



“A place to call our own”: The impact of camp experiences on the psychosocial wellbeing of children and youth affected by cancer – A narrative review



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ABSTRACT

Background: Although childhood cancer mortality rates are decreasing, intensive treatment modalities and missed school days may leave childhood cancer patients psychologically and socially vulnerable. Children with cancer often have increased anxiety, lower levels of self-esteem, and higher rates of depression, all of which may impair their psychosocial wellbeing. Specialized camps for children with cancer are becoming increasingly popular, as they provide a stress-free, outdoor environment in which children are able to interact with individuals similar to themselves, while experiencing the joys of a “normal childhood.”

Objective: The aim of this review was to explore how camp participation impacts the psychosocial wellbeing of childhood cancer patients and survivors.

Methods: Six databases (MEDLINE, PsychINFO, EMBASE, CINHALL, Sociological Abstracts, Social Sciences Citation Index) were systematically searched for English literature published between 2007 and 2018. The search generated 1707 titles, and after being evaluated for relevance, 18 articles met the inclusion criteria. A thematic analysis was conducted.

Results: A variety of camp programs and methodologies were employed among the studies. Camp participation led to improved social health, followed by enhanced constructions of the self, quality of life, sense of normalcy, and attitude.

Conclusion: This review demonstrates the potential ability of camp to buffer psychosocial losses for children affected by cancer. Addressing limitations, such as the lack of child-centered methodologies employed in camp settings, may not only help to guide future research on therapeutic recreation experiences for children with cancer, but also expand the evidence base for children living with other chronic illnesses and disabilities.

1. Introduction

In terms of chronic childhood diseases, childhood cancer is relatively rare, accounting for less than one percent of all new cancer diagnoses in Canada [1]. Between 1992 and 2010, the rate of childhood cancer mortality decreased by an average of two percent per year [41] (Statistics Canada, 2015), a phenomenon likely explained by significant medical advancements over the past couple of decades [2]. Despite these improvements, aggressive forms of treatment associated with higher survival rates can have both short-term and long-term effects on

a child's psychosocial wellbeing [3]. Childhood cancer treatments include but are not limited to, chemotherapy, radiation, surgery, and/or stem cell/bone marrow transplants, all of which can be intensive and a severe source of stress for children [4,5].

As childhood cancer patients make the transition from patient to survivor, they are even more psychologically vulnerable and may experience a feeling of “being in limbo” as they try to regain a sense of normalcy [6,7]. Specifically, children may be fearful of cancer recurrence, may feel abandoned by pediatric health-care professionals who provided care during their treatment, and may experience social

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challenges when attempting to reintegrate into their school and peer groups [2,7]. Other negative psychosocial outcomes include post-traumatic stress disorders, lower psychological wellbeing, higher levels of anxiety and depression, reduced liveliness, positive mood, and self-esteem, and the presence of problematic behaviours [2,8].

Children with cancer often miss out on important opportunities to “just be a kid” and may fall behind in their social skills due to missed school days, resulting from time spent at medical appointments or at home due to neutropenia or a disability [9]. Various programs and interventions, often run by health-care professionals or community support organizations, have been developed to help children and their families to better cope with the different stages of a cancer diagnosis [4,10]. Although social support from parents, friends, family members, and health-care professionals is essential for children with cancer, research has shown that support from individuals who have shared similar cancer experiences may be especially meaningful [10,11].

One therapeutic approach which continues to gain popularity is specialized summer camps for children and youth with cancer [9]. These camps allow childhood cancer patients and survivors to interact with and relate to individuals who are similar to themselves, while experiencing the joys typically associated with childhood. Camps are usually located in an outdoor or wilderness setting and tend to operate during the summer months. These serene settings intend to allow children with cancer to escape from physical and mental stressors at home, at school, or at the hospital, stressors which may be directly or indirectly related to their diagnosis and treatment [9]. Every camp operates in a slightly different fashion, offering a unique combination of activities and varying lengths of stay. Residential-type summer camps are common in North America, during which children stay overnight in a cabin or a tent with other campers, usually for a one or two-week period [9]. Although some camps may have specific goals and instrumental outcomes in mind, such as increasing campers' disease-related knowledge or improving campers' self-esteem, most camps aim to meet children's medical needs and improve their psychosocial wellbeing, while normalizing their experience with cancer in a fun, stress-free environment [11].

To our knowledge, thus far, no narrative reviews have been conducted that exclusively explore how camp participation impacts the psychosocial wellbeing of children affected by cancer. A previously published systematic review summarized the literature on therapeutic recreation and camps for children with cancer and their families between 2001 and 2013. However, this research team focused on both physical and psychosocial health outcomes and used a systematic synthesis approach that included a grading of research quality [3]. In contrast, because findings presented in narrative reviews are typically preserved in their original form, are not subject to analysis, and research quality is not graded [12], it was critical to conduct a narrative review for several important reasons. Narrative reviews are generally considered to be more inclusive of broad research evidence types and we did not want to limit our findings or our search by imposing strict definitions on psychological or sociological factors [13]. Given that the articles in this review present a variety of methodologies and aspects of psychosocial health, a narrative synthesis of the data was deemed more suitable than a meta-analysis [14]. In addition, narrative reviews draw on quantitative and qualitative data and typically include a thematic analysis, which allowed us to incorporate important and recurring themes from the literature [12]. Although Martiniuk et al.'s [3] systematic review has been critical to advancing this field, we believe that a narrative review focused specifically on dimensions of psychosocial health is imperative to better understanding the impact of camp. Thus, utilizing literature from the past decade (2007–2018), the aim of the current review was to explore the impact of camp experiences on the psychosocial wellbeing of children and youth affected by cancer.

2. Methods

2.1. Developing the research question

In order to determine the proposed research question, several question variations were explored prior to the start of this review. After consensus building sessions with the hospital librarian, the following research question was determined: How do camp experiences impact the psychosocial wellbeing of children and youth who have been affected by cancer? This question was selected because it was broad and inclusive of studies that might not have been associated with statistically significant results or enhanced health outcomes.

