Grubs and Grasshoppers: Challenge-Based Recreation and the Collective Efficacy of Families with At-Risk Youth*

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This study examined the influence of challenge-based recreation on the collective efficacy of families with at-risk adolescents. Thirty-four families participated in one of three experimental groups and a control group. Collective family recreation efficacy and conflict resolution efficacy increased for families in all three recreation contexts. These findings support the theory that collective efficacy in one domain may generalize to other domains of family life.

Helping adolescents develop into healthy adults is a challenging experience, especially when youth are at risk of engaging in harmful behaviors. Improving the relationships between parents and adolescents can moderate the likelihood of adolescent involvement in at-risk behaviors (Burt, Resnick, & Novick, 1998; Peterson, 1987; Reichertz & Frankel, 1990; Schellenbach & Guerney, 1988). Many programs focus directly on changing behaviors within families. However, substantial research with individuals suggests that changing beliefs or efficacy perceptions is an effective and necessary antecedent for long-term behavioral change (e.g., Bandura, 1997; Grossman, Brink, & Hauser, 1987). This same research also suggests that group or collective efficacy functions similarly to individual efficacy. Thus, changing beliefs in group capabilities also may be an effective method to bring about behavioral change in families (Bandura, 1997).

Families with adolescents may struggle with important skills such as communication and problem solving. As such, changing beliefs regarding the functional ability of the entire family may improve these skills. However, little attention in family studies has been paid to the idea that family members may be affected by their belief in their ability to collectively perform tasks, or their collective efficacy. Considerable attention has been paid to other constructs related to family functioning, such as cohesion and adaptability, which when properly balanced lead to healthy family functioning (Olson & DeFrain, 1994). Changing collective efficacy might be a more effective approach to strengthening families than focusing directly on changing family behaviors.

One unique and potentially powerful context to promote collective family efficacy is recreation. Some research suggests that family recreation can promote aspects of family strength, including relational needs, family problem solving, parent-child bonds, and social support (Orthner, 1997). However, engaging in recreational activities that require the acquisition and use of skills to overcome a designated challenge optimizes the experience (Csikszentmihalyi, 1990, 1997) and could help individuals develop a sense of recreation efficacy. Such efficacy beliefs might then transfer to other areas more salient to family life, such as conflict resolution. Consequently, experiences that present challenges motivate family members to continue valuing and strengthening their relationships (Csikszentmihalyi, 1997).

The purpose of the present study was to examine the influence of challenge-based family recreation on the collective efficacy of families with adolescents. In addition, the extent to which increases in collective challenge-based recreation efficacy generalized to collective conflict resolution efficacy among families was evaluated.

Collective Efficacy

The roots of collective efficacy and its importance to families can be understood via Bandura’s (1977) concept of self-efficacy. Bandura sees self-efficacy as “people’s judgments of their capabilities to organize and execute a course of action required to attain designated types of performances” (Bandura, 1986, p. 391). Persons with high efficacy are more likely to perceive the outcome of their actions as positive and, therefore, will be more motivated to persist in the face of adversity (Bandura, 1997).

Bandura (1997) argued that changing efficacy perceptions is a necessary antecedent to changing behaviors. In fact, Bandura (1986) explicitly stated that perceived self-efficacy has the potential to “predict future behavior better than past performance” (pp. 423–424). Prior research has demonstrated the effect of beliefs on behaviors in several areas, including overcoming phobias (Bandura, 1997), regulating diabetes (Hurley & Shea, 1992; Kavanagh, Gooley, & Wilson, 1993), recovering from heart disease (Ewert, 1992; Jensen, Banwart, Venhaus, Popkess-Vawter, & Perkins, 1993), smoking cessation (de Vries, es, Dijkstra, Grol, Seelen, & Kok, 1990; Kavanagh, Pierce, Lo, & Shelley, 1993), and treatment for alcoholism (Sitharthan & Kavanagh, 1990; Solomon & Annis, 1989). Consequently, interventions are more likely to be effective if they instill and strengthen efficacy perceptions rather than simply focus on changing behaviors.

Personal efficacy is derived from four sources: enactive attainment, vicarious experience, verbal persuasion, and physiological and affective states. Enactive attainment refers to past achievements and generally is considered the most powerful source of efficacy information (Bandura, 1997; Brody, Hatfield, & Spalding, 1988). Vicarious experiences lead to perceptions of one’s own ability based on visualization techniques or seeing others with similar attributes perform the task (Bandura, 1997). Verbal persuasion is specific feedback about the effort, skill, and ability needed to perform an activity. When used within realistic bounds and provided by a trusted and knowledgeable individual, it is an effective means of heightening self-efficacy (Bandura, 1997; Pellett & Harrison, 1995). An individual’s physiological and affective state refers to interpretations regarding the physical and emotional conditions individuals experience while performing specific tasks (Bandura, 1997).
Further, self-efficacy comprises three dimensions: level, strength, and generality (Bandura, 1997). Level is based on a person’s perception of his or her ability to repeatedly perform an act with success in spite of some difficulty. Strength refers to the confidence held about the individual’s self-efficacy level. Generality describes the process in which self-efficacy beliefs transfer from one activity to another. This process is likely to occur in activities requiring similar subskills, but may also extend beyond the activity domain to dissimilar activities (Bandura, 1997; Ellis, Maughan-Pritchett, & Ruddell, 1993). Individual efficacy generalizes across domains based on the codevelopment of skills, generalizable coping skills, cognitive restructuring of commonalities, and overwhelming mastery experiences (Bandura, 1997; Wise, 1999). Overwhelming mastery experiences are among the most powerful tools of this generalizing phenomenon, because after overcoming a significant challenge, an individual may believe that he or she can achieve almost anything. Those who master seemingly insurmountable challenges are likely to perceive other challenging activities as less intimidating (Bandura, 1997; Kelley, Coursey, & Selby, 1997), resulting in a generalization that one can put forth the effort needed to succeed no matter what the undertaking might be (Bandura, 1997).

