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Happiness outcomes among cadet women backpackers

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ABSTRACT

Distress and discomfort are a part of the US military college experience. Women cadets experience additional challenges including unwelcoming environments, relative isolation, and minority status. A review of the literature shows that wilderness-based experiences offer benefits in the areas of stress-coping, self-efficacy, cognitive function, social support, and happiness. This mixed-methods exploratory study examined happiness outcomes for 12 cadet women ($N = 12$) who participated in a three-day backpacking event. A moderate effect size was found between pretest and posttest happiness scores for the backpacking group ($d = -0.55$). In comparison, little or no effect size ($d = -0.04$) was found for the control group. A t -test also showed significant differences ($p < .05$) between the mean pretest and posttest happiness scores for the experimental group only. Cadets in the backpacking group offered the following themes when accounting for happiness gains: nature, bonding, self-reflection, relaxation, and adventure. The authors propose wilderness-based interventions to bolster cadet women's coping and resilience.

KEYWORDS

College; happiness; outdoor recreation; military education; women

Introduction

Female undergraduates were first admitted to U.S. state-supported military colleges in 1995 (Jacob, 2011). Since women cadets arrived, media and scholarly sources have reported common difficulties related to campuses marked by hegemonic masculinity. The literature reveals concerns about the socialization of masculine culture leading to male cadets' sexist attitudes towards female students (Do, Samuels, Adkins, Clinard, & Koveleski, 2013). Also, Brubaker (2009) noted male-dominated cultures lead to problematic policies around sexual assault prevention and response. Among the five military service academies in the U.S., no institution has a percentage of women greater than 36% of the student body. Of the seven U.S. senior military colleges, there is one senior military college that is all female, but the remaining six senior military colleges do not include an institution with more than 17% women students ('Service Academies and Senior Military Colleges,' 2018). In a study conducted on factors that influenced women cadets' decisions to attend a military college, Jacob (2011) reported the following themes: desire for personal challenge, financial considerations, military career goals, getting away from home, satisfying their fathers, and adventure.

Concerns about experiences of women in the military and military education are well documented. The Department of Defense (2018) estimated that 4.9% of military women reported sexual assault in the previous year out of 20,400 total reported incidences among service members. The data showed that service members are reporting sexual assault more frequently than previous

years, but more than half of service members chose not to make a statement. Previous reports from the Department of Defense (2015) suggested that female service members were likely to experience unclear procedures and obstacles to reporting. Additionally, it was observed that they expect negative repercussions if they do report sexual harassment. Also, Young and Nauta (2013) found that compared to their counterparts at non-military colleges, male military college students held more negative attitudes towards women in the military. Thus, the unwelcoming environment, relative isolation, and minority status of women in military education raises concerns about cadet women's well-being and academic persistence.

Outdoor education

Despite the well documented benefits of outdoor education on mental, emotional and physical well-being, the experiences of women remain underrepresented in the literature (Gray, 2016; McNiel, Harris, & Fondren, 2012). It is notable that women are drawn to outdoor adventure recreation to achieve social, sensation-seeking, and self-concept needs (Ewert, Gilbertson, Luo, & Voight, 2013). In addition, it has been demonstrated that both leisure and physical activity in the outdoors provide multiple benefits for women, including reports of increased feelings of autonomy, confidence, social belonging, improved self-perception, a positive attitude towards life, and an overall sense of improved well-being (Lloyd & Little, 2010). Furthermore, adolescent girls have shown gains in self-esteem and self-efficacy as a result of outdoor adventure programs (O'Shea, 2009). Self-esteem, according to Flynn and Macleod (2015) study of 155 females and 37 males, accounted for higher levels of self-reported happiness among college students. It is clear, even from the limited research base, that the benefits of outdoor education are multiple, varied, and of interest to promote health, happiness and a broad range of well-being among female college students.

Outdoor education programs offer specific benefits to women university students. In a study of 46 males and 86 females, Shellman and Hill (2017) reported higher psychological resilience, a variable of concern for women in military education environments, following participation in an outdoor education program. Whittington, Aspelmeier, and Budbill (2016) further reported that female participants in outdoor adventure programming have shown increased resiliency which persisted over time, for one month after participation. In the next sections, we discuss research related to several interconnected benefits of outdoor activities: well-being, happiness, stress coping, self-efficacy, and social connectedness.