2.2. Overview of search strategy

A search strategy was developed to find relevant peer-reviewed literature on the topic of camp programs for childhood cancer patients and survivors. After attending workshops on literature reviews and meeting with an academic librarian, a search strategy was developed. Specific search terms and keywords were determined. Some of these included: cancer, oncology, camping, camp program, therapeutic recreation, children, pediatric, and accompanying synonyms. Keywords were used to create search strings, which covered the main concepts relating to the subject. The search strategy was revised three times based on feedback from the research team. A finalized search strategy, which included a total of 34 search strings, was used to perform the search. Searching techniques included the use of Boolean terms “AND/OR” to combine keywords, as well as database codes including truncation (*), wildcards (?), and the adjacency (adj or N or NEAR) function. Interested readers should contact the first author for more detail on the search strategy.

The following six electronic databases were accessed through the University of Toronto libraries webpage: MEDLINE, PsycINFO, EMBASE, CINAHL, Social Sciences Citation Index, and Sociological Abstracts. The search was limited to studies published in English between January 1st, 2007 and December 31st, 2018. After these inclusion criteria were applied, each search was saved within its respective online database. The articles generated by each database were exported to *EndNote X8* for Mac, where six different EndNote folders were generated for each of the six databases.

2.3. Screening and selecting relevant articles

The search yielded a total of 1707 titles (Fig. 1). Duplicate articles were removed using the duplicate function in EndNote, followed by manually screening the library for any remaining duplicates. The remaining 1369 titles were scanned by title and abstract to determine their admissibility. The following pre-determined inclusion criteria [15] were applied to the articles to screen for eligibility: peer-reviewed publication; the study's population included cancer patients and/or survivors 21 years of age and younger of all cancer types and treatment statuses; and a cancer camp was described regardless of whether a formal intervention was employed. Articles that did not meet all of the inclusion criteria were discarded. Titles linked to conference abstracts but incomplete papers – and those that did not have a full-text option available – were excluded.

Upon completion of the initial screening, the remaining 111 articles were assessed by full-text. Articles that employed both qualitative and quantitative methods to assess a child's psychosocial wellbeing were included. Disagreements regarding ambivalent articles were dealt with by carefully reviewing the inclusion criteria again and developing a consensus among the research team. For example, articles that exclusively explored camps for children with cancer were included, whereas articles that discussed camps for children with cancer and camps for children with other illnesses or disabilities were excluded.

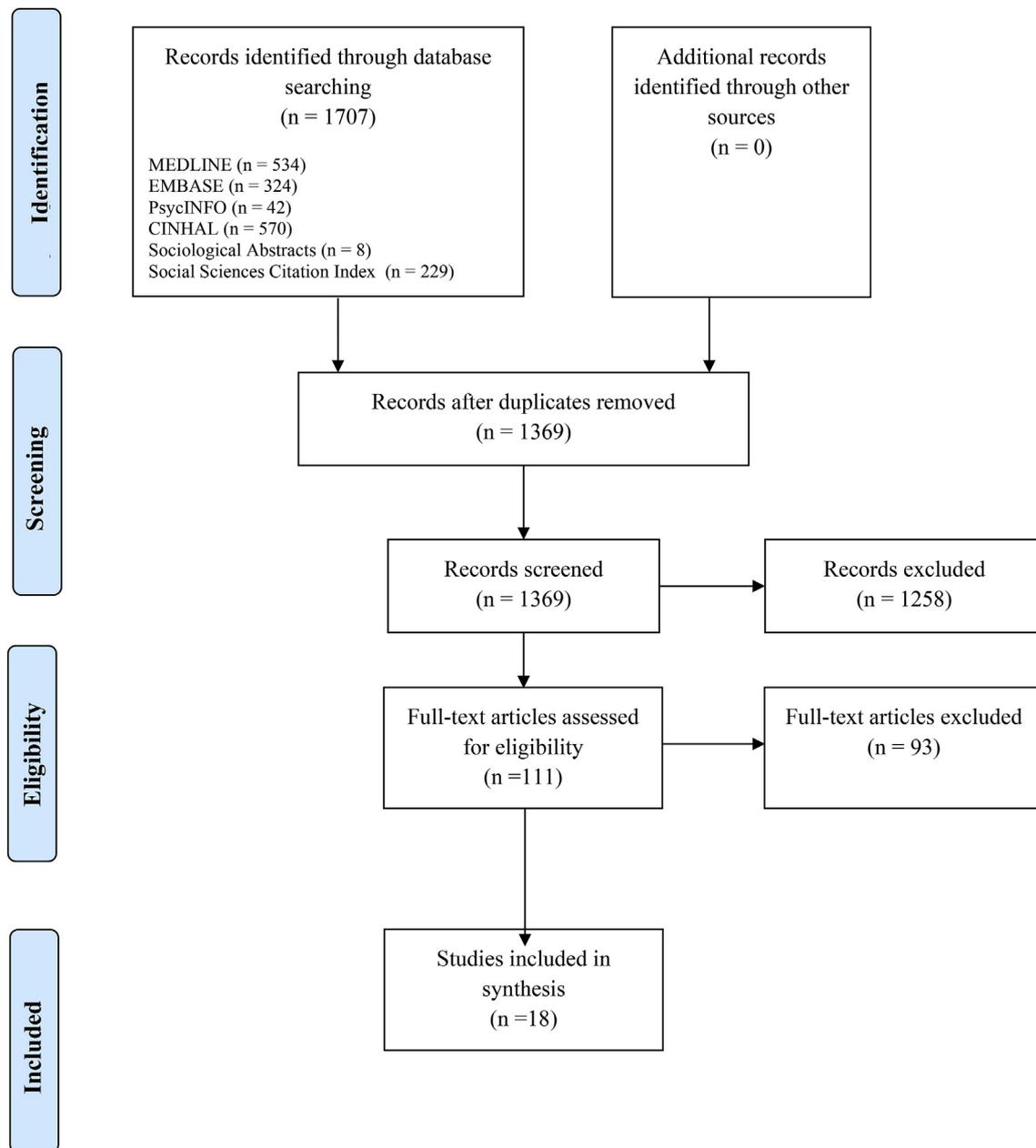


Fig. 1. PRISMA flow diagram detailing the systematic search procedure.

