Wilderness therapy, therapeutic camping and adventure education in child and youth care literature: A scoping review

Nevin J. Harper

School of Child & Youth Care, University of Victoria, P.O. Box 1700, STN CSC, Victoria, BC V8W 2Y2, Canada

ABSTRACT

Background and objectives: Credible empirical support for the therapeutic potential and positive outcomes associated with outdoor adventure approaches for children, youth and families has grown in the past decade. Historically, child and youth care practice has included therapeutic camps, adventure sport and outdoor recreation although this reality is not reflected in the training and education of practitioners. The purposes of this scoping review were to identify and articulate the extant literature of outdoor adventure programs and approaches found in child and youth care literature between January 1997 and March 2017.
Method: Periodical selection and subsequent publication selection were conducted within *Ulrichsweb* utilizing specific inclusion/exclusion criteria, search words and abstract reviews. As a scoping review, study type and quality were not used for inclusion criteria thereby opening the review up to peer-reviewed English language publications of research, conceptual development, and program evaluations and descriptions.
Results: Out of a total of 9731 periodicals identified in the first selection phase, only 25 met the inclusion criteria and are presented herein as home to child and youth care literature. Of 291 publications found within the child and youth care literature in the first selection phase, only 63 empirical and conceptual publications met the final inclusion criteria for review. Three thematic areas of practice and research emerged from analysis of included publications: (1) wilderness and adventure therapy, (2) therapeutic camping, and (3) adventure education and physical activity. These three content areas are explored and discussed in consideration of child and youth care context and practice, providing the basis for a synopsis and recommendations for practice and future research.
Conclusions: This review identifies a need to more clearly identify and articulate outdoor adventure practices as they relate to child and youth care practice. Considering child and youth care's historical linkages to therapeutic camps and outdoor adventure activity, findings of this review suggest these approaches are underrepresented in the field's literature outside of the United States, potentially underappreciated in practice, and as an area requiring specific training and research. While research outcomes in outdoor adventure approaches to child and youth care appear positively robust, ethical concerns in wilderness therapy practice are identified and deserve further attention.

1. Background

Child and youth care (CYC) practice has long-standing connections to camping, outdoor recreation and adventure programming for child and youth development opportunities and treatment options (Dimock & Hendry, 1939; Flavin, 1996; James, 2008; Redl & Wineman, 1957; Scott, 2006). Numerous prominent youth-serving organizations remain active across North America utilizing outdoor adventure (OA) practices such as *YMCA* camps, *Outward Bound*, and *Circle of Courage* inspired camps and programs. Bendtro and Strother (2007) recommended a 'return to the basics' in CYC such as the intentional use of adventure, challenge and experiential outdoor activity. This same challenge was put forth by Bendtro and colleagues more than two decades ago (Brendtro, Brokenleg, & Van Bockern, 1990/2002) and occasional reminders have come from across human service fields to embrace the values inherent in adventure and challenge, in balance with safety and support, when working with children and youth (Brendtro, 2016; Harper & Scott, 2006; Howell, 2007). Ungar, Dumond, and McDonald (2005) suggested practitioners utilize outdoor experiential programming to develop a "deep and meaningful connection with nature" and to "mitigate risk and promote resilience in children" (p. 319). OA programming, in a variety of manifestations, has been associated with CYC practice but may fail to be recognized as a distinct form of practice. OA is not often visible within CYC training and curriculum materials (e.g., CYCCB, 2010) although is not uncommon in practice. What is not understood is the scope or depth of OA research in

the broader literature of CYC and its subsequent impact on CYC education and practice.

CYC literature is multi-disciplinary and oriented to clinicians, researchers and diverse practitioners across interrelated and allied fields of practice. This diversity allows for specific interventions or services to be expressed across developmental, clinical and care applications yet shared collectively as CYC. The inclusive and open interpretation of CYC practice presents difficulty in clearly defining practice. It has been suggested that CYC is an approach to working with people and systems, rather than a designated position or role (Stuart, 2009). Ferguson, Pence, and Denholm (1993) defined CYC focus, settings, and context in the same manner established by the International CYC Education Consortium:

> Professional child and youth care practice focuses on the infant, child and adolescent, both normal and with special needs, within the context of the family, the community, and the life span. The developmental-ecological perspective emphasizes the interaction between persons and the physical and social environments, including cultural and political settings.
>
> (p. 12)