Well-being

Concerning more specific benefits of outdoor experience for women, researchers report gains in well-being following outdoor activities. Psychological benefits for women following a backpacking experience include gains in interpersonal confidence, psychological well-being, authenticity, and a reconsideration of values (Hinds, 2011). Following two 50-minute nature walks, 12 females and 8 males (mean age of 26) who were categorized as either healthy participants or depressed showed significant increases in mood (Berman et al., 2012). Further, MacKerron and Mourato (2013) work regarding the benefits of natural environments reported that among their 21,947 participants, with a sex ratio of 55% male, a significantly larger positive impact was self-reported for women's well-being compared to reports from the male participants.

Happiness

Happiness, a variable of well-being, has become an outcome of interest in outdoor education and nature experience (Brooks, Ottley, Arbuthnott, & Sevigny, 2017; Nisbet, Zelenski, & Murphy, 2011). Seligman (2011), a pioneer in the study of happiness, explained that three components comprise happiness. The first is consistent and frequent positive emotion. The second aspect is engagement,

referring to participation in absorbing activities that lead to diminished self-consciousness and awareness of time, otherwise called ‘flow’. The third component is meaning, which means service to or belonging to something greater than oneself. Shellman and Hill (2017) reported that college students who participated in a 13-day outdoor program reported significant increases in subjective well-being. Examples of activities which can increase positive emotions and happiness include social activities, personal recreation, goal-oriented activities, and spiritual activities (Henricksen & Stephens, 2013).

Happiness is an important variable for college students. In a review of 225 papers including 293 samples from happiness studies and 275,000 participants, Lyubomirsky, King, and Diener (2005) reported that happiness is associated with and precedes numerous desirable outcomes, including improved mental and physical health, reduced suicide rates, and overall stress-coping. Most of the samples they reviewed did not include data about the gender composition of the participants. Also, Al Ansari and Stock (2010) found that among college student participants (195 male and 185 female), well-being was positively correlated with educational satisfaction and academic achievement. Outcomes did not differ between male and female students.

Stress coping

Women experience enhanced stress-coping following adventure programming. Lundberg, Taniguchi, McGovern, and Smith (2016) reported on the effects of an outdoor recreation program on female US military veterans and found that outdoor activity provided a novel atmosphere for distraction, redirection, and stress-relief. Similarly, Dolgin (2014) examined outcomes from 21 adolescents—13 females and 8 males—who participated in a group wilderness activity and found the participants showed favorable outcomes including feeling understood, experiencing empathy, emotional expression, and increased skill to cope with their current stressors. A two-year study with students from a military college found that the women cadets who attended a backpacking workshop series and trip experienced significant gains in stress coping (Ilagan et al., 2016).

Self-efficacy

Research also demonstrates that outdoor experience leads to higher levels of self-efficacy. Notably, Passarelli, Hall, and Anderson (2010) used a mixed-methods design with 58 college students, 39 of whom were female. Over a three-week outdoor adventure course, participants engaged in high-intensity activities, including hiking, rappelling, canyoneering, snorkeling, and surfing. When surveyed at the end of the trip, the students reported relying on their existing and newly developed concepts about their ability to face physical and interpersonal challenges, and fears associated with elements of the outdoor adventure program. The authors reported that there were no significant differences between males and females on any of the outcomes.

In additional research concerning outdoor experience and self-efficacy, Frauman and Waryold (2009) conducted a study with 147 college students (60% female) in a four-day wilderness education program. The purpose of the study was to explore the effects of the outdoor program on participants’ perceptions of their personal effectiveness. Participants showed significant improvements in self-efficacy in areas of time management, emotional control, task leadership, social competence, and initiative compared to the control group. The authors did not report outcome differences for males and females. In a similar study, Ilagan et al. (2016) reported that seventeen female cadet backpacking participants showed significant increases in self-efficacy after a preparatory workshop series and three day wilderness backpacking event.

