Journal of Pediatric Nursing 44 (2019) 56–62

Contents lists available at ScienceDirect

Journal of Pediatric Nursing

Improvements in Hope and Beliefs about Illness Following a Summer Camp for Youth with Chronic Illnesses

Melissa A. Faith, Ph.D., ABPP [a,c,*], Sunnye Mayes, Ph.D., ABPP [b], Chelsea D. Pratt, M.S. [c], Carrick Carter, Ph.D [b]

[a] Johns Hopkins All Children's Hospital, St. Petersburg, FL, USA
[b] University of Oklahoma Health Sciences Center, Oklahoma City, OK, USA
[c] University of Texas Southwestern Medical Center, Dallas, TX, USA

ARTICLE INFO

Article history:
Received 17 April 2018
Revised 23 October 2018
Accepted 23 October 2018

Keywords:
Chronic illness
Psychosocial factors
Children
Summer camps

ABSTRACT

This study evaluated changes in hope, attitude toward illness, and perceptions of illness benefit and burden following participation in a summer camp designed for youth with a variety of chronic illnesses. Participants were 62 youth campers (Age $M = 13.45$ years, $SD = 2.41$) with a variety of chronic illnesses. For youth who began camp low in hope about future goal attainment, participation in optional camp activities negatively predicted post-camp hope about future goal attainment. This relation was nonsignificant for campers who began camp high in hope. We found no significant changes in attitude toward illness or perceptions of illness benefit or burden. This study provides an important contribution to burgeoning research on summer camps designed for children with varying chronic illnesses. Findings were inconsistent with previous studies on chronic illness summer camp outcomes. Further work is needed to identify camp components that are related to desirable psychosocial outcomes for youth with chronic illnesses.

Introduction

Researchers estimate that 15–18% of children have a chronic illness (Judson, 2004; van der Lee, Mokkink, Grootenhuis, Heymans, & Offringa, 2007). Although advances in diagnostic accuracy and medical treatments have improved long-term survival rates for many childhood chronic illnesses, a significant subset of children with chronic illness are at risk for long-term psychosocial adjustment difficulties (Zashikhina & Hagglof, 2007). Health professionals have utilized a variety of prevention and intervention programs to improve psychosocial adjustment in youth with chronic illnesses. Summer camps designed specifically for youth who have chronic illnesses have received increased attention as a potential context in which to improve youths' social, physical, and emotional wellbeing (Epstein, Stinson, & Stevens, 2005). Yet, few studies have empirically evaluated psychosocial outcomes of summer camps designed for chronically-ill youth.

Additionally, studies that have evaluated camp outcomes have focused almost exclusively on camps designed for specific illness populations. Recent healthcare reform highlights the need for more efficient use of resources and a greater emphasis on preventative care (Zirui & Lee, 2013). Because camps designed to serve a variety of illness populations may provide a more efficient use of resources compared to illness-specific camps, systematic evaluations of nonspecific-illness summer camps are needed (Epstein et al., 2005; Woods, Mayes, Bartley, Fedele, & Ryan, 2013). This study evaluated changes in hope, attitude toward illness, and perceptions of illness benefit and burden following participation in a summer camp designed for youth with a variety of chronic illnesses. Our findings juxtapose findings from previous research and highlight the need for further evaluation and refinement of youth chronic-illness summer camp curriculum.

Summer Camps for Youth With Chronic Illnesses

Children and adolescents, herein 'youth,' with chronic illnesses can face limited opportunities to participate in traditional summer camps because of their increased need for medical monitoring and their physical limitations (Sawin, Lannon, & Austin, 2001). In response to exclusion from traditional summer camps, a number of patient advocate groups and medical service providers have developed summer camps designed specifically for children who have chronic illnesses. In addition to using therapeutic recreation to improve campers' quality of life (Jamison, Lewis, & Burish, 1986; Moola, Faulkner, White, & Kirsh, 2014), many chronic illness camps also include activities designed to enhance disease-related knowledge and skills, self-esteem, social engagement, and overall psychosocial functioning in a recreational and age-normative context (Hunter, Rosnov, Koontz, & Roberts, 2006; Rimmer et al., 2007; Walker & Pearman, 2009). Recent studies suggest

* Corresponding author at: Johns Hopkins All Children's Hospital, Institute for Brain Protection Sciences, 880 6th St S, Ste 420, Dept 6580070432, St Petersburg, FL 33701, United States of America.
E-mail address: mfaith1@jhmi.edu (M.A. Faith).

https://doi.org/10.1016/j.pedn.2018.10.016
0882-5963/

youth attendance at chronic illness summer camps has steadily increased over the past several years (Epstein et al., 2005; Hunter et al., 2006; Maslow & Lobato, 2009; Nicholas, Williams, & MacLusky, 2009), with over 280 accredited camps for children with chronic illnesses in existence today (Wu, Prout, Roberts, Parikshak, & Amylon, 2011).

Despite theorized benefits of camp attendance, few studies have empirically evaluated whether summer camps designed for youth with chronic illnesses meet their stated goals (Woods et al., 2013; Wu et al., 2011). Of studies that have evaluated outcomes of chronic illness summer camps, most have focused on camps designed for specific illness populations. For example, Pulgaron, Salamon, Patterson, and Barakat (2010) found that youths who attended an asthma-specific summer camp demonstrated improved problem-solving and asthma knowledge at the end of camp and at three-months follow-up. Shepanski et al. (2005) evaluated a camp for children with inflammatory bowel disease and found camp attendance was related to campers' improved overall health-related quality of life, social functioning, and bowel symptoms. Several studies evaluating summer camps designed for children and adolescents with cancer and their siblings found that camp attendance is associated with improvements in overall distress, social competence, health-related quality of life, and perceived peer acceptance among both patients and siblings (Meltzer & Rourke, 2005; Packman et al., 2005; Sidhu, Passmore, & Baker, 2006; Wu et al., 2011).