2.4. Data analysis

A chart was created to summarize the data and display the main findings from the final set of 18 articles. This process was used to collect the appropriate data on author, year of publication, country of study, cancer diagnoses, participant demographics, camp types, study design, outcome measures and tools, and key findings (Table 1). A thematic analysis was then conducted, which allowed us to generate specific themes. The analysis was completed using a chart that included author names and article titles in the left-most column and 20 sub-themes across the top row. The sub-themes were generated after reading each article in depth and using the article's methods and results sections to extract the main psychosocial outcomes and findings. Each article was marked based on which of the sub-themes it encompassed, with each article comprising between one and seven sub-themes. The 20 sub-themes were grouped together based on similarities and consolidated into six major themes that effectively represented the overall findings (Table 2). The first and last author engaged in the thematic analysis

process together in order to generate a consensus.

3. Results

This narrative review aimed to determine the impact of camp experiences on the psychosocial wellbeing of children with cancer and childhood cancer survivors. After systematically screening and reviewing 1707 titles, a final pool of 18 articles was deemed eligible (Fig. 1).

3.1. Study designs

A variety of methods and research designs were employed in the 18 studies with some researchers using qualitative approaches, quantitative approaches, or a combination of both. Of the 18 articles included in this review, two were considered philosophical hermeneutic qualitative designs, four were reviews of the literature, four employed quantitative post-camp evaluations, and two utilized a combined qualitative-

Table 1
Review of camp programs between 2007 and 2018 and their effects on the psychosocial wellbeing of children and youth affected by cancer.

Author (Year)	Country	Cancer Type(s) Reported	Participants (n)	Overview of Camp	Study Design	Outcome Measures & Variables	Key Findings
[16]	Canada	Acute lymphoblastic leukemia Acute myeloid leukemia Central nervous system tumours Neuroblastoma Wilms tumour (nephroblastoma) Rhabdomyosarcoma Osteosarcoma Ewing sarcoma Malignant germ cell tumour Retinoblastoma Hodgkin lymphoma Non-Hodgkin lymphoma	Campers with cancer: did not report n 6–18 years old 36.7% female 63.3% male	Camp Trillium Family camp Duration: 2–14 days Programming: not described	Historical cohort analytic design	<i>McMaster Family Assessment Device</i> : family functioning <i>Health Utilities Index</i> : patient HRQoL <i>NSLCY Child's Questionnaire</i> : children's behaviour and relationships, parental nurturance, rejection, and monitoring (child-reported) <i>NLSY Parent Questionnaire and Indices of Coping Instrument</i> : parental behaviour, change in mood, and social support <i>Health and Social Service Utilization Inventory</i> : family health and social service use inventory	Child attendees with cancer reported significantly lower parental rejection scores and a greater burden of pain. Child attendees reported more hyperactivity/inattention, prosocial behaviour, and anxiety/emotional disorder, but less conduct disorder/physical aggression, and property offence behaviour
[17]	Review conducted in the United States	Did not report on specific cancer types	Included studies on children and adolescents with cancer	Names of camps not provided Day and residential camps Duration: not provided Programming: not described	Review	Youth development outcomes including self-constructs, social relationship outcomes, skill-building outcomes, and spiritual outcomes <i>American Camp Association's</i> measurement of development outcomes at camps	Camps for children with chronic diseases tend to be segregated with a focus on treatment outcomes or inclusive with a focus on positive development outcomes. Adolescents at an oncology summer camp felt closer to camp peers than home peers. Children at camp experience significant improvement in attitudes toward illness and decreases in trait anxiety.
[18]	The United States	Did not report on specific cancer types	Campers with cancer: n = 65 8–18 years old 54% female 46% male	Camp Okizu Residential camp Duration: 1 week Programming: swimming, fishing, archery, arts & crafts, ropes courses, support programs for cancer-related issues Camp Heart Connection Residential camp Duration: 1 week Programming: archery, riflery, horseback riding, arts & crafts, field games, karaoke, dance, movie night, camp fire	Post-camp evaluations (quantitative)	<i>Pediatric Quality of Life Inventory</i> : children's QoL (child-reported; parent-reported) <i>Child Attitude Toward Illness Scale</i> : children's attitudes toward illness <i>Sibling Perception of Illness Questionnaire</i> : sibling's perception of illness <i>Child Behavior Checklist (CBCL)</i> : children's behavioural and emotional problems (parent-reported) <i>Survey of Children's Social Support (SAB)</i> : children's social support (child-reported)	Children with cancer demonstrated statistically significant relationship between attitudes toward illness and both self- and parent-reported psychosocial quality of life. Female campers reported more support than male campers; significantly more for emotional/informational support. Female and male campers reported receiving significantly more support within camp setting than other children in their general lives. Behavioural/emotional problems were not significantly correlated with social support scores.
[19]	The United States	Did not report on specific cancer types	Campers with cancer: n = 29 8–18 years old Male and female percentages not reported	Camp Little Red Door Duration: 1 week (3 additional days for older campers) Programming: memory garden, balloon launch to remember peers who passed away, hair-cutting ceremony, cabin time, family style meals, ropes course, cooking, swimming	Sequential embedded mixed-methods Pre- and post-evaluations (quantitative and qualitative)	<i>12-item psychometric assessment</i> : children's independence, social skills, and self-esteem <i>Phenomenological interviews</i> : children's recollections of the camp experience (qualitative)	Children reported improvement in independence, social skills, and significant improvement in self-esteem between pretest and posttest scores. Qualitative findings categorized into 4 themes: positive recollection of camp experience, memories of specific activities, a sense of normalcy, and

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Table 1 (continued)