Social connectedness

A greater sense of social connectedness, a component of happiness, has also been associated with participation in outdoor adventure. For instance, in a study of 12 female US military veterans, it was

observed that participants experienced significant increases in positive emotions and a strong sense of interconnectedness with each other (Lundberg et al., 2016). Similarly, 14 college freshmen (8 female, 6 male) who participated in a six-day outdoor orientation program reported and demonstrated strong experiences of social connectedness with fellow participants, as well as concern for the well-being of their new social bonds and a desire to continue developing those friendships (Wolfe & Kay, 2011). Likewise, female participants' responses on posttest qualitative surveys showed a greater sense of belonging with the group members and more open expressions of emotion than shown in their pre-trip responses (Dolgin, 2014).

The purpose of the present exploratory study was to address two research questions: 1.) Following a backpacking preparation workshop series and backpacking trip, will women cadet participants report increases in self-reported happiness at a level significantly greater than non-backpacking peers? 2.) What aspects of the backpacking trip will participants attribute to any perceived gains in happiness?

Method

This mixed-methods exploratory study was an endeavor to learn of possible happiness gains for undergraduate cadet women over a three-day backpacking excursion. The quantitative data were collected via pre- and posttest surveys. The qualitative data were gathered from open-ended questions posed to participants on an exit survey. The investigators received IRB approval from the research site university. Expenses for the preparatory workshops and backpacking trip were covered by funds administered by the director of campus recreation. The three female guides received honoraria for the event, paid by campus intramurals. The primary researcher did not receive compensation.

Participants

The participants were 12 undergraduate women students at a state supported, co-educational military college. The students were in their freshman, sophomore, or junior year and ranged from ages 18 to 21. The participants' institution is one of seven United States senior military colleges. While graduates of the research site institution, a state supported university, are not required to enter military service, about 30% of graduates choose to do so. Undergraduate students, called cadets, are immersed in a rigorous, military-style experience throughout their undergraduate career. The college began admitting women to their corps of cadets in 1996. The cadet population at the institution during academic year 2016–2017, when this study was conducted, was 2,323 cadets, which included 2,147 (92.4%) men and 176 (7.6%) women (The Citadel, 2016).

Additional demographics for the study are as follows. The 12 students represented three of four academic classes: Freshmen (8), Sophomores (2), and Juniors (2). The students identified their ethnicity as Caucasian (9), Black/African-American (1), Hispanic American (1), and Mixed Ethnicity (1). The participants had varied previous experience with camping: None (5), ≥ 10 times (4), and < 15 times (3). The experimental group consisted of six women cadets. Their major courses of study covered a variety of disciplines, such as biology, chemistry, criminal justice, and engineering. The experimental group consisted of six women cadets (4 Freshmen, 1 Sophomore, and 1 Junior). Participants in the control group were selected to match the college level of those in the experimental group and consisted of six women cadets (4 Freshmen, 1 Sophomore, and 1 Junior).

Data analysis

The goal of this study is to systematically measure women cadet's increases in self-reported happiness and to analyze participants' attributions of the perceived happiness gains according to their own categories of meaning. As Johnson and Onwuegbuzie (2004) argue, mixed methods

approaches should 'use a method and philosophy that attempt to fit together the insights provided by qualitative and quantitative research into a workable solution' (p. 16). The investigators took a pragmatic approach to data collection and analysis and used mixed methods in order to fully answer each research question.

The quantitative data collection instrument for the project was the Oxford Happiness Questionnaire (OHQ; Argyle, Martin, & Crossland, 1989). In addition to the quantitative questionnaire, five qualitative items were added to the posttest surveys to better understand the aspects of the experiences that participants attributed to any gains in happiness scores.

Quantitative data analysis and instrumentation

According to Hills and Argyle (2002), the Oxford Happiness Questionnaire (OHQ) is an alternative scale to the Oxford Happiness Inventory (OHI). The OHI (Argyle et al., 1989) was devised as a broad measure of personal happiness, mainly for in-house use by the Department of Experimental Psychological of the University of Oxford in the late 1980s. The scale was found to behave consistently with workers in the USA (Francis, Brown, Lester, & Philipchalk, 1998; Valiant, 1993). The OHI follows the design and format of the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) which provided, when reversed, a set of 20 multiple-choice items relevant to subjective well-being. The final version of the OHI included 29 items specific to happiness that were not included in the BDI. The BDI was designed for clinical application with the purpose of diagnosing manic and depressive states of mind. In non-clinical populations, few are manic or depressive and the extremes of the corresponding OHI item alternatives are little used.