Few published studies have evaluated youth outcomes after attending a summer camp designed for children who have a variety of chronic illnesses. Woods et al. (2013) evaluated pre-camp to post-camp changes in self-reported health-related quality of life for youth attending such a summer camp. Campers in that study included youth with cancer, renal disease, hematological disorders, gastrointestinal disorders, and other chronic illnesses. Woods and colleagues found that campers demonstrated improvements in hope but did not demonstrate statistically significant changes in self-reported health-related quality of life. Further investigation is warranted to further explain these findings.

According to Epstein et al. (2005), chronic illness summer camps improve campers' social, physical, and emotional well-being via two processes: (1) by providing opportunities for campers to interact with each other, and (2) by allowing participation in modified but age-normative summer activities (Epstein et al., 2005). Some researchers have suggested that camp attendance can improve campers' sense of mastery and self-esteem, which could also lead to youths' enhanced hope about the future (Warady, Carr, Hellerstein, & Alon, 1992; Woods et al., 2013). Further study is warranted to more fully understand the associations between opportunities for social engagement and participation in age-normative activities at camp and psychosocial factors associated with healthy adjustment.

Because chronic-illness camps aim to promote wellbeing among campers, there is benefit in examining cognitive and emotional changes among campers who experience the social and behavioral opportunities at camp. Hope theory was established by Snyder (1995) as a process of conceptualizing goals into cognitive and emotional components that constitute overall hope. Snyder, Irving, and Anderson (1991, p. 287) further define hope as "a positive motivational state that is based on an interactively derived sense of successful (a) agency (goal directed energy), and (b) pathways (planning to meet goals)." Based on this definition, the *agency* component of hope is identified as an individual's beliefs about his or her ability to attain goals and the *pathways* component of hope is defined as an individual's confidence in his or her ability to identify strategies to accomplish goals (Snyder et al., 1997). In this sense, hope is identified as "a cognitive appraisal of one's goal-related capabilities" (Snyder, 1995). Previous research has found that hope is inversely related to symptoms of depression and anxiety and positively related to adaptive coping strategies in youth who have chronic illnesses (Lewis & Kliewer, 1996; Maikranz, Steele, Dreyer, Stratman, & Bovaird, 2007). Youth cognitive appraisals about their chronic illness are related to psychosocial adjustment, and such findings have led to the development of specific measures for evaluating cognitive appraisals about pediatric chronic illness, specifically attitude toward illness and perceptions of illness benefit and burden (Currier, Hermes, & Phipps, 2009; Ramsey et al., 2016).

The Current Study

Burgeoning evidence suggests that youth benefit from attending illness-specific summer camps (Meltzer & Rourke, 2005; Packman et al., 2005; Sidhu et al., 2006; Pulgaron et al., 2010; Shepanski et al., 2005; Woods et al., 2013; Wu et al., 2011); yet, literature assessing psychosocial outcomes of summer camps designed for youth with a variety of chronic illnesses remains scant. Healthcare reform in the United States promotes more efficient use of resources and greater emphasis on serving larger patient populations (Zirui & Lee, 2013). Non-specific illness camps have the potential to provide an economical approach to addressing psychosocial needs in a variety of illness populations compared to illness-specific camps; thus, researchers have recommended further evaluation of psychosocial outcomes associated with non-specific illness camps (Hunter et al., 2006; Plante, Lobato, & Engel, 2001). The current study evaluated psychosocial changes associated with attendance at a summer camp designed for youth with a variety of chronic illnesses. Specifically, this study evaluated changes in campers' hope, attitude toward illness, and perceptions of illness-related benefit and burden. Additionally, campers' participation in camp activities, which were designed to promote camp goals, was evaluated. We hypothesized that campers' hope, attitude toward illness, and perceptions of illness benefits would improve following camp attendance. We expected campers' perceptions about illness burden to decrease following camp. Because we theorized that campers' successful participation in camp activities would allow for the greatest improvements in campers' sense of mastery and self-efficacy, we expected that number of activities would predict increases in hope, attitudes about illness, and perceptions of illness benefits, and a decrease in perceptions of illness burden.

Method

Participants

Participants included 62 children and adolescents (mean age (SD) = 13.45 (2.41); 48.4% male) who attended a 5-day summer camp in the Midwest United States designed for youth with chronic illnesses. All campers were invited to participate. Of the 84 eligible campers, 8 campers' parents declined to participate in this study. To be included in analyses, campers must have completed pre- and post-camp measures for at least one dependent variable. Based on this criteria, an additional 14 youth were excluded from analyses due to not completing a pre- or post-camp questionnaire packet (resulting in total $N = 62$). Participating youths' illnesses included cancer or brain tumor (34.4%), sickle cell disease (13.1%), renal disease (26.2%), heart disease (6.6%), and other chronic illnesses (19.7%). Additional demographic information is provided in Table 1.

Compliance With Ethical Standards

All procedures performed were conducted in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent and child/adolescent assent were obtained from all individual participants included in the study. This study was approved by the affiliated university's institutional review board.

Table 1
Demographic information.

Variable	Percent
Child race	
White/Caucasian	65.2
Black/African American	14.5
American Indian or Alaska Native	8.7
Other	11.5
Child ethnicity	
Hispanic	19.1
Non-Hispanic	80.9
Prior camp attendance	
Yes	77.9
No	22.1
Annual household income	
≥$75,000	19.4
$50,000–$74,999	17.9
$30,000–$49,999	26.9
$20,000–$29,000	17.9
$10,000–$19,999	7.5
<$10,000	10.4
Parent marital status	
One-parent household	39.2
Two-parent household	60.8
Mother's education level	
<12 years	7.4
12 years	36.8
>12 years	55.8
Father's education level	
<12 years	7.0
12 years	43.9
>12 years	49.1

Measures

Demographic Form

One parent per child completed a demographic questionnaire developed for this study. The questionnaire contains 9 items assessing child demographics (e.g., age, race, education level, prior camp attendance) and 4 items assessing parent demographics (e.g., marital status, parents' educational levels).

