

The Effectiveness of Project Adventure's Behavior Management Programs for Male Offenders in Residential Treatment

H. L. Gillis, PhD
Michael A. Gass, PhD
Keith C. Russell, PhD

SUMMARY. Recent studies analyzing juvenile delinquents participating in wilderness therapy programs have reported little statistical effectiveness. Interpretation of these findings may be unjustified due to definitional confusion more than a clear examination of program effectiveness. Using a research methodology similar to Jones, Lowe, and Risler (2004), this study demonstrates the statistically significant three-year effectiveness of an adventure-based behavior management program (BMtA) with juvenile re-arrest rates when compared to outdoor therapeutic camping programs and standard Youth Development Center (YDC) programs in the State of Georgia. The article also offers clarity concerning the range and types of adventure therapy programs and treatment differences. It further highlights the importance of understanding intervention/treatment fidelity in adventure therapy programs, particularly regarding program settings and key clinical factors.

KEYWORDS. Residential treatment, wilderness therapy, adolescents, juvenile offenders

H. L. Gillis, PhD, may be written at the Psychology Department, Georgia College & State University, CPO 90 GCSU-Psychology, Milledgeville, GA 31061 (E-mail: lee.gillis@gcsu.edu).

Residential Treatment for Children & Youth, Vol. 25(3) 2008
© 2008 by The Haworth Press. All rights reserved.
doi:10.1080/08865710802429689

Adventure programs with juvenile offenders and mental health clients (often called “adventure therapy”) possess a relatively long history in the treatment of these youth (Gass, 1993; Gillis & Gass, 2003; Kelly & Baer, 1971). However, the adventure therapy field has very few controlled quantitative studies regarding its effectiveness with clients over time, and randomized controlled studies with adventure therapy simply do not exist. Adding to the difficulty in determining the effectiveness of adventure therapy approaches has been the semantic confusion created among practitioners through the blurring of program differences and the lack of any examination of treatment fidelity. Early meta-analyses of adventure programming by Cason and Gillis (1993), and later by Hattie, Marsh, Neill, and Richards (1997), have added to this confusion by aggregating numerous program methods with different program outcomes into a single effect size for all adventure programming. Williams’ (2000) broad view of adventure therapy as “treatment that takes place outside as opposed to inside or more accurately in a wilderness as opposed to an institutional setting” (p. 48) epitomizes just how broad the term of adventure therapy has become, with some focus on *where* it may occur, but with little guidance on *what* is occurring. As one might expect, the multitude of terms in the literature associated with adventure therapy has also grown to include adventure-based counseling, outdoor behavioral health care, challenge education, outdoor therapy, therapeutic adventure programs, therapeutic camping, wilderness therapy, and wilderness adventure therapy.

With the aggregation of different models of wilderness, adventure, and therapeutic camping programs has come several sources of criticism. Brown, Borduin, and Henggeler, (2001) and Moote and Wodarski (1997) criticized adventure programming with therapeutic populations for lacking appropriate evidence. These authors challenged the field’s ability to provide valid and effective behavior management for juvenile offenders, citing methodological problems with the research literature that had already been identified elsewhere (Gillis, 1992; Gillis & Thomsen, 1996; Newes, 2001). Perhaps the most formidable challenge to the value of wilderness and adventure programming for juvenile offenders has been the analysis of S. J. Wilson and Lipsey (2000) and interpretations of Aos, Miller, and Drake (2006). S. J. Wilson and Lipsey’s meta-analysis found little evidence to support the effectiveness of wilderness programming with juvenile offenders. They also determined it was unclear how therapeutic elements of specific wilderness programs effectuated change. Using benefit cost analysis procedures, Aos et al. reported the use of wilderness programming for juvenile offenders was not cost effective in treating young offenders.

Conclusions drawn by these authors all served to exacerbate misperceptions of wilderness and adventure therapy by misinterpreting treatment fidelity and failing to differentiate between: (a) wilderness-adventure programming aimed at lasting changes in behavior, and (b) outdoor recreational wilderness programs provided for juvenile offenders. For a clearer and more valid understanding, it is important for researchers and policy makers to differentiate adventure therapy programs centered on behavior management and recidivism outcomes from other adventure programs designed to provide recreational camping experiences for juvenile offenders.

Attempts at Definitional Clarification

Priest, Gass, and Gillis (2000/2003) presented a paradigm to help researchers, evaluators, and policy makers differentiate between various types of adventure programs. These authors categorized differing adventure programs based on their primary purpose. In distinguishing between these types of adventure programs, recreational programs were those professional programs focused on changing clients' feelings. Educational programs were those efforts focused on changing clients' thinking as well as their feelings. Developmental programs focused on changing clients' social behaviors in addition to their feelings and thinking. Finally, treatment or therapy programs were differentiated by their focus on feelings, thinking, and social behaviors, but also their primary treatment purpose of decreasing clients' dysfunctional behavior as well as improving their functional life behaviors.

Further efforts at providing definitional clarification of adventure therapy have emerged from other sources. The Council on Accreditation: Wilderness and Adventure-Based Therapeutic Outdoor Services defined adventure therapy programs as "day or residential programs that provide an intensive, therapeutic experience based on outdoor, educational, clinical, and other activities that involve physical and psychological challenges" (p. 1). Outdoor Behavioral Healthcare was defined by Russell, Gillis, and Lewis (2008) as: "1) the application of a clinical treatment model, supervised and facilitated by licensed professionals, that provides the foundation for the approach and 2) the primary use of wilderness expeditions as a therapeutic milieu" (p. 1). Note in these definitions the terms clinical, challenge, and the use of the wilderness as the therapeutic milieu by using the wilderness as an initial "co-therapist" (Russell & Farnum, 2004).