Hills and Argyle (2002) described that in their development of the OHQ they used the terms well-being, subjective well-being, and psychological well-being as synonymous to happiness. The OHQ offers a happiness score based on the users' personality traits, cognitive evaluations, and experiences of positive and negative affect. Specifically, the OHQ includes items pertaining to cognitive functions and traits such as sociability, cheerfulness sense of control, empathy, positive cognition, mental alertness, self-esteem, optimism and physical fitness. While Kashdan (2004) criticized the OHQ for being too broad, the investigators selected the instrument because it was multifaceted and did not over focus on more stable characteristics such as personality factors.

The OHQ consists of 29 single items that can be answered on a six-point Likert scale. These items may be easily incorporated into larger questionnaires in random order, and the opportunity has also been taken of reversing about half of the items. These changes from the previous version (OHI) were expected to reduce the probability of contextual and compliant answering (Hills & Argyle, 1998).

Split-half reliability was used to examine internal consistency. According to Hills and Argyle (2002), the responses were split into high and low groups above and below the aggregated values for the OHI and OHQ, respectively. The difference between the means of individual item scores were then compared using independent *t*-tests with respect to the two groups. Statistically significant differences were found between the high and low groups for every item of the OHI and OHQ. Most were highly significant, $p < .001$, and all differences were in the same direction as the partitioned total scores. This indicates that all the items on both the OHI and the OHQ make a valid contribution to the measurement of overall happiness.

Qualitative survey items and analysis methods

Qualitative items were developed by the lead investigator. As a complement to the quantitative surveys and in order to provide a more comprehensive analysis of happiness gains for cadet women, the investigators wished to learn about the participants' perspectives on which elements of the experience contributed to any changes in their pre- and posttest happiness scores. Other qualitative items were composed to inform the staff and guides on how to improve future cadet women backpacking trips. Qualitative data resulted from participants' written responses to the items below:

- (1) What did you like most about this experience?
- (2) Which elements of the experiences, if any, would you rate as most highly related to any changes in your level of happiness?

The open-ended survey responses ranged in length from 4–23 words, with an average length of 13.83 words. The first step in our analysis was to break written survey responses into idea units, a term used in discourse analysis used to refer to a single clause that contains a different focus and new information (Gee, 2011). Throughout the coding process, members of the research team reviewed and revised the idea units as necessary to reach agreement on the divisions.

Responses were analyzed using the constant comparative method (Strauss & Corbin, 1990) in which categories and themes emerge from the data during line-by-line readings designed to identify and label concepts and themes. In a collaborative and recursive process, members of the research team discussed, refined, and condensed codes to develop unambiguous and mutually exclusive categories, which were then condensed into themes (see Table 2). All responses were double-coded, with an inter-rater reliability rating of 91%. This thematic coding analysis enabled us to categorize data in order to make inferences and triangulate our analysis across quantitative and qualitative data sources.

Procedure

The preparatory workshops and backpacking trip occurred in the 2017 spring semester. Backpacking equipment was provided by the college, guides, and participants who had their own backpacking gear. The staffing for the events, five guides, consisted of two men and three women. The male guides included the associate director of intramurals and an associate professor at the institution, who is also the lead investigator. The women guides consisted of an adjunct instructor at the institution who had backpacking leadership experience, a local environmental scientist who is an avid outdoor athlete, and a local marine biologist and backcountry guide who served as the wilderness first responder for the excursion. Both men, who served in a supportive role to the three women guides, were also experienced in outdoor recreation leadership.

The associate director for intramurals recruited non-random, voluntary participants by contacting the institution's women cadets via email to invite them to attend the four-part workshop series followed by a Friday through Sunday backpacking trip. During the four weekly workshops preceding the backpacking trip, the guides covered the following topics: essential gear; food, water, shelter, and cooking; safety, comfort, and troubleshooting; and logistics and final preparations.