Collective efficacy provides a useful context for understanding and improving parent-adolescent interaction. Like self-efficacy, collective efficacy focuses on perceived abilities reflected in an individual’s belief in the group’s ability to jointly perform specific tasks (Bandura, 1997). Group members’ perceptions of their ability to effectively perform a task affects the way the task is performed, such that when group members believe that they can work together, they are willing to apply the skills they possess (Mischel & Northcraft, 1997). Thus, collective efficacy is a better predictor of a group’s performance than is the self-efficacy of its members (Schaubroeck, Lam, & Xie, 2000).

Bandura (1997) suggested that social cognitive determinants operate similarly at the collective and individual levels. Specifically the sources and domains of efficacy function similarly at both levels. However, the nature of groups leads to a greater complexity in issues relating to judgments of collective efficacy (George & Feltz, 1995), so group interactions and dynamics should be considered when attempting to understand collective efficacy (Bandura, 1995, 1997; George & Feltz; Mischel & Northcraft, 1997). Once such issues are addressed, the efficacy of a group becomes highly predictive of performance (George & Feltz). Thus, the interaction style of a group affects the sense of collective efficacy held by its members (Bandura, 1997; George & Feltz; Kozub & McDonnell, 2000).

Appropriate measurement techniques must be considered when dealing with collective rather than individual efficacy. Collective efficacy is not the sum of the self-efficacy of individual members, but an emergent group attribute (Bandura, 1997; George & Feltz, 1995; Mischel & Northcraft, 1997). As a group attribute, collective efficacy is particularly salient when tasks require a significant level of interaction and interdependence (George & Feltz). Because performance also may be influenced by variations in individual perceptions of the group’s ability, collective efficacy is best measured as an individual’s perception of his or her group’s ability to perform the specific tasks (Bandura, 1997; Greenlees, Graydon, & Maynard, 1999; Kozub & McDonnell, 2000).

Collective Efficacy in Families

Most research considering efficacy within a family context has focused on the importance of the family to members’ individual efficacies (Hoeltje, Zubrick, Silburn, & Barton; 1996; McFarlane, Bellissimo, & Norman, 1995; Oliver & Paull, 1995) or has examined the efficacy of various family therapy programs for improving family functioning (Carlson, Sperry, & Lewis, 1997; Shadish, Ragsdale, Glaser, & Montgomery, 1995; Terling, 1999). Other researchers have examined parents’ sense of shared efficacy in relation to their ability to meet the demands of stressful child-rearing experiences (Sibskau-Cohen, 2001). However, the mechanisms of collective efficacy within families are unexplored.

Research on collective efficacy primarily has focused on organizational behavior, athletic team performance, politics, and education (e.g., Kozub & McDonnell, 2000; Schaubroeck et al., 2000). Findings support Bandura’s (1997) theory that collective efficacy operates similarly to individual efficacy. If this is true, research in this area may hold important implications for families. Specifically, families who believe that they can overcome challenges and solve problems will be more persistent in the face of adversity. Thus, collective efficacy in family members might increase family strength by influencing the effort and perseverance they use to overcome problems through unified effort (Bandura, 1995).

The collective efficacy of family members might be related to family functioning in a different manner than other aspects of family strength, such as cohesion and adaptability. Cohesiveness suggests that strong ties or bonds exist between family members, and adaptability suggests that families exhibit flexibility in overcoming life’s challenges (Olson & DeFrain, 1994). A belief that one’s family can employ the requisite skills to succeed is fundamental to motivation and persistence. Thus, family members might feel close and be flexible, but if they do not feel capable of actually solving the problems together, they might not try to do so (Bandura, 1997).

Further, increases in collective efficacy are likely to affect cohesion and adaptability within the family. For example, the shared experience of family members working together to successfully complete a task may bond those involved. In addition, family members who believe that they are capable of resolving conflict as a family often attempt new methods of problem solving when other ways are unsuccessful (Marks, 1999); they find the means to accomplish a task simply because they believe in their ability to work together. This persistence ultimately should increase the probability of successful resolution of problems and conflict.