Recently The Bureau of Land Management (BLM, 2008), based on a report from the Government Accounting Office (Kutz & O'Connell, 2007), stated that since the wilderness adventure field was lacking a standard definition, the BLM would define wilderness therapy programs as those programs intended to provide a less restrictive alternative to incarceration or hospitalization for youth who may require intervention to address emotional or behavioral challenges. The BLM further viewed these programs as primarily directed toward youth under age 18 with a variety of behavioral and emotional problems including substance abuse, addiction, physical/mental disabilities, learning disorders, criminality, and psycho/social and sexual issues. Participants were further categorized as possibly posing a risk to themselves or others (p. 1). While the definition arrived at by the BLM may be similar to those presented in academic journals, this further illustrates how the lack of a standard definition in wilderness adventure programming has led to governmental agencies defining the industry and creating policies that fit this definition.

All of these presenting issues point to the need for clearer and accurate program fidelity that is consistent with what adventure therapy programs call themselves. Adventure therapy researchers have been encouraged to describe the elements of their programs as well as their outcomes (Gillis, 1992). Researchers must also present what is occurring in the treatment program that is labeled "therapy" and how (or if) wilderness adventure therapy is being delivered (e.g., simply going camping with juvenile offenders may produce youth more capable of living in the wilderness, but not necessarily youth more capable of succeeding in society).

Program Setting Differences

As highlighted earlier, another way adventure therapy programs can be differentiated is by where they occur. Gass (1993) described three settings where adventure therapy occurred: (a) *adventure-based therapy* done primarily on challenge (ropes) courses and through the group development experiences associated with adventure therapy, (b) *wilderness adventure therapy* in wilderness settings (e.g., in both contained and continuous flow programs; Crisp & O'Donnell, 1997; Russell, Gillis, & Lewis, in press), and (c) *outdoor therapeutic programs* through residential camping (e.g., stationary, residential living programs at camp).

The first of these settings, adventure-based therapy (ABT), focuses on group development activities through problem-solving initiatives alone,

or in combination with low- and high-challenge (ropes) course experiences (Rohnke, 1984). Project Adventure, Inc. (www.pa.org) has been a primary professional provider of such programs with their application to juvenile offenders (Schoel & Maizell, 2002; Schoel, Prouty, & Radcliffe, 1988; Walsh, 2002). The Behavior Management through Adventure (BMtA) program used in this study is an example of this type of programming.

Wilderness adventure therapy (WAT) programs can be either short in length (less than 60 days) or longer (more than 60 days and possibly extending to 120 days in length). They also can be designed to offer self-contained or continuous enrollment expedition formats. Self-contained programs utilize an intact group and have a clear start and end date. Continuous enrollment formats admit clients as they are accepted into the program and will thus have clients who are at the beginning, middle, and end of treatment within their groups (Russell, 2001).

Shorter term formats have often been associated with Outward Bound models (www.outwardbound.org/). These programs utilize a self-contained 7- to 31-day expedition format that is comprised of elements of teaching and practicing wilderness skills (Kimball & Bacon, 1993). The setting is often remote as the name "wilderness" implies. One example of a self-contained program is Catherine Freer Wilderness Therapy Programs (<http://www.cfreer.com/>). Kelly and Baer (1971) conducted the first effective analysis of wilderness programs and its impact on juvenile recidivism. They found that a short-term, contained 28-day Outward Bound wilderness group showed significantly less recidivism (20%) than the control group (42%) one year following treatment. However, such differences faded to nonsignificance four years later (Kelly, 1974).

Longer, continuous flow WATs (60 days or longer) often differ from the Outward Bound model with the inclusion of teaching primitive wilderness skills (e.g., bow drill fire building) and the use of graduated levels, phases, or stages of client advancement in treatment. Often programs will require specific behaviors of clients and recommendations of field staff in order to move to the next level or stage. For example, writing a letter to parents that describes past behaviors of which they may or may not have known. An example of a continuous flow program is the Aspen Education Group model (<http://www.aspeneducation.com/>).

One recent description of a continuous flow adventure-wilderness program and its program elements for adjudicated youth can be found in Russell's (2006b) evaluation of the Wendigo Lake Expeditions Program for young offenders. This evaluation of the program's effectiveness details the positive youth development framework used in working with

referred youth who are at extreme risk for re-offense. Included in the evaluation of the program's effects were: (a) a detailed case study of one youth highlighting the extreme risk factors the youth was facing, (b) a description of youth perceptions of program elements including safety, (c) what youth believed they learned from the experience, and (d) an evaluation of youth outcomes showing a significant increase in mental health well-being at discharge. Included was a detailed analysis of re-offense rates showing slightly more than half of the youth had re-offended (52.5%) while 47.5% had not. In addition to the rates of re-offense, the study evaluated the nature and type of re-offense to shed light on youth dispositions and concluded that though half had re-offended, the majority of the "re-offenses" were probationary violations; many of which did not lead to a conviction. No comparison group was used in this study.

With the third type of adventure therapy setting, residential camping programs are also referred to as outdoor therapeutic programs (OTP). These programs have historically been located and conducted in the southeast and mid-Atlantic regions of the United States (Apter, 1977), drawing a substantial amount of influence from the primitive camping model advocated by Loughmiller (1965). Current models of these programs are conducted by organizations like Eckerd Youth Alternatives (www.eckerd.org/) and Three Springs, Inc. (www.threesprings.com/). These programs generally operate from a base camp. Historically a major part of their program was to have clients build their own (permanent) shelters but currently most clients in these programs live in cabins, participate in school and take short-term adventure-based trips rock climbing, paddling, or camping.