The backpacking trip required a four-and-a-half-hour drive by van to a primitive backcountry area in western North Carolina (NC). The first day of the trip involved hiking 6 miles on moderate to difficult terrain to the designated campsite. Day two included 8 miles of hiking moderate to difficult terrain to a different campsite, and then exploring a system of waterfalls on very difficult terrain. Day three comprised a 2.5-mile hike on easy to moderate terrain to the van, a stop for lunch, and a four-and-a-half-hour drive back to campus.

The qualitative and quantitative instruments were administered via paper on two occasions for the experimental and control groups. Both groups completed the pretest materials on Wednesday evening, two nights before the trip. We selected to administer the pretest materials on Wednesday evening because the participants' rigid military college schedule included a study period and, on that particular evening, a lower likelihood of extracurricular activities. The experimental group completed the posttest surveys at the campfire gathering on Sunday evening, the last night of the trip. The control group, consisting of women cadets who remained on campus, completed the surveys on Sunday evening. Since the investigators attended the backpacking trip, a graduate student remained on campus to administer the posttest surveys and was available to answer questions about the surveys if necessary.

Results

Quantitative results

Quantitative analyses were computed using IBM SPSS Version 23 for effect size and standard paired *t*-test variance estimation. Effect size was computed using Cohen's *d*, the standard mean effect and expresses the mean difference between two groups in standard deviation units. Using the standard interpretation offered by Cohen (1988), a moderate effect size was found between Pre-OHQ and Post-OHQ scores for the experimental group ($d = -0.55$). In comparison, little or no effect size ($d = -0.04$) was found between Pre-OHQ and Post-OHQ for the control group (see Table 1).

The Student's *t*-test for paired samples was used to test differences between the mean pretest and posttest scores for the experimental group. A statistically significant difference was found ($p < .05$), supporting the hypothesis that female cadets who participate in the backpacking activity will have higher OHQ scores than cadets who do not participate. The median scores for the total Pre-OHQ group is 4.21 and 4.45 for Post-OHQ group.

Qualitative results

Female cadets' survey responses were categorized according to the following themes: nature, bonding, self-reflection, relaxation, and adventure (see *Methods for Qualitative Data Analysis* section for descriptions of themes and sample cadet responses). All six cadets attributed gains in happiness to their experiences with nature. For instance, as one cadet said, 'Just being around nature in general makes me feel closer to God and happiness follows.' Others focused on specific landmarks, such as the woods and a waterfall; as another cadet said, 'Seeing the waterfalls and the views I would say gave a change to my level of happiness.'

Four cadets noted that bonding, both with other cadets and the trip leaders, produced changes in happiness. While three cadets attributed happiness gains to collaboration with others ('working together'; 'traveling together'; 'spending time with people'), another cadet focused specifically on the 'energy' of the trip participants, noting that the best part of the trip was 'the happy, inviting energy of the cadets, but most importantly, of the leadership.'

Table 1. Means and standard deviations for Pre-OHQ and Post-OHQ.

	Pre-OHQ Mean & SD	Post-OHQ Mean & SD
Experimental	3.99 (0.54)	4.43 (0.62)
Control	4.32 (0.70)	4.35 (0.97)
Total	4.16 (0.65)	4.37 (0.77)

The effect size for the experimental group is -0.55 ($d = -0.55$).

The effect size for the control group is -0.04 ($d = -0.04$).

Table 2. Themes emerging from qualitative data analysis.

Themes	Description	Sample
Nature	References to features of the physical world, including plants, landscapes, and other features and products of the earth	'Being able to enjoy nature and walk through some pretty fun trails'
Bonding	References to relationships with other cadets and the trip leaders	'The happy, inviting energy of the cadets'
Self-Reflection	References to the ability to engage in serious thought about one's character and/or actions	'Just being able to concentrate on me and my little world'
Relaxation	References to the state of being free from tension and anxiety	'letting me take my mind off the stress and troubles of everyday life'
Adventure	References to participation in exciting experiences or situations	'get across obstacles (sic)'

Three cadets specifically referenced the fact that the backpacking trip enabled self-reflection and freedom from 'social media' and 'society.' As one cadet said, her favorite part of the trip was 'just being able to concentrate on me and [the] my little world.' Two cadets further attributed gains in happiness to relaxation, with one cadet stating that the trip allowed her to 'take my mind off the stress and troubles of everyday life.' Finally, two cadets noted that adventure (defined by one cadet as simply 'adventure' and another as 'working together to get across obstacles (sic)') was highly related to changes in levels of happiness.