Author (Year)	Country	Cancer Type(s) Reported	Participants (n)	Overview of Camp	Study Design	Outcome Measures & Variables	Key Findings
[11]	The United States	Did not report on specific cancer types	Campers with cancer: n = 22 8–14 years old Male and female percentages not reported	Name not provided Residential camp Duration: 1 week Programming: swimming, horseback riding, team sports, ropes course, camp fires, arts & crafts, carnivals, cooking, tubing, Olympic day, Spa day	Explanatory case study framework	Semi-structured interview: children's recollections of the camp experience, friendships, and how they dealt with their cancer at camp (qualitative) Unstructured, informal observation of cabin and activity areas (by researcher) Focus group: outcomes of camp for children (camper and counsellor-reported)	strong response to camp being a positive community. Qualitative themes on campers' positive developmental experiences: increased positive attitudes (sociability, perseverance, confidence) and respite (experiencing freedom, finding a balance between "just being a kid" and managing difficult cancer issues). Qualitative themes on program features: full accommodation (integrated and accessible facilities/activities, opportunities to be physically active) and intentional programming ("a habitat of fun," proximity to similar others, engaging activities, caring relationships, opportunities to maintain connection s). Participation in camping programs led to: 1) significant improvement in self-perception, moods and emotions, quality of interaction with parents, physical and psychological wellbeing, as well as practical, personal, and culture-related skills 2) significant reductions in negative mood, interpersonal problems, and depression 3) significant and positive improvements in HRQoL. Qualitative findings categorized into themes: general sense of community, camp as a safe place to be, interaction and awareness of others, some families of childhood cancer do not like or do not feel that they belong at camp. Qualitative findings categorized into themes: the healing and developmental power of play, finding acceptance, understanding grief differently, storytelling as a means of understanding traumatic experiences, a sense of community creating healing bonds. Statistically significant main effects for time, indicating a change in cancer-related fatigue, self-efficacy and QoL over time. These changes differed significantly compared to individuals in the control group. Experimental groups reported significantly lower levels of cancer-related fatigue, higher levels of self-efficacy, and better QoL than control group during follow-up. Camp helps children with cancer and siblings enhance physical and emotional skills including self-esteem. Camp can improve HRQoL scores, self-competency,
[20]	Review conducted in the United States	All cancer diagnoses included	Included studies on children 6–18 years old with a cancer diagnosis	6 camps: names not provided Duration of camps: 2–14 days Programming at included camps: creative and outdoor camping activities, horseback riding, arts & crafts, themed and special events, bonfires, water activities, archery, talent shows, cooking, high and low ropes course, team games and sports	Review	Outcomes of camp participation	
[21]	Canada	Wilms tumour Leukemia Brain tumour	Campers with cancer: n = 5 7–12 years old Male and female percentages not reported	Kids Cancer Care Foundation: Camp Kindle Duration: not provided Programming: not described	Philosophical hermeneutic study Post-evaluation (qualitative)	Semi-structured interview: community surrounding children's cancer camps (qualitative; parent and child-reported) Observation of camp on several occasions (by researcher)	
[22]	Canada	Wilms tumour Leukemia Brain tumour	Campers with cancer: n = 5 7–12 years old Male and female percentages not reported	Kids Cancer Care Foundation: Camp Kindle Duration: not provided Programming: not described	Philosophical hermeneutic study Post-evaluation (qualitative)	Semi-structured interview: meaning of camp for children, their families, and the counsellors (qualitative; parent, child, and counsellor reported)	
[23]	China	Leukemia Lymphoma Brain tumour Bone tumour Neuroblastoma	Campers surviving cancer (completed treatment 6 months prior to study): n = 103 9–16 years 46.6% female 53.4% male	Adventure-based training program Duration: 4 days Programming: ice-breaking, team-building games, shuttle runs, rock climbing, high and low-level ropes course, descending	Prospective randomized control trial 2-group pre-test and repeated post-test between-subject design	Chinese Version FS-C: fatigue Chinese University of Hong Kong Physical Activity Rating for Children and Youth: participant's physical activity Physical Activity Self-Efficacy Scale: participant's self-efficacy Pediatric Quality of Life Inventory: participant's QoL	
[3]	Review conducted in Australia	All cancer diagnoses included	Included studies on children and youth with cancer less than 21 years	Names of camps not provided Duration: not provided Programming: not described	Review	Findings on childhood cancer camp research between 2001 and 2013	

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Table 1 (continued)