To a large extent, it is these types of adventure programs in this third model of adventure therapy setting that characterize the programs Jones, Lowe, and Risler (2004) referred to and broadly generalized as wilderness adventure therapy in their analysis. Using computer-based archival juvenile records from the Georgia Department of Juvenile Justice, their study compared juveniles who participated in an outdoor therapeutic camping experience to similar offenders in group homes. The authors found no statistically significant differences in recidivism rates six months following the camping experience. In their conclusion from these findings, the authors incorrectly portrayed and generalized the outdoor therapeutic camping experience in their study as wilderness adventure therapy. As with many other researchers, their review of literature aggregated several different program models and presented outdoor therapeutic programming as the one single approach to adventure therapy.

Obviously the results from studies like Jones et al. (2004) should be interpreted with caution due to several limitations in the study the authors addressed. Additional limitations include the use of small and unequal samples for both control ($n = 11$) and treatment ($n = 24$) groups, and the limited to nonexistent description of what treatment elements were included in the “wilderness program.” One critical issue with the small sample size was the significantly limited statistical power of the study, meaning that even if differences existed between the groups, they would not be detected. The authors also cited the need for: (a) further research to gain a better understanding of how these programs might be more effective, and (b) research on these programs with sound methodological designs utilizing appropriate treatment groups, behavioral-outcome measures, and sufficient sample sizes.

Flawed interpretations have lead to other serious misconceptions about wilderness and adventure programs made by academics, policy makers, the popular press, and the public. One misconception is that wilderness and adventure programs are, in essence, boot camps where youth are placed in settings and provided with programming similar to a military boot camp (Russell, 2006a). Extreme forms of boot camp programs have received considerable attention from the media when they have forced participants to live in sordid conditions, engaged them in rigorous daily hikes or other forms of extreme exercise, and subjected them to abusive punishment from staff, often in the form of improperly administered physical restraints. The misconception that wilderness and adventure programs are boot camps is critical to address because research has shown that boot camp approaches are not effective for reducing recidivism in youth (Pearson & Lipton, 1999), and that practices used in many boot camps should be considered cruel and unusual punishment (Lutz & Brody, 1999).

The purpose of this pilot study was to address several of the issues identified by this article through the assessment of an adventure-based behavioral-management model as a residential treatment for juvenile offenders using the outcome measure of re-arrest. The study was also designed to aid in the development of treatment fidelity by presenting a clear treatment description of an adventure-based therapy approach called Behavior Management through Adventure (BMtA). The BMtA model was compared with: (a) outdoor therapeutic programs (OTP) similar to those used in Jones et al. (2004) and (b) the State of Georgia’s Youth Development Center’s 90-day “Specialized Treatment Programs” (based on a “boot camp model” through YDC) conducted during the same time

period. The study further sought to clarify the definitions of wilderness and adventure therapy while offering a comparison of two outdoor therapeutic camping programs to an adventure-based therapy program focused on behavior management.

METHOD

Sample

The Georgia Department of Juvenile Justice (DJJ) provided the data used in this study. This database contained all youth committed to the state by juvenile courts between July 1989 and May 2002 ($N = 15,311$). These computer-based archival records excluded names or other identifying information. Youth in the dataset ranged in age from 8 to 18 years.

In order to achieve a dataset similar to Jones et al. (2004), only male youth admitted between January 1995 and January 2001 were included in the study's sample ($N = 2,115$). In an effort to determine program effectiveness, the study examined differences between the BMtA program, outdoor therapeutic camping programs (OTP), and the State of Georgia's Youth Development Center's 90-day "Specialized Treatment Programs" (YDC).

Treatment Program Descriptions

BMtA Program

The Behavior Management through Adventure (BMtA) approach was defined as a "systematic approach to promoting positive behavior for clients with social maladjustment issues. Using a continuum of behavior supports and proactive strategies, this model . . . raises . . . behavioral outcomes and allows children to remain or return to the least restrictive environment" (Behavior Management through Adventure, n.d., p.1). Much of the historical and theoretical background of the BMtA approach is detailed in Schoel et al. (1988) and Schoel and Maizell (2002). The model of BMtA employed in this study was in the context of juvenile residential treatment.

Key elements of BMtA included the use of group process and experiential learning. The therapeutic group consisted of approximately 12–20 adolescents. A core element to BMtA was the use of adventure experiences. These activities were developmental by design (e.g., a group that has just met did not do an activity requiring high levels of trust, but trust among

group members was first built incrementally through properly sequenced activities). The activities were often enjoyable but not just fun, as they required skills such as patience, listening, seeing another's point of view, leading, following, planning, and experiencing the consequences of actions. Therapeutic staff typically introduced or "framed" activities around issues facing the BMtA youth (Gass, 1991). This framing enabled clients to experience the activity as a metaphor for their actual problem behaviors.

OTP Program

Participants in this treatment group were clients who participated in the residential outdoor therapeutic camping programs (OTP). These programs were operated by providers who practiced a model of programming resembling the work of Loughmiller (1965). Typical program elements of this approach included base camping in cabins similar to those of the Eckerd or Three Springs programs described above. Clients attend school according to state law requirements and participate in short-term adventure programming including challenge ropes courses, backpacking, rock climbing, and caving.

YDC Program

Participants in the YDC group attended the State of Georgia's Youth Development Center's (YDC) 90-day "Specialized Treatment Program." According to Simon (1995), this program was first conceived as a short-term intensive program for first offenders with drug charges (both using and selling). However, since juvenile judges adjudicate the youth to participate in the YDC program, it also contained youth with charges other than first-time drug offenses including status offenses, personal and property crimes.