As the notion of CYC practice moved beyond just residential treatment settings in the early 1970′s (Stuart, 2009), the dilemma of inclusion/exclusion to the developing field remained present and further refinements to the definition have occurred (e.g., Canadian Council of CYC Associations, 2008). The Canadian CYC practice definition mirrors the international definition above in settings and context, then further specifies applications and developmental domains:

> Child and youth care workers specialize in the development and implementation of therapeutic programs and planned environments and the utilization of daily life events to facilitate change. At the core of all effective child and youth care practice is a focus on the therapeutic relationship; the application of theory and research about human growth and development to promote the optimal physical, psycho-social, spiritual, cognitive, and emotional development of young people toward a healthy and productive adulthood; and a focus on strengths and assets rather than pathology.
>
> http://www.cyccanada.ca/

Both definitions illustrate a socio-ecological approach to broadly conceived practice. Brofenbrenner (1979) brought to light the integrated and holistic notion of systems influence through his writing on *ecological* models of human development and his work is idealized in CYC practice and research literature. The 'socio-ecological' model has been instrumental in the development of CYC practice (Derksen, 2010; Pence, 1988; Stokols, 1992) and the linkages between self, others, and environments acknowledged in residential and outpatient interventions such as therapeutic camps, wilderness expeditions for 'at-risk' youth, and outdoor adventure-based approaches (Brendtro & Strother, 2007; Carpenter & Harper, 2016; Durkin, Forster, & Linton, 1989; Loughmiller, 1978; Mishna, Michalski, & Cummings, 2001; Mitchell & McCall, 2007; Redl, 1947, 1966). CYC as a field claims distinction from psychology, sociology, or other clinical approaches to working with children, youth, and families, specifically idealized as a 'relational' practice occurring within the 'life space' (Gharabaghi & Stuart, 2014; James, 2008). Originating from the work of Kurt Lewin and later Fritz Redl, the life space includes the social-ecology of the child or youth, including family, school, community, sports, and activities. Redl was notably involved in the milieu therapy approach and instrumental in developing healthy treatment environments such as residential group care settings, and specific to this research, therapeutic outdoor camps (Beker, 2001; Redl, 1947, 1966). Redl was an ardent supporter, designer, and leader utilizing natural outdoor environments such as camps for development and therapy; even chairing the American Camping Association in the 1940′s, and argued that being active outdoors is a normal context for human development (Redl, 1947; Redl & Wineman, 1957).

Considering Redl's conviction for the use of camp settings, nature for therapy and advocacy for experiential outdoor approaches in CYC (Brendtro et al., 1990/2002), it is surprising a comprehensive review of OA approaches in the literature of CYC has not yet been undertaken. Research across allied fields of health promotion, therapy and education have shown positive results in addressing numerous issues such as depression, anxiety, and behavioral disorders through contact with nature and outdoor activity (Bratman, Hamilton, Hahn, Daily, & Gross, 2015; Faber Taylor & Kuo, 2008; Maller, Townsend, Pryor, Brown, & St. Leger, 2005; Richards, Carpenter, & Harper, 2011; Shanahan, Fuller, Bush, Lin, & Gaston, 2015). Recognizing CYC's historical ties to camps and outdoor recreation, the desire to locate these practices in current research literature provided the catalyst for this review.

1.1. Outdoor adventure as therapy and CYC practice: a primer

It is this author's opinion that research of the therapeutic benefits of OA has not carried much influence in multi-disciplinary therapeutic practices such as CYC and other human service fields. One area of growth in recent decades in OA practice and research is in programs or service described as adventure therapy (Tucker, 2009). Adventure therapy is an 'umbrella term' capturing the confluence between OA and the practices of human service fields including social work, counseling, psychotherapy, health promotion and others (Harper, Peeters, & Carpenter, 2015). Within adventure therapy lies a host of other descriptors of practice and approaches including outdoor, wilderness, experiential, and nature-based and place-based approaches to education and therapy. While having numerous manifestations, a therapeutic approach in OA generally includes practice elements identified in Table 1 (Gass, Gillis, & Russell, 2012; Harper et al., 2015). Each element deserves attention and exploration relative to CYC practice although it is not within the scope of this paper to do so. For example, one of the central tenets of OA, yet often questioned for its role in therapeutic practice more than other elements, is challenge, which inherently includes risk (Davis-Berman & Berman, 2002). Risk in OA has also been conceptualized as an ideal element in overcoming treatment adherence issues, as a catalyst for development of trust, communication, and self-efficacy, and is integrally linked to outcomes when utilized (Nichols, 1999).

