by addressing the importance of early intervention to prevent or reduce future mental health problems, which adversely affect individuals, their families, and society as a whole. Challenges that mental health care providers face when working with adolescents were noted, and wilderness experience programs (WEPs) were presented as an alternative treatment method. Next, a brief history of wilderness programs was provided, as were definitions and theoretical foundations. Of great importance was the distinction between WEPs and wilderness therapy (WT), a specific type of WEP that incorporates traditional therapy techniques into wilderness treatment. After that, comprehensive literature reviews summarized outcome research from 1996 to 2009, separately for WEPs and WT programs, and findings were categorized and quantified.

Of the 39 studies included in this review, the majority (23) focused on WEPs and the rest (16) examined WT programs. A greater proportion of WEPs demonstrated positive results, as opposed to neutral/mixed results, than did WT programs (65% vs. 50%). This may seem counterintuitive, since WT includes traditional therapy techniques and therefore more directly addresses adolescent emotional and behavioral problems, thus
suggesting the prediction that it would produce more positive outcomes. This also contradicts Wilson and Lipsey’s (1999) finding in their meta-analysis that wilderness programs for juvenile delinquents that programs with a distinct therapeutic component led to greater behavioral improvements than programs that lacked any therapy. Despite these seeming contradictions, it is possible that wilderness programs without a distinct therapeutic component may be more effective than those that do incorporate traditional therapy.

However, it is also possible that this seemingly contradictory finding is reflective of the lack of statistical rigor in the current study and complications involving the existing literature. An example of this has to do with the populations used in the studies: Research on WEPs usually studied at-risk populations and also often used “normal” populations, whereas the vast majority of research on WT used populations that already had demonstrated emotional and behavioral problems. It is more than likely that adolescents who already have these problems would be more difficult to work with than those who have not demonstrated problems or are so far only at risk of developing problems.

Another possible explanation for WEPs showing more positive outcomes may have to do with the type of studies most commonly used. The most common cause of neutral/mixed results for WT programs was improvements shown at program conclusion that were not maintained over time. However, research on WT included many more longitudinal studies than research on WEPs; therefore there was more opportunity for participants to display this regression at follow-up assessments.

A final possible explanation for this finding may have to do with what types of outcomes were measured. Although the majority of studies on both WEPs and WT
focused on outcomes associated with aspects of the self, such as self-esteem, self-confidence, and locus of control, WT research more often included a component assessing emotional and behavioral outcomes. Therefore, although a greater proportion of WEPs showed positive outcomes, the types of outcomes the research focused on may not address the main issues that bring adolescents to wilderness programs.

Overall, it is difficult to draw clear conclusions about differences in outcomes between WEPs and WT because of the lack of research directly comparing the two. Given the challenges in determining clear conclusions, there is a great opportunity for future research to focus on differences between these types of programs. Comparative studies that use the same methods and instrumentation to study different types of programs could add to clarity on this issue and further help guide consumer choices. Another possibility is a meta-analysis separately examining and then comparing outcomes from WEPs and WT programs.

Despite these challenges, though, it is clear from the studies in this review that WEPs and WT more often than not produce positive outcomes for adolescent participants and can therefore be viewed as viable treatment alternatives for at-risk or troubled adolescents, which also speaks to the power of nature as healer. In the words of John Muir, founder of the Sierra Club, “Climb the mountains and get their good tidings. Nature’s peace will flow into you as sunshine flows into trees. The winds will blow their own freshness into you, and the storms their energy, while cares will drop off like autumn leaves” (Muir, 1901, p. 56).
References