All youth in each of the three programs were adjudicated. There was no random assignment of youth to programs. Juvenile judges committed youth to programs based on offenses and court service workers were responsible for matching the youth with programs that met the judge's requirements. Choices for the court service workers included one of the state-run programs or an alternative program contracted by the state. BMtA and OTP represented contracted alternative programs for juvenile offenders while the 90-day "Specialized Treatment Programs" were operated and staffed by the state.

All male youth who had a length of stay in any of these programs for longer than 30 days and less than 366 days were included in the sample.

Thirty days of programming was the minimal time spent to complete several of the programs included in the sample and was also used as a minimal length of stay for the current study. Youth who were 17 years of age at the time of release were also excluded from the dataset to match the criterion applied by Jones et al. (2004). The remaining sample ($N = 1675$) included the following numbers: BMtA ($n = 347$), OTP ($n = 661$), and YDC ($n = 667$). To bring the samples closer to equivalence, a random sample of 347 juveniles was chosen from each of the remaining OTP and YDC samples using the select cases procedure SPSS Version 14 (Tabachnick & Fidell, 2001). The remaining dataset consisted of BMtA ($n = 347$), OTP ($n = 347$), and YDC ($n = 347$), but analysis still remained a nonequivalent group design.

For comparison with the sample from Jones et al., (2004), racial status was coded and the following demographics described the population: There were 239 (68.9%) White and 108 (31.1%) Black males in the YDC group; 176 (50.7%) White and 171 (49.3%) Black males in the BMtA group, and 193 (55.6%) White and 154 (44.4%) Black males in the OTP group. These demographics matched the 60% Black males and 37.1% White males in the Jones et al. sample. The race differences between groups was statistically significant, $\chi^2(2, N = 1041) = 25.20, p < .001$, with the YDC program possessing significantly more White juveniles and significantly less Black juveniles than the expected count, while the BMtA program had significantly more Black juveniles than expected. The OTP race differences were not statistically different than expected.

The average age at first offense was 14.47 years ($SD = 1.19$), average age of admittance to the state system was 14.75 ($SD = 1.12$), average age at release was 14.99 ($SD = 1.08$), and average number of days in treatment was 114.46 ($SD = 76.52$). The three groups were significantly different on all four variables, age at first offense $F(2, 1038) = 11.63, p < .001$; age at admittance to the state system $F(2, 1038) = 5.44, p = .004$; age at release $F(2, 1038) = 17.29, p < .001$; average number of days in treatment $F(2, 1038) = 393.14, p < .001$. The Levine Statistic for homogeneity of variance was significant for all four variables, so the Dunnett T3 test of multiple comparisons was used. On age at first offense the BMtA group differed significantly (was younger) from the YDC group ($p < .001$) and the OTP group ($p = .001$), while the YDC and OTP group did not differ. On age at date admitted, the BMtA group differed significantly (was younger) from the YDC group ($p < .009$) and the OTP group ($p = .032$), while the YDC and OTP group did not differ. On age at release the BMtA

group differed significantly from the YDC group ($p < .005$) and the OTP group ($p = .020$), while the YDC and OTP group did differ ($p = .020$). On length of stay in placement all groups differed from one another ($p < .001$). Overall, the BMtA group was the youngest in age in all categories and had the lowest length of stay ($M = 2.32$ months). The OTP program possessed the longest length of stay ($M = 6.07$ months).

Table 1 highlights the frequency of most serious arresting charges for each of the three placements. The overall chi-square was statistically

TABLE 1. Most Serious Arresting Offense by Program Placement

	Program			Total
	YDC	BMtA	OTP	
Drug Sell				
<i>N</i>	29	16	23	68
Expected <i>N</i>	22.7	22.7	22.7	68.0
%	8.4%	4.6%	6.6%	6.5%
Std. Residual	1.3	-1.4	.1	
Drug Use				
<i>N</i>	7	16	9	32
Expected <i>N</i>	10.7	10.7	10.7	32.0
%	2.0%	4.6%	2.6%	3.1%
Std. Residual	-1.1	1.6	-5	
Property Crime				
<i>N</i>	158	113	132	403
Expected <i>N</i>	134.3	134.3	134.3	403.0
%	45.5%	32.6%	38.0%	38.7%
Std. Residual	2.0	-1.8	-2	
Status, Traffic, Nonviolent Sex, Public Order, VOP				
<i>N</i>	91	105	122	318
Expected <i>N</i>	106.0	106.0	106.0	318.0
%	26.2%	30.3%	35.2%	30.5%
Std. Residual	-1.5	-.1	1.6	
Violent Offense				
<i>N</i>	62	97	61	220
Expected <i>N</i>	73.3	73.3	73.3	220.0
%	17.9%	28.0%	17.6%	21.1%
Std. Residual	-1.3	2.8	-1.4	
Total				
<i>N</i>	347	347	347	1041
%	100.0%	100.0%	100.0%	100.0%

significant, $\chi^2(8, N = 1041) = 31.53, p < .001$. All three groups were similar on all arrests; with the exception that the YDC group had significantly committed more property crimes (Standardized Residual = 2.0) and the BMtA group had committed significantly more violent offenses (Standardized Residual = 2.8). In summary, the groups were not equivalent on certain factors, as the BMtA group was younger, contained more Black youth and had committed more violent offenses than the other two groups.

Procedure

There were two outcome variables identified for this pilot study: (a) re-arrest rates for criminal behavior after release from placement within a 6-month, 1-year, 2-year, and 3-year period and (b) the number of days between release and re-arrest as documented in the archival dataset. For each juvenile without a reported re-arrest, 36 months (3 years) was assigned as the maximum time to re-arrest.