While prominent voices in adventure therapy literature refer to the field as a developing stand-alone profession, others suggest the approach is too broad and diverse and should remain a collection of therapeutic approaches to be utilized across numerous professions (Gass et al., 2012; Ritchie, Patrick, Corbould, Harper, & Oddson, 2016; Tucker, 2009). The reality of this varied and interdisciplinary field appears to parallel the notion of the CYC field in the broader literature of the human services; that being a group of specialists within a

Table 1
Elements of outdoor adventure practice utilized therapeutically.

Elements of practice	Brief description
Active kinaesthetic	Inclusion of active bodily engagement
Experiential learning methods	The practice of 'learning by doing' through group initiatives, tasks and experimental learning
Integration of therapeutic practice	Incorporates individual & group therapy, psycho-education and social group learning
Connection to place	Place-based knowledge and land-based practices
Generation of metaphors	Nature provides unlimited opportunity for meaning making, analogy and narratives
Challenge	Balance of perceived risk and task burden with support for growth
Natural consequences	Actions & choices have clear and unambiguous feedback
Reflection	Periods of inactivity and guided alone time allows for introspection
Alternative entrance to awareness	Focus on activity and social dynamics rather than through discussion alone (i.e., talk therapy)

generalist field (Stuart, 2009). OA approaches in human service fields appear to be growing in sophistication and a base of credible research evidence builds (Becker & Russell, 2016; Bowen & Neill, 2013). However, with publications broadly distributed across journals and specialized fields of practice, the impact of OA on education and practice in any one particular field is in question.

1.2. Reviews of literature informing this paper theoretically and methodologically

Four published reviews across complementary fields of study and practice are presented. They include reviews of ecopsychology, nature-based therapies, indoor versus outdoor physical activity, and adventure therapy: each exploring similar questions from practices analogous to the present review (Annerstedt & Wahrborg, 2011; Bowen & Neill, 2013; Thompson, 2009; Thompson Coon et al., 2011). These four examples of literature reviews provide a snapshot of efforts taken to articulate broader applications of outdoor, adventure, and nature-based practices in therapy, health promotion, and as an accessible approach across human service fields.

First, Thompson (2009) sought to identify how 'ecopsychology' as a term, is present in the literature of other medical, psychological, sociological, and science fields published prior to November 2008. For comparison sake, the author also searched the terms ecological psychology, ecotherapy, environmental psychology, and wilderness experience in his search of five major databases: BioMed Central, PsychINFO, PubMed, Web of Science, and the International Bibliography of the Social Sciences. Thompson's search isolated only 66 publications from peer-reviewed journals and only two containing original research data. These findings substantiated the author's assumptions about the 'early days' of ecopsychology as a field lacking recognition across other allied and complementary fields. Of interest to the present study, Thompson found 329 publications on 'wilderness experience' with 252 located in PsychINFO, demonstrating the penetration of OA approaches within research published by the American Psychological Association.

Second, Swedish researchers Annerstedt and Wahrborg (2011) systematically reviewed 'nature-assisted therapy' research. Their criteria included only controlled and observational research published in previous related annotated bibliographies and five databases—PubMed, Scopus, CSA Illumina, Agricola, Web of Science—and three specialized registries: Cochrane, CENTRAL, CRD. The author's primary search terms spanned practices from horticultural therapy to adventure and wilderness therapy. Additive search terms (AND/OR) included well-being, recovery, therapy, treatment, intervention, heath, and mental. 6485 publications were found and after administering their strict exclusion criteria, only 38 remained for review. Findings were presented in three distinct categories: horticultural therapies, wilderness therapies, and nature-assisted therapies. The authors noted medium to large effect sizes shown in outcomes for the wilderness therapy category as positive, yet not robust due to inconsistent indexing and a lack of rigorous research designs.