Because families are more likely to resolve conflicts in a healthy manner if their collective efficacy is strong (Bandura, 1997), heightened efficacy might moderate adolescent at-risk behaviors by impacting family functioning. The relationship between family functioning and adolescent risk behaviors is mediated by parent-adolescent conflict negotiation. In low-conflict relationships, adolescents tend to identify with their parents’ values. Identification produces risk-resistant personality characteristics in adolescents (Grusec & Kuczynski, 1997), and these adolescents are likely to espouse the values of their parents as a means of sustaining a healthy relationship. On the other hand, discordant family relationships play a reciprocal role with at-risk behaviors in adolescents, such that deterioration of the parent-adolescent relationship often precedes these behaviors. In fact, conflict between the parent and adolescent is correlated
with several at-risk behaviors, although not all research supports this relationship (Bischof, Stith, & Whitney, 1995; Garnefski & Okma, 1996; Hops, Andrews, Duncan, Duncan, & Tildesley, 2000). Thus, negotiation of family conflict is important to preserving the parent-adolescent relationship and might help to prevent or reduce at-risk behaviors in adolescents.

Enhancing Collective Efficacy in Families

Family recreation is one modality that can promote positive parent-adolescent interaction. Because recreation plays a central role in healthy family life and is highly valued among members (Holman & Epperson, 1984; Nelson, Capple, & Adkins, 1995), families who recreate together report higher levels of happiness, healthy functioning, and unity (Kraus, 1984; Smith, 1997). Shared recreational activities provide an environment for open communication, interaction, and problem solving (Nelson et al.), and skills learned in a recreational setting can carry over into family life (Smith).

Outdoor recreation is one type of recreation that can be used to strengthen families. The inherent challenge found in many outdoor recreation activities provides opportunities for overwhelming mastery experiences and may result in feelings of efficacy and affect family functioning. Research shows that outdoor recreation is related to greater family cohesion (Hawks, 1991; Holman & Epperson, 1984), higher levels of marital stability (Hill, 1988), and improved overall marital and family quality (Holman & Epperson).

Although opportunities exist for examining the role of collective efficacy in promoting strong family functioning through outdoor recreation activities, this study addressed two related critical questions: Can family collective efficacy be increased through participation in challenge-based recreational activities? Will increases in collective efficacy generalize to areas of family functioning, such as conflict resolution?

Most recreation programs that emphasize challenge and are designed to reduce adolescent at-risk behaviors focus primarily on the individual. For example, contemporary therapeutic wilderness programs treat adolescents with behavioral and emotional problems, and some programs involve the parents in the treatment process (Bandoroff & Scherer, 1994). However, few if any therapeutic wilderness programs are available for entire families. The recreation program used here was developed specifically to include entire families in challenge-based recreation in an effort to increase and then generalize collective efficacy.

This study evaluated four hypotheses. Hypothesis one (H1) predicted that collective efficacy would significantly increase among participants in a 4-day family challenge-based recreation experience. No changes were expected in the nontreatment group. Hypothesis two (H2) predicted that the increase in collective efficacy would lead to increased collective conflict resolution efficacy in participants only. Self-efficacy theory (Bandura, 1997) further suggests that higher levels of challenge are more likely to produce overwhelming mastery experiences, resulting in a stronger generalizing effect. As such, hypothesis three (H3) predicted a positive relationship between level of challenge and magnitude of change in collective efficacy scores. Finally, hypothesis four (H4) predicted that the gains resulting from increased levels of challenge in the family recreation experience would generalize, causing concomitant increases in collective conflict resolution efficacy.

Method

Participants

Twenty-three families took part in the challenge-based recreation activities (survival trek = 7; handcart trek = 8; family camp = 8). Each family consisted of at least one parent and one at-risk adolescent, including a total of 5 single-parent families and 3 stepfamilies. The average age of participating youth was 15.3 (SD = 2.81); mean age by challenge group was: survival = 15.1 years, handcart = 16.7 years (SD = 3.61), family camp = 13.9 years (SD = 1.52), control group = 15.6 years (SD = 2.28). The average age of the parents was 46.0 (SD = 6.55) and by challenge group was: survival = 42.1 years (SD = 7.56), handcart = 51.1 years (SD = 5.82), family camp = 42.2 years (SD = 4.65), control = 46.5 years (SD = 4.80). The sponsoring therapeutic wilderness program screened participants for risk behaviors. Identified risk behaviors included opposition and defiance, substance abuse, poor school performance, negative family and peer relationships, and depression. Although childrens ages ranged from 2 to 26, only those 12 years and older completed questionnaires (survival trek, n = 21; handcart trek, n = 34; family camp, n = 31, control, n = 35). Average family size in each of the groups was 3.9 (SD = 1.25) for the survival trek, 4.4 (SD = 1.13) for the handcart trek, and 5.9 (SD = 1.12) for the family camp.

Measures

Because collective efficacy is task specific, it requires measures tailored to a target task. In this case, collective challenge-based recreation and collective conflict resolution were the target tasks. Instruments were designed to measure collective efficacy using individual perceptions of family abilities (Bandura, 1997; Greenlees et al., 1999; Kozub & McDonnell, 2000). Following Bandura’s guidelines for construction of efficacy tests, instruments were developed. Participants rated efficacy strength using a single-judgment format in which item responses range from 0 to 100 (Bandura, 1997).