Children's Hope Scale (CHS; Snyder et al., 1997)

The CHS is a 6-item self-report measure of dispositional hope in youth ages 8 to 19 years. The CHS is based on Snyder's (1995) hope theory and consists of two subscales: agency and pathways. The agency subscale assesses youths' beliefs about their ability to accomplish goals. The pathways subscale assesses youths' confidence that their actions will help them to achieve their goals. Because hope theory differentiates these as constructs, the subscales were analyzed as separate variables. Youth rate each item on a 6-point scale (1 = *none of the time*, 6 = *all of the time*), with higher scores indicating greater levels of hope. Subscale scores are computed by summing the three items that load on each subscale. The CHS has yielded good reliability in previous studies (Snyder et al., 1997; Woods et al., 2013). Subscale internal consistency estimates were adequate to good in this study (agency time 1 $\alpha = 0.81$, time 2 $\alpha = 0.76$; pathways time 1 $\alpha = 0.87$, time 2 $\alpha = 73$).

Child Attitude Toward Illness Scale (CATIS; Austin & Huberty, 1993)

The CATIS is a 13-item self-report questionnaire designed to assess youths' feelings about having a chronic illness (Austin & Huberty, 1993). Respondents are asked to rate, using a 5-point scale (1 = *never*, 5 = *very often*), how often they have negative and positive thoughts about their illness. The total CATIS score is computed by taking the arithmetic average of all items, with higher scores indicating a more positive attitude toward illness. The CATIS has demonstrated moderate to high internal reliability (Iobst, Nabors, Brunner, & Precht, 2007; LeBovidge, Lavigne, & Miller, 2005; Ramsey, Bonner, Ryan, Mullins, & Chaney, 2013; Shore, Buelow, Austin, & Johnson, 2009) and test-retest reliability (Ramsey et al., 2013) in previous studies. The CATIS demonstrated good internal consistency in this study (time 1 $\alpha = 0.83$; time 1 $\alpha = 0.87$).

Benefit and Burden Scale for Children (BBSC; Currier et al., 2009)

The BBSC is a 20-item self-report questionnaire designed to assess perceptions of benefit and burden related to having a childhood chronic illness. Respondents are asked to rate each item on a 5-point scale (1 = *not at all*; 5 = *very much*). The BBSC contains two subscales: Benefit (9 items) and Burden (11 items). Subscale scores are computed by summing items that load on each subscale; higher subscale scores indicate greater perceptions of benefit or burden, respectively. The Benefit and Burden subscales yielded good concurrent validity and internal consistency in the BBSC initial validation study (Currier et al., 2009). The subscales demonstrated good internal consistency in this study (Benefit Finding time 1 $\alpha = 0.89$, time 2 $\alpha = 0.92$; Burden time 1 $\alpha = 0.83$, time 2 $\alpha = 0.92$). Items were summed to compute subscale scores.

Number of Camp Activities

Children completed a measure developed for this study to assess participation in optional activities at camp. Campers were presented with a list of possible camp activities and were asked to indicate whether they participated (1 = yes, 2 = no) in each activity. In this study, we indexed each camper's participation in camp activities by summing the number of optional activities in which campers reported participating.

Procedure

Specialty clinic medical teams within the children's hospital were encouraged to refer campers. Eligibility criteria for camp attendance included having a chronic illness (as determined by the specialty clinic medical team) and the ability to function independently (e.g., toileting, following specific dietary requirements, capacity to interact acceptably with others) and an age range of 9 to 18 years. The camp is hosted by a non-profit agency affiliated with the hospital and clinics at the hospital are provided with information and encouraged to invite their patients. Anyone in the community who has a child with a life threatening or chronic illness may be eligible, regardless of whether they receive treatment at the local hospital or not. No incentives were offered for participation in the study. Campers were provided information about the study during the camp enrollment process and given the opportunity to complete forms and provide consent and assent to participate and for parental data collection when campers arrived for camp. The campers completed their study questionnaires on the bus ride to camp (approximately 2.5 h in duration) or at camp check-in for campers arriving directly at the camp. Parents completed the demographic form at the camp registration. Youth completed the CHS, BBSC, and CATIS at two time points (i.e., on the bus while riding to camp) and in their cabins on the last evening of camp (prior to the camp dance; camp was concluded mid-day of the following day). Youth also completed the activity participation self-report form during the allotted time on the last night of camp. Counselors provided assistance with questionnaire completion as needed to accommodate any physical or cognitive deficits.

The activity participation self-report form was based on scheduled camp activities. Every day during camp, all campers met as a group for seminars about illness acceptance, benefit-finding, and goal-setting. All campers also participated in two fishing trips, two talent shows, an inflatable water-slide carnival, and a social dance at scheduled times during camp. Campers ate all meals in a group setting and slept in cabins with five to seven other campers and at least one camp counselor (medical staff volunteers and/or community volunteers). Each day of camp, youth were given 3 to 5 h of free time during which they could choose to participate in one or more additional activities. Optional activities included social and recreational activities (e.g., jewelry making,

swimming, art projects, completing a high ropes course) designed to improve social inclusion and provide task mastery. Campers could also choose to stay in their camp cabin during free time instead of participating in optional activities or to focus on one or two activities rather than engaging in many optional camp activities.