Author (Year)	Country	Cancer Type(s) Reported	Participants (n)	Overview of Camp	Study Design	Outcome Measures & Variables	Key Findings
[3]	Canada and the United States	Did not report on specific cancer types	<p>of age and/or their families</p> <p>Campers with cancer: n = 518 8–19 years old 32% males 27% females 59% did not record gender</p>	<p>4 camps: Camp Rising Sun Mississippi, Camp Goodtimes British Columbia, Camp Smile-a-Mile Alabama, Camp Okizu California Duration: not provided Programming: not described</p>	<p>Cross-sectional Post-camp evaluation</p>	<p><i>Demographics Survey</i>: overall enjoyment of camp experience <i>ACA Learning Questionnaire</i>: younger camper's (6–9 years) learning at camp <i>ACA Friendship Questionnaire</i>: older camper's (10–19 years) friendship at camp</p>	<p>and reduce anxiety. Some studies reported no improvements in campers' self-concept, depression symptoms, and self-competency immediately following camp. Campers pleased with camp experience overall (average score: 9.58/10). More than half of younger campers reported learning a lot from camp on all questions on the learning questionnaire. Responses on friendship questionnaire were strongly skewed toward the more positive responses. Extensive body of literature on the influence of nature, in particular camp experiences, on childhood cancer survivors and their families. Few studies have explored beyond program evaluation and participants' experiences. Few studies on implicit measures of HRQoL and wellbeing. Themes of Camp Dream Street included: a chance to be a kid, getting to be just like everyone else, and helping older campers deal with age-related issues including anger, family dynamics, self-image and peer pressure.</p>
[24]	Review conducted in Canada	Did not report on specific cancer types	Included child and adolescent cancer survivors	<p>Names of camps: not provided Duration: not provided Programming: not described</p>	Narrative review	<p>Experiences with nature-based programs and adventure therapy</p>	
[25]	The United States	Did not report on specific cancer types	<p>Campers with cancer: did not report n 4–21 years old Male and female percentages not reported</p>	<p>Camp Dream Street Day camps and sleep-away camps Duration: 1 week Programming: arts and crafts, swimming, horseback riding, dog shows, carnivals, acrobatic performances, barbecues, dances</p>	Narrative article	<p>No variables or outcomes measured</p>	
[26]	The United States and Canada	Did not report on specific cancer types	<p>Campers with cancer: n = 1230 6–18 years 52.6% females 47.4% male</p>	<p>19 camps: names not provided Duration: 6 or 7 days Programming: not described</p>	<p>Multi-camp study Post-evaluation (quantitative)</p>	<p><i>Pediatric Camp Outcome Measure (PCOM)</i>: children's perceptions of their camp experience including self-esteem, emotional, social, and physical functioning</p>	<p>Children with cancer scored significantly higher on emotional functioning and self-esteem compared to siblings. Older age and number of years attending camp was significantly associated with higher levels of social and emotional functioning, self-esteem, and total scores. First-time campers and campers on treatment had significantly lower PCOM scores. CAPSS measured children's perceptions of social support about cancer-related and non-cancer related issues. Oncology and sibling campers did not differentiate between perceived support from their parents or from individuals at camp on cancer-related and non-cancer related issues. CAPSS is a validated measure of perceived social support for children with cancer and their siblings. Campers were highly satisfied with camp and "liked" to "really liked" attending camp because of recreation opportunities, peer support, camp features, and respite. Parents were "satisfied" to "very satisfied" with camp</p>
[27]	The United States	Did not report on specific cancer types	<p>Children with cancer and survivors: n = 65 8–18 years 54% female 32% male</p>	<p>Residential camp in California: name not provided Duration: 1 week Programming: not described</p>	<p>Post-evaluation (quantitative)</p>	<p><i>Children's Assessment of Perceived Social Support (CAPSS)</i>: children's perceptions of social support at home and at summer camp</p>	
[28]	The United States	Did not report on specific cancer types	<p>Children with cancer: n = 56 5–18 years Male and female percentages not reported</p>	<p>Camp Okizu Residential camp Duration: 1 week Programming: swimming, fishing, archery, arts & crafts, ropes courses,</p>	<p>Post-evaluation (qualitative and quantitative)</p>	<p><i>Camp Evaluation Survey for Campers</i>: camper satisfaction with the camp experience including recreation, peer support, camp features, why they liked attending camp <i>Camp Evaluation Survey for Parents</i>: "satisfied" to "very satisfied" with camp</p>	

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Table 1 (continued)

Author (Year)	Country	Cancer Type(s) Reported	Participants (n)	Overview of Camp	Study Design	Outcome Measures & Variables	Key Findings
[29]	New Zealand	Did not report on specific cancer types	Adolescent campers with cancer: n = 5 17–21 years old 60% female 40% male	support programs for cancer-related issues LEAP Adventure therapy program Duration: 6 days Programming: hiking while carrying packs, reflection and journaling activities, shorter walks	Pre- and post-camp evaluations (quantitative and qualitative)	parent's satisfaction with recreation, respite, and camp experience, plus reasons camp was helpful <i>Open-ended questions</i> <i>14-item Resilience Scale:</i> adolescent's resiliency and opinions on group cohesion and development <i>Interview:</i> adolescent's experience of the camping journey (qualitative)	and found support, respite, and child improvements "somewhat" to "very much" reasons why camp was helpful. Qualitative findings were categorized into themes: structure of sessions, treatment of older campers, length of sessions, food, activities, services to families, and counsellor services. Increased measures of resilience (improvement in 12 of 14 resilience items). Qualitative findings categorized into themes: sense of being oneself out in the natural setting, a little bit of pride, back to reality, impact of others/group relationship.

Table 2

Thematic analysis process outlining the generation of sub-themes and major themes from the 18 articles.

Stage 1: Generation of Sub-Themes	Stage 2: Generation of Six Major Themes
1. Social support and community 2. Social functioning and skills	Social Health
3. Attitudes toward illness 4. Positive attitudes	Attitude
5. Anxiety 6. Depression 7. Mood and emotions 8. Emotional functioning and skills	Mental Health
9. Independence 10. Self-esteem 11. Self-efficacy 12. Self-perception/concept/image 13. Self-confidence 14. Self-competency 15. Being oneself	Constructions of self
16. Quality of life (QoL) and Health-related QoL (HRQoL) 17. Resilience 18. Psychological wellbeing	Dimensions of wellbeing
19. Sense of normalcy and freedom 20. Acceptance	Normalcy

quantitative approach. There was one article that utilized each of the following study designs: historical cohort, mixed-methods, case study, randomized control trial (RCT), cross-sectional, and a narrative article.

3.2. Participant demographics

All participants were children between four and 21 years of age who had attended camp and who previously or currently had cancer. Although some of the studies also collected data on parents/guardians and siblings of children with cancer [16,18,21,22,27,28,26], family members were excluded for purposes of this review.

3.3. Cancer types

The majority of the articles (n = 13) did not report on specific cancer types. Of the five articles that did, the most commonly reported cancer type was brain tumour, followed by leukemia and Wilms tumour (nephroblastoma). Other reported forms of cancer included acute lymphoblastic leukemia, acute myeloid leukemia, central nervous system tumour, neuroblastoma, rhabdomyosarcoma, osteosarcoma, Ewing sarcoma, malignant germ cell tumour, retinoblastoma, Hodgkin lymphoma, non-Hodgkin lymphoma, acute lymphoblastic lymphoma, and bone tumour.