The content of each task was identified, and then items were written to represent those concepts. In an effort to gather evidence supporting content validity, an expert panel evaluated the representativeness and relevance of the items (Suen, 1991). The Collective Family Recreation Efficacy (RECREATE) questionnaire included 18 items that asked about the participant’s belief in his or her family’s ability to complete specific skills to successfully complete a task in a challenge-based recreation activity. A similar measure was used to determine Collective Conflict Resolution Efficacy (RESOLVE) following methods recommended by Goldstein (1998) for effective group conflict resolution. An 18-item questionnaire was designed to determine each participant’s perception of his or her family’s ability to complete certain skills that would result in successful resolution of family conflicts. Sample questions from both instruments appear in Table 1. Internal consistency alpha estimates for the RECREATE and RESOLVE were .95 and .98, respectively.

Procedures

A single factor, four group quasi-experimental design was employed. Pre- and posttest measures of RECREATE and RESOLVE were administered. Participants completed both questionnaires immediately prior to the 4-day experience and
at the end of the program. During the posttest, participants also completed a generalization worksheet intended to help cognitively restructure commonalities between the collective recreation efficacy and collective conflict resolution efficacy. Members of the control group did not participate in a recreation experience, but completed the same questionnaires over the same time.

A therapeutic wilderness program recruited the participants through an announcement placed on the program Web site and in their newsletter. Three program dates were provided to interested families, and families self-selected the program date. A control group was recruited from the program’s waiting list. Each of the three treatment groups participated in a 4-day challenge-based recreation experience. No specific information was provided to participants regarding what the experience would entail, although participants were provided with directions and a list of supplies to bring. During each program, the four sources of efficacy information were systematically provided.

Staff members taught skills in a progressive order of difficulty to promote active attainment, using appropriate graduated modeling techniques (Bandura, 1986). Staff employed specific and corrective feedback, such as a verbal persuasion, when teaching recreation skills. Finally, staff members helped to provide positive interpretations of each participant’s physiological and affective state while learning and performing new skills. The researcher performed a validity check by monitoring each group as they participated in activities to ensure that the recreation leaders provided efficacy information in a systematic and consistent manner.

Prior to the recreation experience, staff participated in extensive training, which included 13 1-hour meetings. To ensure consistency in the training, the same individuals conducted the meetings, and all staff participated in each aspect of the training regimen, including review of current literature, theory, and program development. Immediately prior to the study, staff completed 11 days of intensive training covering survival skills, safety, group leadership, effective use of efficacy-based techniques, and recreation skills. Systematic techniques to introduce the sources of efficacy information, including modeling and verbal persuasion, also were taught. Specific instructive and corrective statements were developed to be used in teaching skills, such as building a bow-drill fire, chipping arrowheads, and orienteering.

Staff also spent time mastering recreation skills, including making a fire using a bow-drill set, cooking over open fires and in Dutch ovens, and Native American crafts and games. Staff were then able to instruct participants in the same skills.

The Three Challenges

The survival trek was designed to be the most challenging recreation. This program involved strenuous hiking, shelter building, and primitive camping and cooking. The difficult terrain of the Arizona desert enhanced the challenge. Families in this program made packs to carry their sleeping bags, food, and clothing. Families hiked over 10 miles during the 4-day period, crossing steep, rocky, untrailed terrain, and obtained water from puddles in dry riverbeds. At the end of each day, families built shelters, started fires using a bow-drill set, and prepared food over open fires and in Dutch ovens. Each family member received meal packs and was provided with onion, potato, carrot, and apple. During the experience, foods were supplemented with leaves, wild berries, grubs, and grasshoppers found on the trail. Opportunities also were available to learn survival skills and primitive arts and crafts. Nighttime activities included listening to tales of survival and Native American legends, sharing family stories and skits, and individual family campfires.

The handcart trek was designed to provide a moderate level of challenge. This involved pulling handcarts, cooking in Dutch ovens, and camping in the outdoors. Families carried their supplies (tents, cooking utensils, stoves, fuel, food, clothes, and sleeping bags). Over a 4-day period, each family pulled their handcart approximately 16 miles across relatively flat, dusty roads. Camp was set up daily after families reached their destination. Participants learned pioneer games and crafts during the day, and at night they heard pioneer stories, performed skits, and held campfires. Families learned to start fires using a bow-drill set, and all meals were prepared in Dutch ovens. Meals included ample amounts of food. The food served and methods of preparation were intended to be less challenging and more enjoyable than in the survival trek.

The family camp was designed to present the lowest level of challenge. Families met at a ranch in central Arizona, which was used as a base site. Each family slept in cabanas on wooden bunks. The ranch had rustic showers, outhouses, and a pond. During the 4-day experience, families participated in challenge-initiative games, leather work, astronomy, arrowhead chipping, canoe races, and orienteering. Other activities included starting a fire using a bow-drill set and preparing meals with Dutch ovens. Each family also completed a service project intended to improve the camp’s facilities and promote family unity. Nighttime activities were similar to the other two groups, with a dance, family stories and skits, and individual family campfires. Staff prepared all meals, and families assisted in preparation and clean-up. Food preparation was designed to present a minimal level of challenge compared to the survival and handcart experiences. The quantity and quality of food also was much higher, containing generous portions.