Data Analytic Plan

Data analyses were conducted using IBM SPSS Statistics Version 24. Data were screened for multivariate normal distribution, linearity, and outliers. No statistical assumption violations were found. We used paired-samples *t*-tests to compare youths' hope subscale scores (i.e., agency and pathways), attitude toward illness, and perceptions of illness benefit and burden from the beginning of camp to the end of camp. Consistent with Judd, Kenny, and McClelland's (2001) recommendations for testing moderation in repeated measures, we used five separate hierarchical regression analyses to examine whether campers' participation in optional camp activities predicted changes in the five dependent variables. In all planned regression analyses, campers' number of optional activities was regressed on difference scores (post camp score – pre camp score) for the primary variable. We examined bivariate correlations between dependent variables and the following possible covariates: age, gender, diagnosis. Only gender and diagnosis were significantly correlated with any dependent variables, so regression analyses controlled for gender and diagnosis. Number of activities was centered before being entered into the regression equations. Order of entry for independent variables was as follows: (Step 1) gender and diagnosis, and (Step 2) number of optional activities in which the youth reported participating. We interpreted $p < .05$ as statistically significant in a priori planned analyses.

Results

Pre-post Changes in Hope, Attitude Toward Illness, and Perceptions of Illness Benefit and Burden

Table 2 presents means and standard deviations for campers' hope scores (i.e., agency and pathways), attitude toward illness, and perceptions of illness benefit and burden at the beginning and end of camp. Table 2 also includes the results of paired-groups *t*-tests comparing pre- and post-scores. Attitude toward illness significantly declined from pre- to post-camp with a large effect size (Cohen, 1988). We found no significant changes in hope agency or pathways, or perceptions of illness benefit or burden from pre- to post-camp.

Number of Activities as a Moderator of Change

Table 3 presents results of planned hierarchical regression analyses. Number of activities positively predicted post-camp hope agency with small effect size (Cohen, 1988). Number of activities did not predict changes in campers' hope pathways, attitude toward illness, or perceptions of illness benefit or burden.

Table 2
Summary of *t*-tests predicting changes in hope and perceptions of illness.

	Pre-camp *M* (*SD*)	Post-camp *M* (*SD*)	*t*	*df*	*Cohen's d*
Attitude toward illness scale	3.69(0.81)	3.36(0.80)	4.14**	59	0.41
CHS – hope agency	13.16(3.63)	12.82(3.60)	0.73	56	0.09
CHS – hope pathways	12.05(4.18)	12.02(3.43)	0.07	56	0.01
BBSC - benefit	32.83(9.48)	32.92(9.84)	−0.09	59	−0.01
BBSC - burden	23.00(8.95)	23.57 (10.27)	−0.64	59	−0.06
Number of optional activities		8.02(2.66)			

Note:
** $p < .01$.

Table 3
Regression analyses predicting post-camp scores on in hope and perceptions of illness.

Predictor variables	*B*	$R^2\Delta$	$F\Delta$	*Cohen's* f^2
Changes in attitudes toward illness				
Gender	0.01	0.04	0.97	0.04
Diagnostic category	−0.13			
Number of activities	0.18	0.03	1.64	0.03
Changes in hope - agency				
Gender	−0.08	0.01	0.21	0.01
Diagnostic category	0.03			
Number of activities	0.31*	0.08	3.55*	0.09
Changes in hope - pathways				
Gender	−0.03	0.04	0.85	0.04
Diagnostic category	−0.13			
Number of activities	0.21	0.04	1.82	0.04
Changes in perceptions of illness benefits				
Gender	0.24	0.06	0.99	0.06
Diagnostic category	0.05			
Number of activities	0.18	0.03	1.02	0.03
Changes in perceptions of illness burden				
Gender	−0.08	0.03	0.39	0.03
Diagnostic category**	−0.11			
Number of activities***	0.18	0.03	0.91	0.03

Note:
* $p < .10$.
** $p < .05$.
*** $p < .01$.

Exploratory Post-hoc Analyses

Number of activities did not explain changes in hope agency or pathways, attitudes toward illness, or perceptions of illness benefit or burden. Thus, we also considered whether an overall effect of participating in optional activities was suppressed due to many campers beginning camp with relatively positive attitudes and beliefs. Due to a potential ceiling effect for campers who began camp with relatively positive beliefs about illness and the future, we hypothesized that participating in optional camp activities might predict changes in psychosocial functioning only for campers who began camp with relatively poor attitudes toward illness, lower levels of hope, and fewer perceptions of illness benefit or with relatively strong perceptions of illness burden. To test this posthoc hypothesis, we conducted five separate exploratory hierarchical regression analyses to provide insight for future hypothesis testing in other camp settings. Predictor variables were centered before being entered into the regression equation and before interaction terms were computed. Order of entry was as follows: (Step 1) pre-camp score on the dependent variable, (Step 2) number of optional activities in which the youth reported participating, and (Step 3) the interaction between pre-camp score on the dependent variable and number of optional activities. Because of the exploratory post-hoc nature of these regression analyses, we interpreted findings with $p < .05$ as statistically significant and $p < .10$ as approaching statistical significance.

The interaction between number of activities and pre-camp hope agency was a positive predictor of post-camp hope agency, explaining an additional 7% of the variance. We used Holmbeck's (2002) recommendations to probe the significant interaction. For youth who began camp relatively high in hope agency (>1 SD above the mean), number of activities was negatively but nonsignificantly predictive of post-camp hope agency scores, $\beta = -0.46$, $t(48) = -1.55$, $p = .13$. For youth who began camp relatively low in hope agency (>1 SD below the mean), number of activities approached statistical significance as a negative predictor of post-camp hope agency scores, $\beta = -0.95$, $t(48)$

$= -1.96$, $p = .06$. Posthoc analyses for this interaction are depicted graphically in Fig. 1.

Discussion

Summer camps for youth who have chronic illnesses are becoming more prominent in the United States (Epstein et al., 2005). Most camps are designed with the intention of enhancing campers' social interactions and self-confidence by providing opportunities to expand their social networks, to interact with other youth with chronic illnesses, and to gain mastery of camp activities (Hunter et al., 2006; Jamison et al., 1986; Rimmer et al., 2007; Walker & Pearman, 2009). Notably, summer camps for youth with chronic illness require a large number of resources (e.g., medical personnel and equipment, transportation, facilities, activity materials and equipment). Given the popularity of chronic-illness summer camps and the high cost associated with these programs, it is imperative that researchers systematically evaluate the extent to which these camps meet stated goals.