A 2×3 chi-square analysis was conducted on re-arrest data at 6 months, 1 year, 2 years, and 3 years for youth in each program. Standardized residuals were used to investigate if the difference between the observed and expected values were lower than a z score of -1.96 or greater than a z score of 1.96. Such differences indicated an alpha level less than .05. Effect sizes were also computed (D. P. Wilson, 2001), using the Probit method for frequency or dichotomous data at 6-month, 1-year, 2-year, and 3-year re-arrest rates.

An Analysis of Variance (ANOVA) was used to compare the difference in mean number of months between release and re-arrest for the three programs. Where appropriate, effect sizes were computed on differences between mean months to re-arrest for each of the three programs.

In addition, Kaplan-Meier survival functions available in SPSS version 14 were used to estimate and to graph true differences in the probability of re-arrest between the three placement sites. The outcome for the survival function was considered to be the time at risk in the community to re-arrest or to the end of the follow-up period (3 years/36 months).

There was no specific information given about follow-up services provided to the youth in this study. All youth in the dataset were followed into the "adult system" to ascertain if they were re-arrested after leaving the juvenile system.

RESULTS

The BMtA program participants experienced significantly less rates of re-arrest at one, two, and three years following release when compared to both the OTP and YDC programs. There also were statistically significant differences between time from release until re-arrest for the BMtA program and the OTP and YDC programs.

Statistically significant differences in re-arrests were found at Six Months, $\chi^2(2, N = 1041) = 22.22, p < .001$; Year One, $\chi^2(2, N = 1041) = 18.41, p < .001$; Year Two, $\chi^2(2, N = 1041) = 22.27, p < .001$; and at Year Three, $\chi^2(2, N = 1041) = 27.51, p = .001$. As a method of post hoc analysis for chi-square tests, standardized residuals revealed negative differences for re-arrest rates of those juveniles in the YDC program (Standardized Residual = 3.3). Positive rates of no re-arrest were found for the YDC program at Year One (Standardized Residual = -.20) as well as negative rates of re-arrest (Standardized Residual = .25). BMtA exhibited positive differences for re-arrest rates at Year One (Standardized Residual = -2.2). At Year Two postrelease, the BMtA program participants had fewer re-arrests than expected (Standardized residual = 2.4) and had more juveniles not re-arrested than expected (Standardized residual = -2.2). The YDC juveniles had the opposite result with more re-arrests and less juveniles not re-arrested. The pattern at Year Two was maintained at Year Three, with BMtA program participants having fewer re-arrests and more juveniles not re-arrested than expected while YDC had the opposite pattern. OTP participants maintained expected levels of re-arrests and nonre-arrests at all four time periods. All of the residuals that were greater than 1.96 or less than -1.96 were considered to be significant at an alpha level of .05 or less.

Effect sizes were computed with the Effect Size Determination Program (D. P. Wilson, 2001), using the Probit method for frequency or dichotomous data on the number of juveniles rearrested for each of the placements. At Six Months, effect sizes are as follows: between BMtA and YDC $d = 0.43$; between BMtA and OTP, $d = 0.04$, and between OTP and YDC, $d = 0.39$. Based on Cohen (1987) these effect sizes are in the small, but positive range. For Year One, effect sizes are as follows: between BMtA and YDC, $d = 0.41$; between BMtA and OTP, $d = 0.17$, and between OTP and YDC, $d = 0.24$. Based on Cohen these effect sizes are in the small, but positive range. For Year Two, effect sizes are as follows: between BMtA and YDC, $d = 0.45$; between BMtA and OTP, $d = 0.21$, and between OTP and YDC, $d = 0.241$. The BMtA effect sizes are in the small range. For Year Three, effect sizes are as follows: between BMtA

and YDC, $d = 0.49$; between BMtA and OTP, $d = 0.34$, and between OTP and YDC, $d = 0.15$. The BMtA effect sizes are in the small range.

The BMtA program displayed the longest average time period from release until re-arrest ($M = 23.43$ months) with OTP at $M = 20.84$ and YDC at $M = 17.71$. When mean differences in months until re-arrests were analyzed, the overall differences between groups were statistically significant, $F(2, 1038) = 13.92$, $p < .001$. Subsequent post hoc tests were conducted using Tukey's HSD, revealing statistically significant differences between BMtA and YDC ($p = .001$) and BMtA and OTP ($p = .045$). Differences between YDC and OTP were also statistically significant ($p = .011$).

Effect sizes calculated on the days between release and re-arrest for each of the placements are as follows: between BMtA and YDC, $d = 0.40$; between BMtA and OTP, $d = 0.24$, and between OTP and YDC, $d = 0.16$, all considered in the small range (Cohen, 1987).

Table 2 presents the case summary, means, and standard error for the results of the Kaplan-Meier survival function used to estimate true differences in the probability of re-arrest between the three placement sites. Re-arrest as determined by the survival function is significantly different for placement (log rank $\chi^2 = 30.11$, $df = 2$, $p = .001$). The graph of the survival function is shown in Figure 1.

TABLE 2. Means and Standard Error for Survival Time

Program	Total <i>N</i>	<i>n</i> of Events	Censored	
			<i>n</i>	Percent
YDC	347	237	110	31.7%
BMtA	347	171	176	50.7%
OTP	347	217	130	37.5%
Overall	1041	625	416	40.0%
Program	Estimate	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Mean ^a				
YDC	17.72	.78	16.18	19.25
BMtA	23.43	.76	21.94	24.92
OTP	20.84	.75	19.37	22.31
Overall	20.66	.45	19.78	21.54

^aEstimation is limited to the largest survival time if it is censored.