3.4. Camp programming

The studies were conducted at a variety of summer camps located in several countries. The majority of the studies took place in the United States and Canada (n = 15) and the remaining three studies took place in China, Australia, and New Zealand, respectively. The duration of stay at the camps ranged from two to 14 days, with more than half of the studies including camps that were six to seven days in length. Many camps focused on traditional outdoor and recreational programming such as swimming, ropes and rock climbing, boating, arts and crafts, archery, and theatre performances. However, a few camps included activities specifically dedicated to a child's cancer experience, such as hair-cutting ceremonies, a memory garden, and a balloon launch for peers who had passed away [19]. Journaling [29] and general cancer-related support programs [18,28] were other cancer-specific activities that took place at these camps.

3.5. Outcome variables and tools

Several tools and measures were utilized to collect qualitative and quantitative data on the impact of camp experiences on the psychosocial wellbeing of children with cancer. Tools that measured family and/or sibling psychosocial wellbeing were not discussed in this review. Questionnaires, inventories, and surveys were most commonly used by researchers as a means of collecting quantitative data. Although many of the tools measured similar outcomes, there was little overlap in the tools used among the 18 studies. *The Pediatric Quality of Life Inventory* was the only measure employed in two different studies [18,23]. Interviews were a frequently utilized qualitative approach. Specifically, four authors reported the use of semi-structured interviews [19,21,22,29], and one study reported the use of focus groups in combination with an interview [11]. Only two studies used observation in addition to interviews as a tool for collecting data [11,21]. After analyzing the different outcomes reported by the 18 articles, six major psychosocial wellbeing themes were generated and are outlined in detail below.

Improved Social Health (n=13). Thirteen of the 18 articles measured or discussed at least one component of social health, making it the most prominent theme (Fig. 2). For the purposes of this review, social health encompassed social support, skills, interaction, functioning, and the feeling of a sense of community. One study [19] stated that children reported an improvement in social skills following a week at camp. Several studies concluded that children found camp to be a more supportive setting than their home/school environment, and one study [28] even stated that one of the reasons children “liked” or “really liked” camp was due to peer support. Conrad and Altamaier [10] compared levels of support at camp among male and female campers. The authors found that females experienced greater levels of support than males. They concluded that both female and male campers reported receiving more support at camp than children in the general population [10]. King and Porter [20] found that social support and skills extended beyond the camp setting, concluding that camp participation improved children’s quality of interaction with their parents and improved their interpersonal skills.

Improved Constructions of Self (n=7). Seven of the 18 articles explored a wide range of concepts pertaining to constructions of self, including independence, being oneself, self-esteem, self-efficacy, self-perception/concept/image, self-confidence, and self-competency. All findings demonstrated that camp had either a positive or a significantly positive effect on children’s constructions of self. Authors reported significant improvements in self-esteem [19,26], self-perception [20],

and self-efficacy [23]. Although the findings were not significant, other studies demonstrated that camp can improve independence [19], as well as enhance self-esteem, self-concept, and self-efficacy [9]. Qualitative themes including increased confidence [11] and a focus on helping children with self-image [25] were also reported.

Improved Dimensions of Wellbeing (n=6). One third of the articles explored this theme, which comprised quality of life (QoL) and health-related quality of life (HRQoL), as well as psychological wellbeing and resilience. Overall, camp experiences appeared to improve dimensions of wellbeing for children. In one study, parent-reported QoL and child-reported HRQoL were used to look at the relationship between QoL and attitudes toward illness [18]. The authors found a statistically significant positive relationship between both parent- and child-reported psychosocial QoL and children’s attitudes toward cancer [18]. QoL and HRQoL were commonly reported measures in the review articles. King and Porter [20] reported a significant improvement in HRQoL following camp, and Martiniuk et al. [9] concluded that camp has the ability to improve HRQoL. In contrast Ray and Jakubec [24], concluded that few studies measured HRQoL implicitly. Camp participation led to significant improvements in psychological wellbeing [20]. Additionally Li et al. [23], reported significant main effects for a camp intervention on QoL, with the camp group reporting better QoL at the 12-month follow up than the control group who did not attend camp. The single study that measured resiliency reported increased measures of resilience following a camp adventure-therapy program [29].

Improved Secondary Mental Health (n=4). In this review, we understand secondary mental health to be the presence of mental health sequelae associated with long-term physical conditions as outlined in the DSM-5 under Axis 111 [30]. For example, depression, anxiety, and behavioural disorders are common secondary mental health sequelae for many children living with chronic illnesses such as cancer [31]. Four of the 18 studies measured and/or reported on at least one component of mental health, with several authors reporting significant positive findings. Children experienced significant decreases in trait anxiety [17] and depression [20], as well as significant improvements in mood and emotions [20] following a camp experience. In Wu et al.’s [26] study, the patient group attending camp scored significantly higher on emotional functioning when compared to the sibling group who also attended camp. Although not significant Martiniuk et al. [3], concluded that camp has the ability to reduce anxiety for children who attend. However, camp did not have a positive impact on mental health in all cases. One study found that children attending camp reported more anxiety and emotional disorder when compared to children who had not attended camp [16].

Enhanced Perceptions of Normalcy (n=4). For the purposes of this review, normalcy is defined as finding acceptance, freedom, belonging, and a sense of being “just a regular kid” at camp. Four of the 18 articles explored at least one of these aspects of normalcy and it was a commonly reported theme among the qualitative studies. Qualitative themes included: experiencing a sense of normalcy while at camp [19]; forging a “sensus communis” – or a sense of community and belonging – at camp [21]; finding fit and acceptance at camp [22]; getting to do “normal” activities and be just like everyone else [25]; and feeling respite, which was specifically related to finding freedom at camp and finding a balance between “just being a kid” and managing difficult cancer issues [11].