Several previous studies have demonstrated positive outcomes associated with illness-specific youth summer camps; however, few studies have examined youth outcomes of a summer camp designed for youth with various chronic illnesses, and even fewer have done so in the unique medical care climate of the United States (e.g., Békési et al., 2011; Kiernan, Gormley, & MacLachlan, 2004). Camps that include a variety of illness populations could provide a cost-effective use of resources, making a comparison of outcomes for illness-specific and illness non-specific camps a particularly important endeavor (e.g., Békési et al., 2011; Kiernan et al., 2004; Woods et al., 2013). The camp in this study was comparable in duration (Pulgaron et al., 2010), structure (Békési et al., 2011; Kiernan et al., 2004; Warady et al., 1992; Woods et al., 2013), activity availability (Hunter et al., 2006; Jamison et al., 1986; Pulgaron et al., 2010; Rimmer et al., 2007; Walker & Pearman, 2009; Warady et al., 1992; Wu et al., 2011), and extent of volunteer versus paid staff (Epstein et al., 2005) to numerous other pediatric illness camps that have been associated with campers' improved psychosocial adjustment in previous studies. While a number of studies have demonstrated positive outcomes associated with illness-specific summer camps, to our knowledge, this study is one of few to evaluate child outcomes of an illness non-specific youth summer camp.

The purpose of the current study was to examine associations between opportunities for social engagement and participation in age-normative activities at camp and psychosocial factors associated with healthy adjustment. Specifically, we sought to determine whether youths' hope, attitude toward illness, and perceptions of illness benefit and burden changed after attending a summer camp in the United States for youth with a variety of chronic illnesses. This study also evaluated whether the number of optional activities in which campers participated predicted changes in dependent variables. Summer camps for youth with chronic illness require a large number of resources (e.g., medical personnel and equipment, transportation, facilities, activity materials and equipment). Given the popularity of chronic-illness summer camps and the high cost associated with these programs, it is imperative that researchers systematically evaluate the extent to which these camps meet stated goals. Camps that include a variety of illness populations could provide a cost-effective use of resources, making a comparison of outcomes for illness-specific and illness non-specific camps a particularly important endeavor. A number of studies have demonstrated positive outcomes associated with illness-specific summer camps. To our knowledge, this study is one of few to evaluate child outcomes of an illness non-specific youth summer camp within the United States.

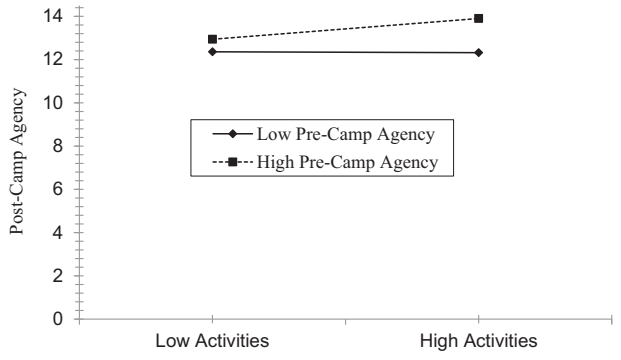

Fig. 1. Graphic depiction of pre-camp hope agency as a moderator of the relation between number of activities and post-camp agency.

Contrary to expectations, our hypotheses were rejected. We found no overall changes in campers' hope (agency and pathways), attitude toward illness, or perceptions of illness benefit or burden. This finding is perhaps surprising given previous results that attendance at an illness-specific summer camp is related to positive psychosocial changes (Meltzer & Rourke, 2005; Packman et al., 2005; Sidhu et al., 2006; Pulgaron et al., 2010; Shepanski et al., 2005; Woods et al., 2013; Wu et al., 2011). We assessed varying constructs than those measured in most previous camps and our camp differed from many of those previously studied in that our camp included youth with a variety of diagnoses. Despite these differences, our camp did share common features with illness-specific camps. Like illness-specific camps, our camp was designed to improve perceptions of social support and social inclusion by offering youth opportunities to interact with peers during mealtimes, cabin times, and optional activities. Also like specific-illness summer camps, our camp was designed to provide opportunities for campers to experience developmentally-normative autonomy from their primary caregiver that may not be possible at home (Hullmann et al., 2010). The development of autonomy for children with a chronic illness is important but can be complicated by family factors (Beacham & Deatrick, 2013). The camp experience aims to provide opportunities for promoting autonomy.

Still, our camp did differ from illness-specific camps in potentially important ways. The overall mission of the camp is to provide an experience for children and adolescents with a range of chronic illnesses to and to foster character, connection, and coping among the campers. Unlike illness-specific summer camps, our camp may have provided campers opportunities to compare their own illness burdens with burden associated with other chronic illnesses. For campers who view their illness more burdensome or interfering than other illnesses, perhaps attending camp is not likely to be related to positive changes in attitude toward illness or perceptions of illness benefit or burden. One goal of our camp was to decrease campers' sense of illness burden by providing campers opportunities to successfully participate in positive social experiences and developmentally-normative camp activities; however, unlike illness-specific summer camps, our camp may not have provided campers with as many opportunities to socialize with youth who have shared similar illness-related experiences.

Another possibility for our findings is that even campers who benefit from social experiences and camp activities while in the camp setting may continue to believe their illness is a burden at home, at school, and in other social contexts. While the current study was not intended to evaluate specific camp components, the group camp activities may have been an unanticipated variable that influenced our findings. For example, the addition of camp components designed to help campers recognize illness benefits and identify how to participate in desired activities outside of camp could improve campers' expectations of generalizing camp experiences to their everyday lives. Campers may also benefit from camp components designed to help campers recognize illness benefits and identify ways to participate in desired activities outside of camp. Another potential confounding variable is the role of camper's previous participation in this or other camps. Additional factors that may have contributed to our findings involve practical aspects

of participation in activities. For example, youth who engaged in fewer activities may have been spending more time building social relationships, which demonstrates less overall camp involvement but better exemplifies the goals of the camp. Alternatively, some campers may have engaged in a high number of camp activities with little engagement or enjoyment of these activities, demonstrating seeming participation, but in a manner that is less consistent with the overall camp mission.