FIGURE 1. Survival functions over 3 years for BMtA, OTP, and YDC.

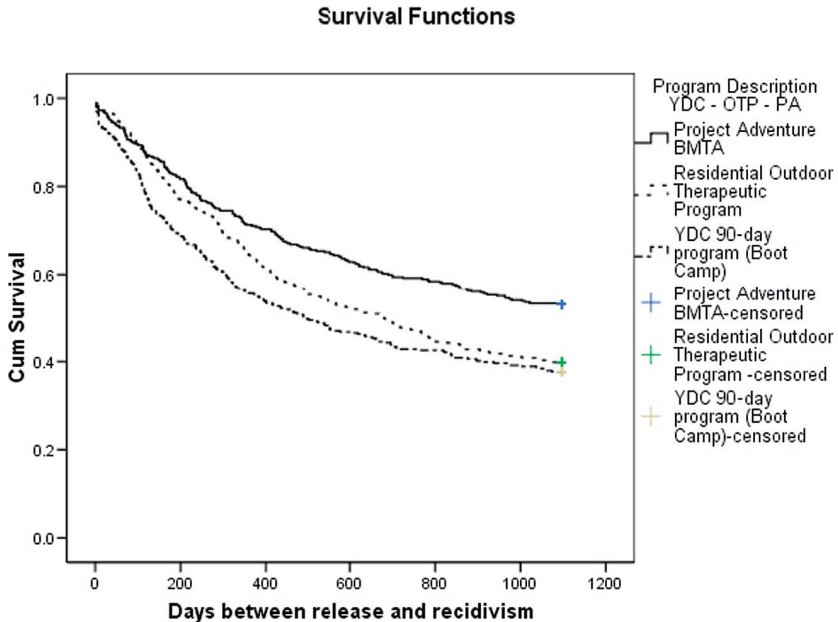


Table 3 highlights the most serious recidivating offenses for each of the placements. There were no statistically significant differences among the three programs regarding the type of re-arrest offense. Table 4 reports the overall re-arrest 3-year (failure) rate for each program. As noted earlier, the YDC and BMtA rates of re-arrest are statistically significant.

DISCUSSION

Participants in BMtA program were compared with a selected group of juveniles from another outdoor residential treatment program operating in Georgia (OTP) as well a group of juvenile offenders (YDC) participating in “treatment as usual” 90-day boot camp programs in state institutions. Although the groups were not equivalent, this pilot study found BMtA participants possessed significantly less re-arrests over a 3-year period than participants in the other two programs, with effect size differences in the small but positive range. Table 4 shows this study found a 1-year re-arrest (failure) rate of 32.6% with the BMtA group. This re-arrest rate is

TABLE 3. Frequencies and Percentages of Most Serious Offense by Program

		Program			Total
		YDC	BMtA	OTP	
Drug Sell	<i>n</i>	12	7	10	29
	%	5.4%	4.1%	5.0%	4.9%
Drug Use	<i>n</i>	23	17	21	61
	%	10.4%	9.9%	10.4%	10.3%
Property Crime	<i>n</i>	86	71	85	242
	%	38.7%	41.5%	42.3%	40.7%
Status, Traffic, Non-Violent Sex, Public Order, VOP	<i>n</i>	49	38	51	138
	%	22.1%	22.2%	25.4%	23.2%
Violent Offense	<i>n</i>	52	38	34	124
	%	23.4%	22.2%	16.9%	20.9%
Total	<i>N</i>	222	171	201	594
	%	100.0%	100.0%	100.0%	100.0%

well below the rates described by Snyder and Sickmund (2006) for similar groups (i.e., a re-arrest rate of 55%). The BMtA rate was well below the 61% failure rate reported by Jones et al. (2004). These differences occurred despite the fact that participants in BMtA program possessed greater risk factors of being younger, spending less time in treatment, and possessing more violent arrests than the juveniles to which they were compared (Barrett, Katsiyannis, & Zhang, 2006). In addition to these findings, it is also important to note that the re-arrested BMtA youth were re-arrested at the significantly lower rate than the comparison groups at the 1-, 2-, and 3-year time periods following treatment.

Juveniles in the BMtA program resided in group homes in the community, spending a minimum of 40 hours a week on campus. A typical program day included: household responsibilities, practicing good hygiene, preparing meals, setting group and individual goals, a group discussion of the evening and morning spent in the group home, academics, adventure activities, and evaluating group and individual goals. While this schedule may be similar to many therapeutic residential programs, the BMtA therapeutic process provided a unique, differentiating element. It also served as one of the main differences between the treatment group and the two comparison groups in the study.

Interestingly, this pilot study provides insight into the issues of semantic confusion, program differences, and need for clearer and more accurate

TABLE 4. Re-Arrest Rates by Year and by Program Placement

		Program			Total
		YDC	BMtA	OTP	
Within 6 months					
Not re-arrested	<i>n</i>	232	280	276	788
	%	66.9%	80.7%	79.5%	75.7%
Re-arrested	<i>n</i>	115	67	71	253
	%	33.1%	19.3%	20.5%	24.3%
Total	<i>N</i>	347	347	347	1041
	%	100.0%	100.0%	100.0%	100.0%
Within 1 year					
Not re-arrested	<i>n</i>	179	234	212	625
	%	51.6%	67.4%	61.1%	60.0%
Re-arrested	<i>n</i>	168	113	135	416
	%	48.4%	32.6%	38.9%	40.0%
Total	<i>N</i>	347	347	347	1041
	%	100.0%	100.0%	100.0%	100.0%
Within 2 years					
Not re-arrested	<i>n</i>	131	193	164	488
	%	37.8%	55.6%	47.3%	46.9%
Re-arrested	<i>n</i>	216	154	183	553
	%	62.2%	44.4%	52.7%	53.1%
Total	<i>N</i>	347	347	347	1041
	%	100.0%	100.0%	100.0%	100.0%
Within 3 years					
Not re-arrested	<i>n</i>	110	176	130	416
	%	31.7%	50.7%	37.5%	40.0%
Re-arrested	<i>n</i>	237	171	217	625
	%	68.3%	49.3%	62.5%	60.0%
Total	<i>N</i>	347	347	347	1041
	%	100.0%	100.0%	100.0%	100.0%