Third, Thompson Coon et al. (2011) systematically reviewed the literature comparing effects of outdoor versus indoor physical activity on physical and mental health. Their review included the following databases: Medline, Embase, Psychinfo, GreenFILE, SportDISCUS, The Cochrane Library, Science Citation Index Expanded, Social Sciences Citation Index, Arts and Humanities Citation Index, Conference Proceedings Citation Index - Science and BIOSIS. Web and reference list searches of earlier review papers and relevant journals were also included for literature up to June 2010. The review resulted in 2899 publications prior to applying their strict exclusion criteria (i.e., indoor vs outdoor exercise) to isolate rigorous controlled studies of which they analyzed only 11. The authors declared a lack of high quality evidence, but did state that most trials showed greater improvement in mental wellbeing with outdoor exercise. Positive outcomes included reduced tension and depression, and increased energy, positive engagement, and a sense of renewal.

Last, Bowen and Neill (2013) completed a meta-analysis of 197 publications meeting their criteria for 'adventure therapy' including a range of practices such as wilderness therapy, outdoor behavioral healthcare, and adventure-based counseling. The researchers utilized empirical studies with outcomes allowing for effect size calculations and reporting. Databases utilized included PsychInfo, Google Scholar, ERIC, ProQuest Dissertations & Theses (A & I), and were further complimented by a focused journal search, communications with 'experts' in the field, and screening of reference lists, bibliographies, websites, and listservs. Their analysis showed adventure therapy producing moderate positive change, with significant short-term gains and a general maintenance of change over time. Adventure therapy was suggested to be an effective treatment modality, with effect sizes increasing with age of participant. This review was found in a psychology journal and the authors concluded with positive support for the clinical potential of adventure therapy.

Each of these reviews intentionally sought specific answers from criteria-driven literature searches related to role of activity and outdoor environments in relation to human change processes; so too does the present study. The primary goals of this review were to:

1. Locate and summarize the outdoor adventure approach in the literature of child and youth care, and;
2. Summarize findings, describe the current state of research, and identify themes and gaps which may provide direction for child and youth care education, practice and research.

2. Methodology: a scoping review

A scoping review was rationalized as the best approach to determine the extent and nature of published OA research in CYC and to summarize and disseminate potential findings (Arksey & O'Malley, 2005). The area under study—where CYC practice meets OA—has not been comprehensively reviewed and is assumed, as a whole, to be complex and have a "heterogeneous nature not amenable to a more precise review" (Peters et al., 2015, p.141). Differing from a systematic review, the scoping approach doesn't generally include quality assessment of each publication or exclude particular research designs (Khan, Kunz, Kleijnen, & Antes, 2003) and remains broader in scope than the review of quantitative outcomes-specific effect sizes found in meta-analyses (e.g., Wilson & Lipsey, 2000). Yet, scoping reviews can include a re-interpretation of combined study findings to better inform practice and decision-making, or in identifying the need for further research (Levac, Colquhoun, & O'Brien, 2010). While potentially equally rigorous when compared to systematic reviews, scoping studies can be more comprehensive and inclusive, although they require clear articulation of rationale, decision-making, and subsequent processes used to increase their validity and replicability (Levac et al., 2010; Peters et al., 2015; Valaitis et al., 2012).

2.1. Search design and strategy

The design of this scoping review followed five stages set out by Arksey and O'Malley (2005) and incorporated further methodological detail suggested by Levac et al. (2010)). Stage one is *problem identification* and rationale for the research—as expressed above. Stage two is the *process of identifying relevant publications*. This was undertaken in two steps; systematically identifying appropriate periodicals (illustrated in Fig. 1) and then identifying appropriate publications from selected periodicals.

Ulrichsweb[1] advanced search option was utilized with the search

---

[1] Ulrichsweb database contains 300,000 + periodicals crossing more than 900 fields of study. Since a periodicals selection was engaged as search criteria, Ulrichsweb allowed for ease and comprehensiveness in the subsequent phases of the research by ensuring the CYC literature focus. (e.g., Publications were sought by title within the database by each periodical title.)