We found that participation in camp activities positively predicted post-camp hope agency; however, this finding was qualified by our finding that youths' pre-camp beliefs about their ability to attain future goals (i.e., agency) moderated the relation between participation in optional camp activities and post-camp agency. Specifically, for campers who began camp relatively low in agency, participation in optional camp activities negatively predicted post-camp agency. Number of camp activities did not significantly predict post-camp agency for campers who began camp relatively high in agency. Because our sample size was small and posthoc analyses revealed findings that only approached statistical significance, the moderating role of pre-camp hope agency beliefs should be interpreted with caution. Nevertheless, it is possible that posthoc findings could have reached the threshold of statistical significance with a larger sample size. A possible explanation for the moderating role of pre-camp hope agency could be the role of campers' expectations of success in how they approached camp activities. According to self-verification theory (Swann, 2012), individuals interpret ambiguous social, environmental, and task-related interactions in a manner that is consistent with their beliefs about themselves. Following from this standpoint, it is possible that youth who lack confidence in their ability to succeed could garner additional opportunities to confirm these beliefs as they participate in additional camp activities. For campers who begin camp low in agency, perceptions of unsuccessful participation in camp activities could be especially salient because campers can observe other youth with chronic illnesses participating successfully.

This study had several strengths. First, our sample was diverse in campers' race, ethnicity, and socioeconomic status. Participant diversity increases generalizability of study findings. Campers also had a variety of medical diagnoses, making this study a unique contribution to literature that evaluates chronic illness summer camps. This study evaluated the role of campers' participation in optional camp activities in predicting changes in psychosocial functioning, allowing us to begin dismantling our summer camp program to determine whether optional camp activities predict additional change. Also, the camp in this study was comparable in duration (Pulgaron et al., 2010), to numerous other pediatric illness camps that have been associated with campers' improved psychosocial adjustment in previous studies, allowing for generalizability.

As with all studies, this study also had some limitations. We did not collect follow-up data after camp, so we cannot ascertain whether camp experiences were related to changes over time or if changes in hope persisted over time. Most of our campers had previously attended camp, so we were unable to consider prior camp attendance as a moderator. Further analyses can help to determine if repeat-camp attendance changed perceptions and responses and future studies should evaluate this variable. We also did not compare campers to a control group of children with chronic illness, so we cannot be sure that changes in beliefs are not the result of normal maturation. Internal consistency of the CHS subscales decreased from good to adequate from pre- to post-camp. Camp components may have targeted some components of the hope subscales more than others. Finally, we used only campers' self-reports to assess camper changes, which limited the scope of this study to campers' beliefs and attitudes instead of to objective, observable behaviors.

An important next step in dismantling active components of summer camps is conducting studies to determine which camp activities are most associated with psychosocial improvements. Of particular importance will be studies comparing outcomes for illness specific and illness non-specific summer camps that have identical curriculums. If the moderating role of pre-camp perceptions of hope agency is replicated in future studies, work is needed to improve outcomes for youth who begin camp low in hope about the future. Research is also needed to determine whether extending camp length or engaging in explicit discussions about generalizing camp skills to other contexts could improve campers' perceptions of illness benefit and burden. One reason campers' participation in optional activities did not moderate changes in attitudes about illness could be that number of activities does not account for campers' investment in individual activities. Even campers who participated in a small number of activities may have chosen to engage in those activities for longer durations or in greater depth than campers who engaged in many optional activities during camp. Future studies should evaluate the degree to which campers' investment in or enjoyment of camp activities predicts changes in psychosocial functioning. Future studies should also systematically evaluate whether specific components of camp (e.g., sharing cabins with other campers) or improved perceptions of social support, task mastery, and perceptions of autonomy mediate changes in psychosocial functioning. To that end, youth in our study were placed in camp cabins based on age and irrespective of camper diagnosis. Future studies should evaluate whether placing youth in cabins with campers who have similar diagnoses is related to more positive social experiences or a greater sense of mastery over camp activities. Finally, future studies should compare outcomes for youth who attend illness non-specific camps to youth who attend illness-specific camps or no camp at all.

This study provides an important increment to extant literature by systematically evaluating a summer camp designed for youth with chronic illnesses. Our findings contrast previous findings and suggest future research is needed to determine whether youth can benefit from attending non-specific illness camps and to identify camp components that are necessary to effect change. Given restricted fiscal resources, time, and volunteer commitments, many agencies may find implementing a single summer camp for youth with a variety of illnesses more feasible than administrating separate camps for different disease populations. However, non-specific illness camps must be predicated on an understanding of program efficacy and specific mechanisms of change. Further studies are needed to continue evaluating whether summer camps for youth with a variety of illnesses meet their stated goals.

Practice Implications

Our study provides implications for possible outcomes associated with attendance at a summer camp designed for youth with chronic illness. Findings indicate a contrast from previous research of summer camps designed for youth with other chronic illnesses suggesting that attending an illness-specific summer camp is related to positive psychosocial changes (Meltzer & Rourke, 2005; Packman et al., 2005; Sidhu et al., 2006; Pulgaron et al., 2010; Shepanski et al., 2005; Woods et al., 2013; Wu et al., 2011). The results of this study found no overall changes in campers' hope, attitude toward illness, or perceptions of illness benefit or burden. Future investigations are warranted to determine whether youth can benefit from attending non-specific illness camps and to identify camp components that are necessary to effect change.