program fidelity surrounding the adventure therapy. In past research, all three of the treatment programs have been classified at one time or another as “adventure therapy” programs. But as this study illustrates, there are clear differences between the programs in terms of treatment effectiveness. Future studies of adventure therapy need to: (a) clearly define the adventure format being used in the treatment of clients (e.g., through the manualization of treatment procedures); (b) conduct repeated studies to examine treatment fidelity issues to examine the replicability of treatment effectiveness; (c) conduct repeated studies to validate treatment effectiveness

with different clients with different treatment issues; (d) after clearly defining the form of adventure therapy being implemented (possibly using the paradigm outlined by Gass [1993] as a starting point), examine the application of *specific* programs for *specific* client needs; and (e) examine how individual elements of adventure therapy programs (e.g., facilitation styles) contribute to the treatment benefit on adventure therapy approaches.

The findings in this pilot study: (a) demonstrate the promise of the BMtA program, (b) add clarity concerning the range and types of adventure therapy programs and treatment differences, and (c) highlight the importance of understanding intervention/treatment fidelity in adventure therapy programs, particularly regarding program settings and key clinical factors. Future researchers of adventure-based programming are strongly encouraged to provide a clear understanding of treatment fidelity for evaluators and program professionals to make an accurate assessment when referring adventure therapy programs for their clients. Providing clear descriptions of where and how programs provide therapy—i.e., (a) on challenge/rope courses and through the group development experiences associated with adventure therapy, (b) in wilderness settings in both contained and continuous flow programs, or (c) through residential camping in stationary, residential living programs at camp—is one critical way to compare similar programs with one another. More importantly, researchers must describe how program elements specifically address therapeutic changes in affect, cognition, and behavior. Questions still remain regarding who is best suited for these various programs (Gillis, 1992); however researchers must clearly articulate the where, how, and the why of their treatments in order to insure fidelity before progress can be made to answer the “who” question.

In the short term, more comparison studies will be conducted on the BMtA model using the dataset available from the Georgia DJJ. In the long term, research is needed on the various components of BMtA program in order to establish its evidence as a viable behavior management program for adolescents in educational, correctional, and other treatment settings.

REFERENCES

- Aos, S., Miller, M., & Drake, E. (2006). Evidence-based public policy options to reduce future prison construction, criminal costs, and crime rates. Olympia: Washington State Institute for Public Policy. Retrieved July 1, 2008, from <http://www.wsipp.wa.gov/pub.asp?docid=06-10-1201>

- Apter, S. J. (1977). Therapeutic camping: An alternative strategy for troubled children. *Journal of clinical child psychology*, 6(3), 73–75.
- Barrett, D. E., Katsiyannis, A., & Zhang, D. (2006). Predictors of offense severity, prosecution, incarceration and repeat violations for adolescent male and female offenders. *Journal of Child and Family Studies*, 15, 709–719.
- Behavior Management through Adventure. (n.d.). Retrieved July 1, 2008, from <http://www.pa.org/programs/behavior.php>
- Brown, T. L., Borduin, C. M., & Henggeler, S. W. (2001). Treating juvenile offenders in community settings. In J. B. Ashford, B. D. Sales, et al. (Eds.), *Treating adult and juvenile offenders with special needs* (pp. 445–464). Washington, DC: American Psychological Association.
- Bureau of Land Management. (2008). Health and safety of participants attending “Wilderness Therapy Programs” or “Residential Treatment Programs for Troubled Youth” on public lands. Retrieved July 14, 2008, from http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/20080/IM_
- Cason, D. R., & Gillis, H. L. (1993). A meta-analysis of adventure programming with adolescents. *Journal of Experiential Education*, 17(1), 40–47.
- Cohen, J. (1987). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Council on Accreditation. (n. d.). Wilderness and adventure-based therapeutic outdoor services. Retrieved July 1, 2008, from http://www.coastandards.org/standards.php?nav-View=private§ion_id=83
- Crisp, S., & O'Donnell, D. (1997). Wilderness adventure therapy in adolescent psychiatry. In C.M. Itin (Ed.), *Exploring the Boundaries of Adventure Therapy International Perspectives: Proceedings of the 1st International Adventure Therapy Conference*, Perth Australia.
- Gass, M. A. (1991). Enhancing metaphor development in adventure therapy programs. *Journal of Experiential Education*, 14 (2), 6.
- Gass, M. A. (Ed.). (1993). *Adventure therapy: Therapeutic applications of adventure programming*. Dubuque, IA: Kendall Hunt Publishing Company.
- Gillis, H. L. (1992). Therapeutic uses of adventure-challenge-outdoor-wilderness: Theory and research. In K. Henderson (Ed.), *Proceedings of Coalition for Education in the Outdoors Symposium*. (ERIC Document Reproduction Service No. ED35222)
- Gillis, H. L., & Gass, M. A. (2003). Adventure therapy with groups. In J. L. DeLucia-Waack, D. A. Gerrity, C. R. Kalodner, & M. Riva, (Eds.), *Handbook of group counseling and psychotherapy*. Thousand Oaks, CA: Sage Publications.
- Gillis, H. L., & Thomsen, D. (1996). *A Research Update (1992 - 1995) of Adventure Therapy: Challenge Activities and Ropes Courses, Wilderness Expeditions, & Residential Camping Programs*. Martinsville, IN: Bradford Woods, Indiana University: Coalition for Education in the Outdoors Symposium Proceedings. (ERIC Document Reproduction Service No. ED413128)
- Hattie, J. A., 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. doi:10.2307/1170619