Discussion

The present investigation included the intervention of a three-day wilderness backpacking trip for female students at a military college. The three-day backpacking trip was associated with improved happiness scores for the backpacking group. The control group showed no significant gains in self-reported happiness. The qualitative data revealed that the women cadets who attended the backpacking trip attributed gains in happiness to elements of the backpacking experience that corresponded to the following themes: nature, social bonding, self-reflection, relaxation, and adventure.

Similar to the findings noticed in the debriefing sessions reported in Ilagan et al. (2016), the guides from this study proposed that the aspects of this experience most beneficial to the positive outcomes were the supportive atmosphere, informal and positive interaction with the women guides, socializing with peers and guides during the road trip, exposure to varied, non-military leadership styles, the non-hierarchical social milieu among participants, each participant taking turns leading segments of the hikes, taking turns carrying two-packs in order to simulate caring for a wounded fellow hiker, and evening discussions around the campfire.

Findings from the present study reinforce and add to findings in existing research. Similar gains in psychological well-being, including happiness, were found in a meta-analysis on outdoor education studies that focused on the effects of forest exposure (Oh et al., 2017). Oh et al. (2017) asserted that while the evidence of gains was documented in several studies, more studies with robust findings were needed. The present study also supports reports of enhancement to psychological well-being among college students engaged in leisure time activity (Bratman, Daily, Levy, & Gross, 2015; Castillo, Molino-García, & Queralt, 2011). Our findings also support improved well-being efficacy for female veterans who engaged in outdoor adventure programs (Lundberg et al., 2016).

While the number of cadet women at US military colleges grows, a knowledge gap exists about the intrapersonal experiences of these students. The present study contributes to the knowledge-base of women cadets and provides outcomes for a small sample of these students who engaged in a three-day backpacking trip. The authors of this manuscript hope that military institutions that serve women college students will offer opportunities for outdoor recreation to enhance the coping and psychological well-being of their female cadets.

Limitations

The applicability of this exploratory study is limited by the small number of participants. A larger sample size would better substantiate our assertion that the cadet women's backing experience contributed to gains in happiness. A larger sample size would bolster the statistical power to find differences in quantitative findings. The guides also speculated that some of the gains from the backpacking experience could have been a function of the nine-hour road trip from campus to the backing site, and back again. The road trip was marked by what appeared to the guides as joyous, informal social time and needed rest. Learning about the specific value gained from the road trip, apart from the time in the forest, may yield valuable information about the weight of the experiences on happiness gains.

Implications for research

The guides and researchers for this project remain curious about the effects of different trip durations. The mountainous backpacking site is four and half hours from the cadet's university. Due to the rigorous schedules of military colleges, the amount of travel time required makes the trip time-prohibitive for many students, since the trip requires missing classes on a Friday and returning late on Sunday. For cadets at the research site institution, the weekends often include military inspections, campus parades, and mandatory attendance at some sporting events. While some researchers have observed and reported benefits from outdoor experiences occurring within minutes (Barton & Pretty, 2010), the literature shows most outdoor programs being one day or 5–11 days (Andre, Williams, Schwartz, & Bullard, 2017; Barton, Bragg, Pretty, Roberts, & Wood, 2016). Another consideration of the dose effects of backpacking trips is the length of effect of the excursions. Razani et al. (2018), in a randomized trial, found stress reduction benefits declining three months after their participants' forest exposure. Whittington et al. (2016) reported that female participants in outdoor education programs have shown enhanced resiliency for one month after participation.

Additional studies on dose effects for outdoor experience would help campus recreation leaders in allocating resources and influencing policies towards allowing more of the three-day weekend trips or planning trips that are more frequent and locally-based. We also suggest studies that include undergraduate women cadet backpacking participants in greater numbers than shown in our study. Further, we believe that additional research exploring how specific elements of outdoor experiences may contribute to perceived happiness gains would make a valuable contribution to the literature. Finally, we propose the exploration of an array of research variables important to the experience of women cadets, such as academic persistence, leadership skills, social bonding, and overall health.