Acknowledgments

We would like to thank The Cavett Kids Foundation for permission and facilitation of this project during camp, particularly Rev. Danny Cavett, Jenny Rodgers Stewart, Todd Bridgewater, and Ashley Simpson. We also thank all of the campers, families, and camp volunteers for their roles in completing this project.

Declarations of Interests

None.

References

Austin, J. K., & Huberty, T. J. (1993). Development of the child attitude toward illness scale. *Journal of Pediatric Psychology*, *18*(4), 467–480. https://doi.org/10.1093/jpepsy/18.4.467.

Beacham, B. L., & Deatrick, J. A. (2013). Health care autonomy in children with chronic conditions: Implications for self-care and family management. *Nursing Clinics of North America*, *48*(2), 305–317. https://doi.org/10.1016/j.cnur.2013.01.010.

Békési, A., Török, S., Kökönyei, G., Bokrétás, I., Szentes, A., & Telepóczki, G. (2011). Health-related quality of life changes of children and adolescents with chronic disease after participation in therapeutic recreation camping program. *Health and Quality of Life Outcomes*, *9*(1), 43.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). New York, USA: Psychology Press9780805802832.

Currier, J. M., Hermes, S., & Phipps, S. (2009). Children's response to serious illness: Perceptions of benefit and burden in a pediatric cancer population. *Journal of Pediatric Psychology*, *34*(10), 1129–1134. https://doi.org/10.1093/jpepsy/jsp021.

Epstein, I., Stinson, J., & Stevens, B. (2005). The effects of camp on health-related quality of life in children with chronic illnesses: A review of the literature. *Journal of Pediatric Oncology Nursing*, *22*, 89–103.

Holmbeck, G. N. (2002). Post-hoc probing of significant moderational and mediational effects in studies of pediatric populations. *Journal of Pediatric Psychology*, *27*(1), 87–96. https://doi.org/10.1093/jpepsy/27.1.87.

Hullmann, S. E., Wolfe-Christensen, C., Ryan, J. L., Fedele, D. A., Rambo, P. L., Chaney, J. M., & Mullins, L. L. (2010). Parental overprotection, perceived child vulnerability, and parenting stress: A cross-illness comparison. *Journal of Clinical Psychology in Medical Settings*, *17*(4), 357–365. https://doi.org/10.1007/s10880-010-9213-4.

Hunter, H., Rosnov, D., Koontz, D., & Roberts, M. (2006). Camping programs for children with chronic illness as a modality for recreation, treatment, and evaluation: An example of a mission-based program evaluation of a diabetes camp. *Journal of Clinical Psychology in Medical Settings*, *13*, 67–80. https://doi.org/10.1007/s10880-005-9006-3.

Iobst, E. A., Nabors, L. A., Brunner, H. I., & Precht, B. (2007). Pain, fatigue, family functioning, and attitude toward illness in children with juvenile rheumatic diseases. *Journal of Developmental and Physical Disabilities*, *19*(2), 135–144. https://doi.org/10.1007/s10882-006-9028-2.

Jamison, R. N., Lewis, S., & Burish, T. G. (1986). Cooperation with treatment in adolescent cancer patients. *Journal of Adolescent Health Care*, *7*(3), 162–167. https://doi.org/10.1016/S0197-0070(86)80032-8.

Judd, C. M., Kenny, D. A., & McClelland, G. H. (2001). Estimating and testing mediation and moderation in within-participant designs. *Psychological Methods*, *6*, 115–134. https://doi.org/10.1037/1082-989X.6.2.115.

Judson, L. (2004). Global childhood chronic illness. *Nursing Administration Quarterly*, *28*, 60–66.

Kiernan, G., Gormley, M., & MacLachlan, M. (2004). Outcomes associated with participation in a therapeutic recreation camping programme for children from 15 European countries: Data from the 'Barretstown Studies'. *Social Science & Medicine*, *59*(5), 903–913.

LeBovidge, J., Lavigne, J. V., & Miller, M. L. (2005). Adjustment to chronic arthritis of childhood: The roles of illness-related stress and attitude toward illness. *Journal of Pediatric Psychology*, *30*(3), 273–286. https://doi.org/10.1093/jpepsy/jsi037.

Lewis, H. A., & Kliewer, W. (1996). Hope, coping, and adjustment among children with sickle cell disease: Tests of mediator and moderator models. *Journal of Pediatric Psychology*, *21*(1), 25–41. https://doi.org/10.1093/jpepsy/21.1.25.

Maikranz, J. M., Steele, R. G., Dreyer, M. L., Stratman, A. C., & Bovaird, J. A. (2007). The relationship of hope and illness-related uncertainty to emotional adjustment and adherence among pediatric renal and liver transplant recipients. *Journal of Pediatric Psychology*, *32*(5), 571–581. https://doi.org/10.1093/jpepsy/jsl046.

Maslow, G. R., & Lobato, D. (2009). Diabetes summer camps: History, safety, and outcomes. *Pediatric Diabetes*, *10*, 278–288. https://doi.org/10.1111/j.1399-5448.2008.00467.x.

Meltzer, L. J., & Rourke, M. T. (2005). Oncology summer camp: Benefits of social comparison. *Children's Health Care*, *34*(4), 305–314. https://doi.org/10.1207/s15326888chc3404_5.

Moola, F. J., Faulkner, G. J., White, L., & Kirsh, J. A. (2014). The psychological and social impact of camp for children with chronic illnesses: A systematic review update. *Child: Care, Health and Development*, *40*(5), 615–631. https://doi.org/10.1111/cch.12114.

Nicholas, D. B., Williams, M., & MacLusky, I. B. (2009). Evaluating group work within a summer camp intervention for children and adolescents with asthma. *Social Work With Groups: A Journal Of Community And Clinical Practice*, *32*(3), 209–221. https://doi.org/10.1080/01609510802527425.