Results

First, a Levene’s test (Stevens, 1999) was performed to determine whether homogeneity of variance existed for the different recreation groups on pretest RECREATE and RESOLVE.
scores. Group differences in variability were not revealed for the outcome measures (RECREATE, $p = .73$; RESOLVE, $p = .10$); therefore, the assumption of homogeneity among groups was supported.

The effect of recreation on collective family efficacy among the different treatment groups was analyzed using paired $t$ tests to determine if significant change occurred. H1 predicted that families within each group would show an increase in collective efficacy regarding recreation. Results revealed significant increases in RECREATE scores following the survival trek ($p < .001$) and the family camp ($p < .001$; see Table 2). As expected, no significant differences were found between the pre- and posttest measures for the control group ($p = .78$).

H2 predicted that increased collective efficacy during the family recreation experience would generalize to family members’ perceived ability to resolve conflict. Results of paired $t$ test analyses revealed that collective efficacy scores significantly increased following the survival trek ($p = .018$), handcart trek ($p < .001$), and the family camp ($p < .001$; see Table 2). There was no significant change in the control group scores ($p = .48$).

H3 and H4 predicted that recreation and conflict resolution efficacy would be differentially predicted by the level of challenge families experienced. It was anticipated that higher levels of challenge would lead to increases in challenging recreation efficacy (RECREATE). If generalization occurred, concomitant changes also were expected in family members’ perceived ability to resolve conflict (RESOLVE). Further, a significant difference was expected on both measures between the treatment and the control groups. These hypotheses were tested using a mixed-model analysis of variance (SAS Institute, 2001). This method of analysis accounted for both the fixed effects that were present because of the different challenging contexts and the random effects that resulted when multiple individuals within families provide information as independent respondents (Littell, Milliken, Stroup, & Wolfinger, 1996).

This analytical procedure was first used to test whether levels of change corresponded to levels of challenge on the RECREATE scale (H3). The outcome of interest was respondents’ pretest-posttest change scores for RECREATE. The four levels of challenge served as the between-group variable, with respondents’ pretest ratings on RECREATE acting as a covariate. A distinction between within-group variability and within-family variability was accounted for using the families’ identification codes to assign family members to their respective families. This was done because information was collected from multiple individuals within the same families. The use of the families’ code allowed for consideration of a more complex family-level response about the families’ collective efficacy while recognizing that these measures were based on information from multiple respondents within families. Although there was some variability in the number of family members who provided information, the range of included family members for these analyses did not pose a statistical threat.

The resulting analysis revealed both an overall covariate effect for RECREATE pretest ($p < .001$) and an overall significant difference for the various challenges ($p < .001$). Post hoc comparisons revealed significant improvements on collective efficacy for all three treatment groups, but no change for the control group (see Table 3). The greatest change occurred in the family camp and survival trek experiences. The handcart group demonstrated change in recreational efficacy that was not significantly different from the control group. These findings support the hypothesized differences in level of challenge between the treatment groups and the control group, but not the hypothesized positive relationship between level of challenge and magnitude of change. (Differences in mean scores between Table 2 and Table 3 result from the mixed-model procedure providing an average value for each of the groups’ change scores after controlling for baseline differences.)

The mixed-model procedure was repeated using RESOLVE pretest-posttest change scores as the dependent measure (H4). The four levels of challenge again served as the between-group

### Table 2

<table>
<thead>
<tr>
<th>Experience</th>
<th>Pretest M</th>
<th>SD</th>
<th>Posttest M</th>
<th>SD</th>
<th>$t$ value</th>
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<tbody>
<tr>
<td>Survival trek</td>
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<td>12.62</td>
<td>96.07</td>
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<tr>
<td>Handcart trek</td>
<td>86.69</td>
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<td>88.62</td>
<td>16.66</td>
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<td>Family camp</td>
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<td>92.75</td>
<td>8.58</td>
<td>-9.98**</td>
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<tr>
<td>Control group</td>
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<td>10.47</td>
<td>80.39</td>
<td>10.53</td>
<td>-29</td>
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Note: Survival trek, $n = 21$; handcart trek, $n = 34$; family camp, $n = 31$; control group, $n = 35$.

### Table 3

<table>
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<th>Experience</th>
<th>Adj. Mean Change Score</th>
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<td>Family camp(^\ast)</td>
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<td>Control group(^\ast)</td>
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<table>
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<th>Experience</th>
<th>Adj. Mean Change Score</th>
<th>SD</th>
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<tbody>
<tr>
<td>Survival trek(^\ast)</td>
<td>21.26</td>
<td>2.87</td>
<td>7.41**</td>
</tr>
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<td>Handcart trek(^\ast)</td>
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<tr>
<td>Family camp(^\ast)</td>
<td>21.59</td>
<td>2.63</td>
<td>8.21**</td>
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<tr>
<td>Control group(^\ast)</td>
<td>4.94</td>
<td>2.24</td>
<td>2.21*</td>
</tr>
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</table>

\(^{\ast}\)No significant difference in RECREATE scores between the survival trek and family camp groups. \(^{\ast\ast}\)No significant difference in RESOLVE scores between the handcart trek and control groups. \(^{\ast\ast\ast}\)No significant difference in RESOLVE scores between the survival trek and family camp groups.