Ulrichsweb
Searched "child or youth"
Found 9,731 periodicals

↓

EXCLUSION CRITERIA
Status: "active"
Serial type: "journal"
Content type: "academic / scholarly"
Key feature: "refereed / peer-reviewed"
Format: "online" OR "print"
Subject Area: "Social Sciences and Humanities"
Found 157 periodicals

FURTHER EXCLUSION
Not "Government, Law, and Public Administration," and
"Business and Economics," and "Philosophy and Religion"
Found 100 periodicals

REMOVED DUPLICATES (e.g., online)
Found 54 periodicals

↓

RELEVANCE CRITERIA
Aligned with CYC definition (in text)
Periodical Aims/Mission in alignment with CYC (i.e., not
focused on other fields of study such as linguistics,
pediatrics, psychology...)
English publication
Hand search
Found 25 periodicals

Fig. 1. Periodical search terms, exclusion criteria and findings.

Table 2
Periodicals included in review and publication distribution in phases 1 and 2.

	Periodical title	Phase 1 criteria	Phase 2 criteria
1	*Adolescent Research Review*	2	0
2	*Canadian Journal of Family and Youth*	3	1
3	*Child and Adolescent Mental Health*	HS	2
4	*Child and Adolescent Social Work Journal*	17	3
5	*Child and Youth Care Forum*	34	19
6	*Child and Youth Services*	HS	0
7	*Child Care in Practice*	18	0
8	*Child Indicators Research*	0	0
9	*Children and Youth Services Review*	HS	3
10	*Early Childhood Research and Practice*	6	0
11	*International Journal of Adolescence and Youth*	3	0
12	*International Journal of Child, Youth and Family Studies*	0	0
13	*Journal of Adolescence*	24	3
14	*Journal of Adolescent Research*	15	1
15	*Journal of Child and Adolescent Counseling*	0	0
16	*Journal of Child and Adolescent Trauma*	3	1
17	*Journal of Child and Family Studies*	32	5
18	*Journal of the History of Childhood and Youth*	0	0
19	*Journal of Research on Adolescence*	9	1
20	*Journal of Youth and Adolescence*	22	3
21	*Journal of Youth Studies*	48	1
22	*Reclaiming Children and Youth*	27	12
23	*Relational Child and Youth Care Practice*	12	0
24	*Residential Treatment for Children & Youth*	HS	8
25	*The Journal of Early Adolescence*	3	0
	Totals	291	63

Note: HS is for Hand Search: direct database search of individual journal by selected keywords.

terms *child* OR *youth* as part of Title or Keyword fields. This broad conception was the starting point for the periodical search recognizing the specialist nature of many CYC researchers within a generalist field (Stuart, 2009). An advanced search criteria included three levels of exclusion criteria shown in Fig. 1 and resulted in a reduction from 9731 to 54 periodicals. A relevance criteria was then applied including alignment to CYC as defined above (Ferguson et al., 1993; Stuart, 2009). This step included reviewing stated aims and mission of periodicals and resulted in further exclusion of periodicals falling into other disciplines such as media and psychological development. The final exclusion review resulted in 25 periodicals included for stage 3 (See Table 2[2]). It is acknowledged that intersecting OA and CYC literature is found across numerous education, psychology, and human service field journals not identified herein. This limitation exists as only those periodicals meeting the established search criteria were included to

achieve the specific research aims, and to establish replicability as directed by Levac et al. (2010).

2.2. Inclusion and exclusion criteria

Stage three is the *selection of appropriate publications* to be reviewed. A 20-year timeframe of January 1997 to March 2017 was intentionally chosen as a significant increase in OA literature over the last two decades was identified in a recent environmental scan of adventure therapy (Ritchie et al., 2016). This timeframe also parallels movement in CYC toward further professionalization and the desire for increased quality of care for children and youth (Krueger, 2002). Periodical titles were entered as primary search terms in Ulrichsweb and secondary terms included *wilderness* OR *outdoor** OR *adventure* OR *camp** OR *nature* AND *educat** OR *experien** OR *therap** OR *recreation**. Search terms were chosen to capture the breadth of the OA field as described earlier and were informed by recent related reviews (Bowen & Neill, 2013; Ritchie et al., 2016). Terms were searched across the categories of Title, Subject, Keywords, and Abstracts to ensure publications did not elude discovery in this stage. The stage three search yielded 285 publications. Exclusion criteria was then applied to ensure appropriateness of content. This stage of the review included reading abstracts to remove the inevitable inappropriate publications. For example, to ensure inclusion of research related to camps and camping, *camp** as a search term was used but also captured publications about 'campuses'. The same was true for the search term *nature* as the expression 'the nature of…' was in the abstracts of numerous irrelevant papers which were then excluded. Further, studies of adult or emerging adult populations were excluded, along with publications of educational interventions and program descriptions lacking clear alignment with CYC practice. The exclusion process left 63 publications for analysis in stage four. Publications were saved in an online database account held by the researcher, and later organized and stored with Dropbox.