Packman, W., Greenhalgh, J., Chesterman, B., Shaffer, T., Fine, J., VanZutphen, K., ... Amylon, M. D. (2005). Siblings of pediatric cancer patients: The quantitative and qualitative nature of quality of life. *Journal of Psychosocial Oncology*, *23*(1), 87–108. https://doi.org/10.1300/J077v23n01_06.

Plante, W. A., Lobato, D., & Engel, R. (2001). Review of group interventions for pediatric chronic conditions. *Journal of Pediatric Psychology*, *26*(7), 435–453. https://doi.org/10.1093/jpepsy/26.7.435.

Pulgaron, E. R., Salamon, K. S., Patterson, C. A., & Barakat, L. P. (2010). A problem-solving intervention for children with persistent asthma: A pilot of a randomized trial at a pediatric summer camp. *Journal of Asthma*, *47*(9), 1031–1039.

Ramsey, R. R., Bonner, M. S., Ryan, J. L., Mullins, L. L., & Chaney, J. M. (2013). A prospective examination of attitudes toward illness and depressive symptoms in youth with juvenile rheumatic diseases. *Journal of Developmental and Physical Disabilities*, *25*(2), 171–180. https://doi.org/10.1007/s10882-012-9294-0.

Ramsey, R. R., Ryan, J. L., Fedele, D. A., Mullins, L. L., Chaney, J. M., & Wagnerd, J. L. (2016). Child attitude toward illness scale (CATIS): A systematic review of the literature. *Epilepsy & Behavior*, *59*, 64–72. https://doi.org/10.1016/j.yebeh.2016.03.026.

Rimmer, R. B., Fornaciari, G. M., Foster, K. N., Bay, C. R., Wadsworth, M. M., Wood, M., et al. (2007). Impact of a pediatric residential burn camp experience on burn survivirs' perceptions of self and attitudes regarding the camp community. *Journal of Burn Care & Research*, *28*, 334–341.

Sawin, K. J., Lannon, S. L., & Austin, J. K. (2001). Camp experiences and attitudes toward epilepsy: A pilot study. *Journal of Neuroscience Nursing*, *33*(1).

Shepanski, M. A., Hurd, L. B., Culton, K., Markowitz, J. E., Mamula, P., & Baldassano, R. N. (2005). Health-related quality of life improves in children and adolescents with inflammatory bowel disease after attending a camp sponsored by the Crohn's and Colitis Foundation of America. *Inflammatory Bowel Diseases*, *11*(2), 164–170. https://doi.org/10.1097/00054725-200502000-00010.

Shore, C. P., Buelow, J. M., Austin, J. K., & Johnson, C. S. (2009). Continuing psychosocial care needs in children with new-onset epilepsy and their parents. *Journal of Neuroscience Nursing*, *41*(5), 244–250. https://doi.org/10.1097/JNN.0b013e3181b2c721.

Sidhu, R., Passmore, A., & Baker, D. (2006). The effectiveness of a peer support camp for siblings of children with cancer. *Pediatric Blood & Cancer*, *47*(5), 580–588. https://doi.org/10.1002/pbc.20653.

Snyder, C. R. (1995). Conceptualizing, measuring, and nurturing hope. *Journal of Counseling and Development*, *73*, 355–360.

Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T., ... Harney, P. (1991). The will and the ways: Development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology*, *60*(4), 570–585. https://doi.org/10.1037/0022-3514.60.4.570.

Snyder, C. R., Hoza, B., Pelham, W. E., Rapoff, M., Ware, L., Danovsky, M., ... Stahl, K. J. (1997). The development and validation of the Children's Hope scale. *Journal of Pediatric Psychology*, *22*(3), 399–421. https://doi.org/10.1093/jpepsy/22.3.399.

Swann, W. J. (2012). Self-verification theory. In P. M. Van Lange, A. W. Kruglanski, E. T. Higgins, P. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology. Vol. 2.* (pp. 23–42). Thousand Oaks, CA: Sage Publications Ltd. https://doi.org/10.4135/9781446249222.n27.

van der Lee, J. H., Mokkink, L. B., Grootenhuis, M. A., Heymans, H. S., & Offringa, M. (2007). Definitions and measurement of chronic health conditions in childhood: A systematic review. *JAMA: Journal Of The American Medical Association*, *297*(24), 2741–2751. https://doi.org/10.1001/jama.297.24.2741.

Walker, D. A., & Pearman, D. (2009). Therapeutic recreation camps: An effective intervention for children and young people with chronic illness? *Archives of Disease in Childhood*, *94*, 401–406. https://doi.org/10.1136/adc.2008.145631.

Warady, B. A., Carr, B., Hellerstein, S., & Alon, U. (1992). Residential summer camp for children with end-stage renal disease. *Child Nephrology and Urology*, *12*(4), 212–215.

Woods, K., Mayes, S., Bartley, E., Fedele, D., & Ryan, J. (2013). An evaluation of psychosocial outcomes for children and adolescents attending a summer camp for youth with chronic illness. *Children's Health Care*, *42*(1), 85–98. https://doi.org/10.1080/02739615.2013.753822.

Wu, Y. P., Prout, K., Roberts, M. C., Parikshak, S., & Amylon, M. D. (2011). Assessing experiences of children who attended a camp for children with cancer and their siblings: A preliminary study. *Child & Youth Care Forum*, *40*(2), 121–133. https://doi.org/10.1007/s10566-010-9123-5.

Zashikhina, A. A., & Hagglof, B. B. (2007). Mental health in adolescents with chronic physical illness versus controls in Northern Russia. *Acta Paediatrica*, *96*(6), 890–896. https://doi.org/10.1111/j.1651-2227.2007.00277.x.

Zirui, S., & Lee, T. H. (2013). The era of delivery system reform begins. *Journal of the American Medical Association*, *309*(1), 35–36. https://doi.org/10.1001/jama.2012.96870.