- Jones, C. D., Lowe, L. A., & Risler, E. A. (2004). The effectiveness of wilderness adventure therapy programs for young people involved in the juvenile justice system. *Residential Treatment for Children & Youth*, 22(2) 53–67. doi:10.1300/J007v22n02_04
- Kelly, F. J. (1974). *Outward Bound and delinquency: A ten year experience*. A paper presented at the Conference on Experiential Education, Estes Park, CO.
- Kelly, F. J., & Baer, D. J. (1971). Physical challenge as a treatment for delinquency. *Crime and Delinquency*, 17(4): 437–445. doi:10.1177/001112877101700409
- Kimball, R., & Bacon, S. (1993). The wilderness challenge model. In M. Gass (Ed.), *Adventure Therapy: Therapeutic applications of adventure-based therapy programming* (pp. 11–41). Dubuque, IA: Kendall/Hunt.
- Kutz, J. D., & O'Connell, A. (2007). *Concerns regarding abuse and death in certain programs for troubled youth*. Report and Testimony to the Committee on Education and Labor, House of Representatives, October 10, 2007 (# GAO-08-146T). Washington, DC: U.S. Government Accounting Office.
- Loughmiller, C. (1965). *Wilderness road*. Austin, TX: The Hogg Foundation for Mental Health.
- Lutz, F., & Brody, D. (1999). Mental abuse as cruel and unusual punishment: Do boot camps violate the eighth amendment? *Crime and Delinquency*, 45(2), 242–255. doi:10.1177/0011128799045002004
- Moote, G. T., & Wodarski, J. S. (1997). The acquisition of life skills through adventure-based activities and programs: A review of the literature. *Adolescence*, 32(125), 143–167.
- Newes, S. L. (2001). Future directions in adventure-based therapy research: Methodological considerations and design suggestions. *Journal of Experiential Education*, 24(2), 92–99.
- Pearson, F. S., & Lipton, D. S. (1999). A meta-analytic view of the effectiveness of corrections-based treatment for drug abuse. *The Prison Journal*, 79(4), 384–410.
- Priest, S., Gass, M., & Gillis, L. (2000/2003). *The essential elements of facilitation*. Seattle, WA: Tarrak Publications.
- Rohnke, K. (1984). *Silver bullets: A guide to initiative problems, adventure games, stunts, and trust activities*. Dubuque, IA: Kendall Hunt.
- Russell, K. C. (2001). What is wilderness therapy? *Journal of Experiential Education*, 24(2), 70–79.
- Russell, K. C. (2006a). Brat camp, boot camp, or . . . ? Exploring wilderness therapy program theory. *Journal of Adventure Education and Outdoor Learning*, 6(1), 51–68.
- Russell, K. C. (2006b). Evaluating the effects of the Wendigo Lake Expeditions program on young offenders. *Journal of Juvenile Justice and Youth Violence*, 4(2), 185–203. doi:10.1177/1541204006286317
- Russell, K. C., & Farnum, J. (2004). A concurrent model of wilderness therapy process. *Journal of Adventure Education and Outdoor Learning*, 4(1), 39–55.
- Russell, K. C., Gillis, H. L., & Lewis, T. G. (2008). A five-year follow-up of a nationwide survey of Outdoor Behavioral Healthcare Programs. *Journal of Experiential Education*, 31(1), 55–77.
- Schoel, J., & Maizell, R. (2002). *Exploring islands of healing: New perspectives on adventure based counseling*. Beverly, MA: Project Adventure, Inc.
- Schoel, J., Prouty, D., & Radcliffe, P. (1988). *Islands of healing: A guide to adventure-based counseling*. Hamilton, MA: Project Adventure.

- Simon, J. (1995). They died with their boots on: The boot camp and the limits of modern penalty. *Social Justice, 22*(2), 25.
- Snyder, H. N., & Sickmund, M. (2006). Juvenile offenders and victims: 2006 national report. Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.
- Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics*. Boston, MA: Allyn and Bacon.
- Walsh, J. (2002). Project Adventure's programs for youth at risk: A developing continuum. *Zip Lines: The Voice for Adventure Education, 44*, 18–21.
- Williams, B. (2000). The treatment of adolescent populations: An institutional vs. a wilderness setting. *Journal of Child & Adolescent Group Therapy, 10*(1), 47–56. doi:10.1023/A:1009456511437
- Wilson, D. P. (2001). *Effect size determination program*. College Park: University of Maryland.
- Wilson, S. J., & Lipsey, M. W. (2000). Wilderness challenge programs for delinquent youth: A meta-analysis of outcome evaluations. *Evaluation & Program Planning, 23*(1), 1–12. doi:10.1016/S0149-7189(99)00040-3

BIOGRAPHICAL NOTES

H. L. Gillis, PhD, is Professor and Chair, Psychology Department, Georgia College & State University, Milledgeville, Georgia.

Michael A. Gass, PhD, is Chair and Professor, Department of Kinesiology, University of New Hampshire, Durham, New Hampshire.

Keith C. Russell, PhD, is Associate Professor, Recreation, College of Humanities and Social Sciences, Western Washington University, Bellingham, WA.