\textsuperscript{a}$p < .05$, \textsuperscript{b}$p < .001$.  

Family Relations
variable, RESOLVE pretest scores acted as a covariate, and the families’ identification codes helped distinguish between within-group variability and within-family variability. This analysis revealed both an overall covariate effect for RESOLVE pretest ($p < .001$) and an overall significant difference for challenging context ($p < .001$). Posthoc comparisons revealed that, after adjusting for the pretest covariate, RESOLVE-change scores demonstrated significant improvement for all treatment groups. In this analysis, the control group also demonstrated a significant positive change in their scores, although the resulting change-score was much smaller ($p < .05$; see Table 3). As in the previous analysis, the relationship between level of challenge and magnitude of change was not completely supported. The greatest change was realized by those in the family camp and survival trek experiences, for whom there were no significant group differences. These were followed by the handcart trek and the control group.

Next, the permanence of increases in RESOLVE scores was assessed using a 6-week follow-up questionnaire. Approximately two-thirds of the original families completed the questionnaires (15 families), representing 42 individuals, or roughly 53% of the original respondents. The control group was not included in the follow-up because of the lack of significant change that had occurred between the pre- and post-tests. Comparisons of $t$ tests were generated to determine whether there were any systematic differences between those who responded to the follow-up and those who did not. No significant differences were found for the RESOLVE pretest ($t = -.33$), posttest ($t = -.49$), or pretest-posttest change scores ($t = -.03$).

The mixed-model procedure was used to assess whether significant difference scores were evident for RESOLVE pretest and follow-up and for RESOLVE posttest and follow-up. The RESOLVE pretest and then the RESOLVE posttest, respectively, were included as covariates, and family code was included to distinguish between within-group and within-family variability. The first analysis revealed an overall covariate effect for RESOLVE pretest ($p < .001$), but no overall significant difference across the different challenge experiences ($p = .34$). Posthoc comparisons demonstrated significant improvements for all treatment groups between the pretest and the 6-week follow-up after adjusting for the pretest and within-family covariates (see Table 4). As demonstrated by the overall group comparison, there were no significant differences in amount of change for the different levels of challenge.

The second analysis again revealed an overall covariate effect for the RESOLVE posttest ($p < .001$), but no overall significant difference for challenge experiences ($p = .72$). Posthoc comparisons suggested that, after adjusting for the posttest and within-family covariates, no significant increase occurred between the posttest measures and the 6-week follow-up (see second panel Table 4). Again, there were no significant differences in the amount of change evidenced for the different levels of challenge.

### Discussion and Implications

Four particular aspects of this study distinguish it from previous research on families with at-risk adolescents. Participants took part in novel recreation experiences instead of more traditional therapeutic methods. Collective efficacy was measured as an aspect of family functioning. Further, the specific focus on collective efficacy generalization and its relationship with level of challenge have been unexplored in the family context. Results supported several of the hypotheses and suggest new perspectives on understanding family well-being through collective efficacy research.

Not many families have the experience of eating grubs and grasshoppers, pulling a handcart, or building a fire without matches, so our use of unusual recreation experiences to strengthen families was unique. These types of outdoor experiences provide novelty that can foster adaptation of family roles and opportunities for change.

The benefits of challenge-based recreation found in this study present important practical implications for families with at-risk adolescents and the practitioners seeking to help them. For example, family life educators and therapeutic recreation specialists can use this knowledge to enhance treatment for at-risk youth and strengthen relationships. Because family recreation activities likely stimulate family interaction, which may then serve as a mechanism for reducing family conflict (Orthner, Barnett-Morris, & Mancini, 1994), use of family recreation is warranted. Invoking significant others, such as parents and siblings, in treatment may be more beneficial in reducing problems within families that lead to at-risk behaviors in adolescents (Bandura, 1997; Hogue, Liddle, Becker, & Johnson-Leckrone, 2002; Orthner et al.; Reese, Vera, Simon, & Ikeda, 2000).

Designing challenge-based recreation programs to promote collective efficacy in families may help them with at-risk adolescents. Self-efficacy theory (Bandura, 1997) suggests that conflict is more likely to be correctly negotiated if the people involved perceive that they can succeed. Challenge-based family recreation programs should be designed to increase this perception by introducing the sources of efficacy information. Collective efficacy increases can then be systematically generalized across domains to conflict resolution, particularly if it has been a part of an overwhelming mastery experience, as these results suggest.

The value of challenge-based recreation lies not only in the ability to increase collective efficacy but also as a therapeutic technique for establishing and maintaining strong families. Families often recognize this and use recreation in an attempt to maintain feelings of connectedness (Shaw & Dawson, 2001).