Enhanced Attitude (n=2). Attitude, which encompassed children’s perceptions toward their illness as well as overall positive attitudes, was not a commonly reported theme (Fig. 2). Despite the fact that only two studies reported on attitude, all findings indicated that there was a positive correlation between more optimistic attitudes toward cancer and camp participation. The following benefits were reported for children who attended camp: significant improvements in attitudes toward illness [17] and increased positive attitudes including sociability, perseverance, and confidence [11]. In addition, better attitudes toward illness (i.e. not thinking negatively about cancer) was

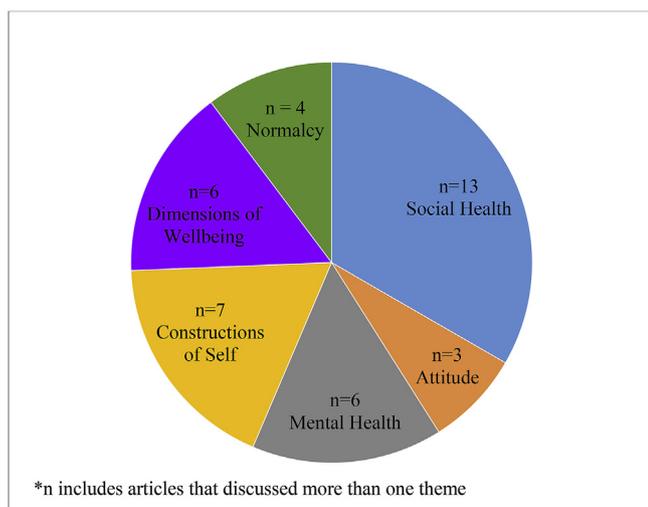


Fig. 2. Distribution of themes across the 18 articles. Note: Some articles explored multiple themes and the n-values reflect these numbers.

found to be significantly related to higher psychosocial quality of life scores [18]. Below, we discuss the findings in the context of the literature.

4. Discussion and future recommendations

The aim of this narrative review was to explore how camp participation impacted the psychosocial wellbeing of children and youth affected by cancer. Although this review expands upon the findings from Martiniuk et al.'s [9] important systematic review, it focuses exclusively on psychosocial health in the pediatric cancer population, incorporating data from non-graded evidence sources and interpreting findings through a narrative lens. Rather than grading research quality, we narratively comment on issues and insights. The findings show that there is a growing body of literature on the impact of camp on psychosocial wellbeing. However, specific aspects of psychosocial health need to be explored further in order to draw consistent conclusions. Despite the broad range of research methodologies employed in this review, the majority of the findings were indicative of improved outcomes in psychosocial wellbeing. The camps in each of the studies also differed in their overall approach and purpose. Some camps had activities specifically tailored to helping campers with their cancer diagnoses, whereas other camps simply included a variety of outdoor and arts-based activities, more typical of a traditional overnight summer camp. No adverse outcomes were reported in any case.

Given that camp provides children with cancer with a unique opportunity to bond with peers facing similar challenges, it is unsurprising that enhanced social health was the most commonly reported finding. Treatments such as chemotherapy, radiation, and other complications related to a cancer diagnosis often lead to extended periods of time spent in a hospital, which can significantly impact the social health of a child who might have to miss weeks or months of school as a result [32]. As the relative influence of the family decreases from late childhood to early adolescence [33], school and social activities play a critical role in a child's social development, providing important opportunities to bond and form relationships with peers [32]. Indeed, from a normative developmental perspective, time spent with peers in social situations is a critical developmental process [33]. Although absences from school and social events can lead to impaired interactions with others [32], our findings show that camp has the ability to improve a child's social health and functioning. Interestingly, camp may even be able to mediate some of the negative effects associated with prolonged school absences, based on children's improved quality of interaction with their parents and improved interpersonal skills following camp [20]. Several studies also reported on improved levels of social support at camp, including children feeling closer to their camp peers than their peers at home [17], and campers feeling greater levels of support when compared to children in the general population [10]. These findings are in contrast to those of Martiniuk et al. [3] who state that children may actually feel more lonely at the end of camp than at the beginning, due to feeling upset about leaving friends that they made while at camp. Based on the findings in our review, enhanced social health appears to be the most significant benefit afforded to children with cancer during camp. Given the developmental losses incurred by cancer [34] and the negative impact that cancer can have on relationships with peers, more research is needed to ascertain whether camp can be regarded as a "buffer" or "protector" against these peer-related developmental losses during the cancer experience.

Children with cancer may experience changes in physical appearance and cognitive function as a result of both the disease and treatment, which may lead to lower levels of self-construct [35] and reduced QoL later in adulthood [36]. Wellbeing, including QoL and HRQoL, were commonly reported benefits in our review and appeared to improve for children who attended camp. These findings are in accordance with two other reviews [9,20], but are in contrast with Ray and Jakubec's [24] review, which states that few studies have yet to

measure wellbeing and HRQoL. The reason for this discrepancy may be due to the fact that Ray and Jakubec [24] were reporting specifically on adolescent survivors, whereas our review encompassed both child and adolescent perspectives. Different constructions of self, including self-esteem, -efficacy, -confidence, and others, were also measured frequently, with all studies reporting positive improvements following camp. These findings indicate that camp may be an effective therapeutic modality to preserve wellbeing and improve constructions of the self during the cancer experience. More research is needed on the specific mechanisms that might lead to enhanced constructions of self at camp during the noxious cancer experience.

Whereas primary mental conditions refer to those stemming from an unknown etiology, secondary mental health conditions refer to mental health symptoms associated with long-term physical conditions according to the DSM-5 [30]. Individuals with cancer may be more susceptible to emotional or mental health challenges as historically, there has been limited research attention on how and why enduring medical conditions such as cancer might damage mental health [37]. However, more research is demonstrating that cancer is associated with poor mental health in children and adolescents [20]. In our review, the findings on mental health were both limited and mixed. Although children experienced decreased anxiety [9,17] and depression [20] after camp, one study found that children actually experienced higher levels of anxiety following a camp experience [16]. As observed in Martiniuk et al.'s [9] review, this indicates that not all aspects of psychosocial health improved positively after attending camp. Although it is unclear why mental health might worsen during a camp experience, being with other ill children might prevent denial, a coping strategy that may actually help children protect themselves from the reality of their cancer [38]. Based on the burgeoning problem of secondary mental health conditions in the context of childhood illness [7,8] – and the limited number of studies that measured mental health – more studies are needed that specifically address how mental health is affected in children with cancer who attend camp. Furthermore, the most effective way of supporting mental health in camp settings – such as whether to encourage or monitor discussions about cancer between children – requires more intensive research in order to understand how best to support children's mental health needs at camp.