Implications for practice

An implication for practice is for military institutions of higher education to offer multi-day wilderness backpacking events for women cadets and encourage their attendance. Women cadets in this study who attended a single-gender, multi-day backpacking event showed gains in happiness. Findings from Ilagan et al. (2016), also from a female cadet sample, revealed improvements in stress-coping and self-efficacy for women cadet backpacking. The case for single gender backpacking trips is illuminated by a study of 237 National Outdoor Leadership School (NOLS) students aged 16–19. Female participants in the mixed-gender backpacking excursions reportedly experienced lower social status than their male counterparts (Richmond, Sibthorp, Jostad, & Gookin, 2016). Zorotovich, Johnson, and Linn (2016) reported findings from their majority female participants that a college student's sense of well-being was influenced positively by their sense of social status among their college peers.

To bolster the implication for universities to adopt outdoor programming, the results from a literature review by Andre, Williams, Schwartz, and Bullard (2017) showed institutional benefits which include positive effects on student recruitment, retention, student satisfaction, and opportunities for recreation programs to support and correspond to existing academic programs. Mitten, Overholt, Haynes, D'Amore, and Ady (2018) similarly asserted that for universities, outdoor recreation programs are a low-cost intervention shown to improve the immune system functioning, restored attention, decreased depression, and overall emotional health of their students.

The staff and researchers for this trip strongly encourage the use of women guides to lead the trips for women cadets. As done in the current study, we extended our search for effective and experienced guides to women among the faculty and the surrounding community. Women are underrepresented in outdoor education, especially among leaders (Gray, 2016). We propose that the employ of women guides will contribute to more equal perceptions of social status among participants and expose the women cadets to broader examples of outdoor leadership.

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Disclosure statement

Neither the authors nor any member of their families have a significant financial arrangement or affiliation with any product or services used or discussed in this paper, nor any potential bias against another product or service.

Notes on contributors

Guy Ilagan is an associate professor in the graduate college at The Citadel. He has been a mental health counselor, counselor trainer, presenter, and outdoor facilitator for many years. Guy and his wife Jill live in Charleston, SC and enjoy backpacking, hiking, cycling, stand up paddle surfing, and an array of outdoor activities. In 2001, Guy completed a thru-hike of the Appalachian Trail. Since then, he has been taking groups to the western NC mountains for backpacking trips and gorge treks. Guy and his wife Jill travel regularly to Belize to conduct youth suicide prevention trainings for human services workers, particularly those who work with youth. Guy conducts research on the psychological and emotional effects of backpacking experience among college women.

Jill Ilagan is an adjunct professor in The Citadel's Graduate College, in Charleston, SC. She is also a psychologist in private practice, primarily treating women with body image concerns and disordered eating. Jill and her husband Guy conduct research on college student mental health and the effects of backpacking on college women. Jill is an avid outdoor athlete who enjoys backpacking, stand-up paddle surfing, running, cycling, and hiking. She has a passion for teaching outdoor skills to young women and otherwise advocates for effective coping skills. Jill also conducts corporate training around an array wellness, nutrition, and similar themes. Another interesting point about her is that she was a skater and leader on her local roller derby team for 5 years. Recently, Jill traveled to Belize to conduct youth suicide prevention workshops for youth workers in Belize.

Kally McCormick is an environmental scientist in the transportation sector, providing biological and environmental support on numerous projects including environmental construction compliance. She also provides specialist reviews for wildlife impacts. Kally was the principal author for three National Environmental Policy Act (NEPA) Environmental Assessments for projects in South Carolina, one of which received an Exemplary Human Environment Initiative Award. Kally is the consummate outdoor athlete, engaged in backpacking, surfing, paddling, cycling, and water and snow skiing. She was also a starter (jammer) on the local roller derby team. Kally is a backpacking guide and researcher on the psychological effects of backpacking on college women. She and her husband Nathan live a quick bike-ride away from Folly Beach on the SC coast.

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