### Table 4

<table>
<thead>
<tr>
<th>Experience*</th>
<th>Adj. Mean Change Score</th>
<th>SD</th>
<th>$t$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survival trek</td>
<td>23.73</td>
<td>4.43</td>
<td>5.36**</td>
</tr>
<tr>
<td>Handcart trek</td>
<td>19.29</td>
<td>3.06</td>
<td>6.31**</td>
</tr>
<tr>
<td>Family camp</td>
<td>26.71</td>
<td>3.51</td>
<td>7.60**</td>
</tr>
</tbody>
</table>

*No significant difference was found between groups based on level of challenge. $^a p < .05$, $^b p < .001$.  

The comparable pretest scores acted as a covariate, and the families’ identification codes helped distinguish between within-group variability and within-family variability. This analysis revealed both an overall covariate effect for RESOLVE pretest ($p < .001$) and an overall significant difference for challenging context ($p < .001$). Posthoc comparisons revealed that, after adjusting for the pretest covariate, RESOLVE-change scores demonstrated significant improvement for all treatment groups. In this analysis, the control group also demonstrated a significant positive change in their scores, although the resulting change-score was much smaller ($p < .05$; see Table 3). As in the previous analysis, the relationship between level of challenge and magnitude of change was not completely supported. The greatest change was realized by those in the family camp and survival trek experiences, for whom there were no significant group differences. These were followed by the handcart trek and the control group.

The second analysis again revealed an overall covariate effect for RESOLVE pretest ($p < .001$), but no overall significant difference across the different challenge experiences ($p = .34$). Posthoc comparisons demonstrated significant improvements for all treatment groups between the pretest and the 6-week follow-up after adjusting for the pretest and within-family covariates (see Table 4). As demonstrated by the overall group comparison, there were no significant differences in amount of change for the different levels of challenge.

The second analysis again revealed an overall covariate effect for the RESOLVE posttest ($p < .001$), but no overall significant difference for challenge experiences ($p = .72$). Posthoc comparisons suggested that, after adjusting for the posttest and within-family covariates, no significant increase occurred between the posttest measures and the 6-week follow-up (see second panel Table 4). Again, there were no significant differences in the amount of change evidenced for the different levels of challenge.

### Table 4

<table>
<thead>
<tr>
<th>Experience*</th>
<th>Adj. Mean Change Score</th>
<th>SD</th>
<th>$t$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survival trek</td>
<td>0.02</td>
<td>4.61</td>
<td>0.00</td>
</tr>
<tr>
<td>Handcart trek</td>
<td>1.36</td>
<td>2.95</td>
<td>0.46</td>
</tr>
<tr>
<td>Family camp</td>
<td>4.40</td>
<td>3.43</td>
<td>1.28</td>
</tr>
</tbody>
</table>

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The comparable pretest scores acted as a covariate, and the families’ identification codes helped distinguish between within-group variability and within-family variability. This analysis revealed both an overall covariate effect for RESOLVE pretest ($p < .001$) and an overall significant difference for challenging context ($p < .001$). Posthoc comparisons revealed that, after adjusting for the pretest covariate, RESOLVE-change scores demonstrated significant improvement for all treatment groups. In this analysis, the control group also demonstrated a significant positive change in their scores, although the resulting change-score was much smaller ($p < .05$; see Table 3). As in the previous analysis, the relationship between level of challenge and magnitude of change was not completely supported. The greatest change was realized by those in the family camp and survival trek experiences, for whom there were no significant group differences. These were followed by the handcart trek and the control group.

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### Discussion and Implications

Four particular aspects of this study distinguish it from previous research on families with at-risk adolescents. Participants took part in novel recreation experiences instead of more traditional therapeutic methods. Collective efficacy was measured as an aspect of family functioning. Further, the specific focus on collective efficacy generalization and its relationship with level of challenge have been unexplored in the family context. Results supported several of the hypotheses and suggest new perspectives on understanding family well-being through collective efficacy research.

Not many families have the experience of eating grubs and grasshoppers, pulling a handcart, or building a fire without matches, so our use of unusual recreation experiences to strengthen families was unique. These types of outdoor experiences provide novelty that can foster adaptation of family roles and opportunities for change.

The benefits of challenge-based recreation found in this study present important practical implications for families with at-risk adolescents and the practitioners seeking to help them. For example, family life educators and therapeutic recreation specialists can use this knowledge to enhance treatment for at-risk youth and strengthen relationships. Because family recreation activities likely stimulate family interaction, which may then serve as a mechanism for reducing family conflict (Orthner, Barnett-Morris, & Mancini, 1994), use of family recreation is warranted. Invoking significant others, such as parents and siblings, in treatment may be more beneficial in reducing problems within families that lead to at-risk behaviors in adolescents (Bandura, 1997; Hogue, Liddle, Becker, & Johnson-Leckrone, 2002; Orthner et al.; Reese, Vera, Simon, & Ikeda, 2000).

Designing challenge-based recreation programs to promote collective efficacy in families may help them with at-risk adolescents. Self-efficacy theory (Bandura, 1997) suggests that conflict is more likely to be correctly negotiated if the people involved perceive that they can succeed. Challenge-based family recreation programs should be designed to increase this perception by introducing the sources of efficacy information. Collective efficacy increases can then be systematically generalized across domains to conflict resolution, particularly if it has been a part of an overwhelming mastery experience, as these results suggest.