Although there was a myriad of camp settings, durations, and types reported in this review, these varying aspects may not exert an impact on psychosocial health. For instance, the studies included in this review collected data on children who attended several camps in countries around the world. Camps were similar in that they were all outdoor summer camps specifically for children with a cancer diagnosis. However, they differed in the length of time children stayed, whether parents and/or siblings also attended, activities, level of medical support offered, camp philosophy, and the specific outdoor landscape. Despite these differences, a study that evaluated 19 camps across Canada and the United States reported that children's perceptions of camp did not change based on the type of camp they attended [26], implying that a variety of camp models may provide an effective means of psychosocial support for children affected by cancer. Consequently, differences among camps may not be significant predictors of differences in psychosocial health and a wide variety of overnight summer camps may in fact lead to improved outcomes for children with cancer. This might imply that space, place, and activity have less of an impact on psychosocial health in comparison to the relationships made with others at camp.

Further, most of the studies measured psychosocial components immediately following a child's camp experience. For example, in Wu et al.'s [26] multi-site evaluation at 19 different camps, children completed the study measure in the last one to two days of the camp session. Another study which employed interviews and focus groups, had children participate in the interviews during their week at camp [11]. Although collecting data during or immediately after camp is necessary for immediate recall, these methods do not contribute knowledge on

the potential long-term effects associated with attending camp. Future studies that evaluate psychosocial measures at several months post-camp would be beneficial to draw conclusions about whether the benefits of camp endure. Interestingly one study [26], found that campers attending camp for their first year had significantly lower *Pediatric Camp Outcome Measure* (PCOM) scores on all scales, including emotional, self-esteem, and social compared to campers who had previously attended camp. For returning campers, number of prior years attending camp was positively correlated with all PCOM subscales and total scores [26], implying that longer attendance over time might be necessary for added psychosocial benefits. Attending camp for multiple years may lead to improved self-esteem, as well as emotional and social functioning in the long term. Indeed, it might be the case that the lessons and concepts learned at camp – such as empowerment, support, and mastery – require time to crystallize. Thus, a longitudinal study that follows children who attend camp several years consecutively versus children who attend camp once, would be of interest to determine if continued camp exposure is necessary to experience long-term psychosocial benefits.

4.1. Strengths and limitations

Our findings are novel in that we reported on several qualitative aspects of psychosocial health, including themes generated from children who participated in interviews and focus groups. Commonly recurring themes included camp representing a sense of community [19,21,22] and camp providing children with an opportunity to “just be a kid” [11,25]. Although these themes do not represent statistically significant improvements in psychosocial health, it evokes how children *feel* about their camp experience, allowing them to narratively construct and interpret these experiences. Incorporating more qualitative data collection and/or employing mixed-methods studies when studying children at camp, may be an effective way to preserve the child's voice and unveil findings that might not have been otherwise considered.

Our review focused exclusively on the psychosocial health of children and youth affected by cancer, unlike other studies that also reported on parent and sibling psychosocial health. While a child's cancer diagnosis can certainly have effects on family psychosocial health, our findings allowed us to hone in on the child, providing an in-depth understanding of the ways in which their unique camp experiences may improve psychosocial health.

The most commonly used tools to assess psychosocial health were qualitative interviews and a variety of quantitative questionnaires and surveys. Despite the wide range of methodologies, none of the 18 studies employed any form of child-centered methodology, which is a major limitation of the current research. Many scholars suggest that qualitative interviews may not be attuned to children's needs, given that children are less experienced with language use [39]. Additionally, some children may feel nervous or hesitant about speaking and sharing with a stranger. Therefore, interviews must be adapted for use with children, taking into account their illness, as well as their individual capabilities, capacities, and intellectual development [39]. Although questionnaires and surveys are beneficial because they allow for a child's camp experience to be quantified numerically, these types of tools can be time-consuming, laborious, and difficult for children to understand. Indeed, at a recent research trip in which our lab studied the psychosocial impact of two camps in Ontario, Canada, from our observations, the psychometric tool was least preferable and feasible for children, after art-based body maps and interviews. According to Driessnack [40], child-centered arts-based approaches can be a doorway into a child's world, potentially allowing researchers to gain a more in-depth understanding of a child's thoughts and interpret underlying themes that may not have otherwise come up. Future studies that assess the psychosocial impact of camps should aim to incorporate methodologies more centered on the child, such as arts-based approaches that are better attuned to children's realities. For example, our

lab will be presenting the body map findings from our study in which children with cancer visually depicted their “camp and cancer journey” on a large self-portrait.

5. Conclusion

Camp participation appears to buffer and support a wide number of psychosocial health indicators for children with cancer, with social health being the most important benefit followed by improved constructions of the self, quality of life, sense of normalcy, and attitude. Most studies also showed improvements in mental health, although some decreases were noted. The findings from this review may be transferable to other pediatric populations with a chronic illness or a disability. There is a tendency for these populations to face similar psychosocial challenges as those in the pediatric cancer population, including social isolation, a compromised sense of normalcy, and a reduced QoL due to extended time spent at hospitals or at health-related appointments, as well as a feeling of being “different” from their peers. Camps are able to provide psychosocial benefits, as well as unique and positive experiences for children who have been diagnosed with cancer and potentially for other children facing similar health-related challenges. Despite medical advancements, cancer remains a noxious psychosocial experience that threatens the developmental health of children and adolescents. This study adds to the growing body of literature on the psychosocial impact of camp for children, with the potential for camp to serve as an evidence-based protective process against psychosocial health losses for more children in the future. More importantly, given that not all children with cancer have the opportunity to attend camp, the hope is that this study contributes to ongoing dialogues on widening, democratizing, and broadening accessibility to camp so that more children can reap the psychosocial benefits for what remains an incredibly complex psychosocial illness experience to treat.

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Conflicts of interest

Declarations of interest: none.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ctcp.2019.04.007>.

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