The value of challenge-based recreation lies not only in the ability to increase collective efficacy but also as a therapeutic technique for establishing and maintaining strong families. Families often recognize this and use recreation in an attempt to maintain feelings of connectedness (Shaw & Dawson, 2001).
Therapists and recreation practitioners might consider forming partnerships to create programs that preserve healthy families. Skills such as communication, decision making, problem solving, and cooperation may be enhanced through participation in challenge-based family recreation (Orthner et al., 1994; Shaw & Dawson; Smith, 1997). The same activities also can help create a sense of identity, cohesion, and adaptability among family members (Orthner & Mancini, 1991; Zabriskie & McCormick, 2001). Although skill learning and family identity were not tested here, one anecdotal observation of the changes from participating in challenge-based family recreation was expressed by a father on the handicart trek who believed that it was his responsibility to provide for his family throughout the 4 days. The last night, he continually tried to start a fire so his family could prepare their meal. His attempts were unsuccessful until his daughter placed her hand on his, providing the stability and pressure necessary to create a coal. Together they built the fire, and he realized the importance of his family working together to accomplish their goals. He began to see his daughter differently, and she felt needed and useful. Later, tearful expressions of appreciation were exchanged.

Previous research indicates that efficacy generalizes across activity domains (Bandura, 1997; Ellis et al., 1993; Maughan & Ellis, 1991). This study was designed to test this generalizing effect on a collective level rather than an individual level. In each of the 4-day experiences, findings indicated that conflict resolution efficacy was linked through systematic generalization. Bandura (1997) suggested that conflict resolution efficacy should increase concomitantly with recreation efficacy. However, family conflict resolution skills were not explicitly taught, and efficacy information was not introduced in this area. Instead, participants completed a worksheet designed to promote cognitively restructuring the commonalities between challenge-based recreation and conflict resolution. This allowed individual family members to recognize the similarities between the two tasks, and promoted generalization.

Building a fire without matches, finding and eating grasshoppers, and hiking through rough terrain are difficult tasks for most people. A high level of difficulty leads to strong feelings of accomplishment once the task is completed. Research clearly demonstrates that these overwhelming mastery experiences promote generalization on the individual level. The generalization of collective efficacy, resulting from overwhelming mastery experiences, has not been studied in families. Thus, our results partially support this phenomenon. After accounting for the fixed effects of different challenge experiences and the random effects created when multiple individuals within families provide information as independent respondents, efficacy increases in the survival group were greater than those in the handicart group. Thus, higher challenge was related to greater gains in efficacy. However, the survival and the handicart groups did not have greater gains than those in the family camp experience. Later discussion among the staff and researchers suggested that a specific phenomenon might account for this finding. Statements by participants in the family camp indicated that many of them had never been camping. “Roughing it” was staying at a hotel without room service. For these participants, the family camp presented a major challenge. On the other hand, staff learned that some participants in the survival and handicart groups had substantial outdoor experience. For these families, the survival trek may not have presented an adequate challenge. As such, program difficulty may not be the most appropriate way to determine the level of challenge. Family members’ perceptions of challenge may be a better predictor of changes in collective efficacy. Future research should carefully measure perceived challenge and use it as a covariate in analysis.

Although these results are promising, our study is an initial step in understanding the mechanisms used to increase and generalize collective efficacy. For analyses employing family level data, the number of families participating in each of the treatment groups may cause concern. We believe such concern is offset by the use of multiple respondents from each family. Additionally, the greatest risk associated with a smaller sample size is committing a Type II error, or falsely rejecting the hypothesis of interest. Thus, we suspect that a larger sample size would further confirm the significant findings here. We recognize that larger sample sizes might be beneficial, but they require substantial effort and resources because of the logistical limitations of applied research. Time, staffing, participant recruitment, and expense necessitated the use of smaller groups. Developing and implementing family recreation programs can be expensive and time consuming. Generally, wilderness programs cost $375 per person per day. Conducting the programs here would have cost approximately $135,000, so grants were used to minimize the cost to families. In addition, the use of student interns dramatically reduced staff costs and provided valuable educational opportunities. Participant recruitment presents another obstacle in implementing this type of research, so working with an established agency may be a beneficial method to finding participants; it also may result in a more homogeneous sample. Other concerns, including staff availability, safety, and obtaining Institutional Review Board approval can further complicate the process because of the unique nature and inherent risks of the program.

Another limitation exists in the potential for participants to respond in a socially desirable manner. Although the participants were not informed about the hypotheses, it is possible that they surmised the purpose of the study and responded to the instruments in an effort to please researchers. The inclusion of a control group was an attempt to limit this potential bias.

Continued research focused on these areas will provide greater theoretical understanding of collective efficacy and the mechanisms that promote generalization. Practitioners could then use this knowledge to design exciting recreation programs that are more effective in strengthening families with at-risk adolescents. Most importantly, it may lead to programs that offer opportunities for families to spend time together, eating grasshoppers under the stars.

References