---

[2] Four periodicals were added following a hand search initiated when relevant publications showed up in phase two searching outside of the criteria-selected periodical titles (i.e., *Child & Adolescent Mental Health, Children and Youth services Review, Relational Child & Youth Care Practice,* and *Residential Treatment of Children & Youth*). These periodicals were not picked up in the electronic search yet met the criteria for inclusion, illustrating the limitations of this study (i.e., other seemingly appropriate periodicals and publications may have been missed.)

Table 3
Origin and distribution of publications included in review.

Origin of publications	United States	Canada	New Zealand	Israel	Germany	Singapore	Netherlands
Number of publications	50(~79%)	4(~6%)	3(~5%)	3(~5%)	1(~1.5%)	1(~1.5%)	1(~1.5%)

2.3. Reporting of the results

Stage four is comprised of *organizing and tabling the data* (Arksey & O'Malley, 2005). This data sorting process is in many ways parallel to a qualitative analysis of content (Krippendorff, 2004). All publications sourced were carefully read, analyzed, and condensed until three meaningfully distinct categories emerged. Stage five processes include *the summarization, interpretation and reporting of findings*. The following sections share results of the review. Tables 2 and 3 illustrate periodicals included, total publications included/excluded, publication origin and distribution by nation. Finally, stage 5 also includes *the discussion and interpretation of the broader research* aims of identifying the nature and extent of OA research and literature in the CYC field.

3. Results and discussion

The publications reviewed depict a range of OA approaches described in CYC literature. Findings are presented and discussed numerically as to the scope and distribution of publications, as well as narratively through three distinct categories emerging from analysis; wilderness and adventure therapy; therapeutic camping; and, adventure education and physical activity. The three categories became central units of analysis and provided a framework for organizing and sharing results. The majority of publications originated from the United States (50) with four or less each from six other nations (see Table 3). Overall, 34 publications were found in the wilderness and adventure therapy category, followed in volume by therapeutic camping with 19, and adventure education and physical activity with 12. The following sections provide an overview of findings for each category.

3.1. Wilderness and adventure therapy: a detailed analysis of processes and outcomes

The largest number of publications in this study describe research from the therapeutic approach known as wilderness therapy. Publications in this category were primarily from the United States (30/34) with two from Israel and one each from UK and Canada. Twenty-seven publications presented empirical research results and seven publications share concepts, program descriptions and critical views of practice. A few publications describe program models and process theory to varying depth which assists readers in better understanding the context of the wilderness and adventure therapy interventions (e.g., Marlowe, Pearl, & Marlowe, 2009; Natural, 2008; Walsh & Aubry, 2007). Publications from the United States often refer to wilderness therapy and Outdoor Behavioral Healthcare (OBH) synonymously (Becker, 2010; Combs, Hoag, Roberts, & Javorski, 2016 although OBH is identified as a membership-driven industry council, and has a corresponding research center and designated research scientists serving its member programs (Scott & Duerson, 2010). The 'wilderness therapy' publications will be presented together although the term is occasionally linked with adventure therapy, and as a synonymous term (Combs et al., 2016). Adventure therapy does however appear in two papers as a distinct community-based approach, and not as extended wilderness-based interventions (Norton, Tucker, Farnham-Stratton, Borroel, & Pelletier, 2017; Tucker, Javorski, Tracy, & Beale, 2013) and will therefore be presented separately. Two wilderness therapy intervention publications from Israel are presented separately from US-based literature as their treatment model and cultural context are

assumed distinct. Last, a number of critical issues raised in the publications reviewed regarding wilderness therapy practice are shared.

Empirical publications on wilderness therapy from the United States support the notion of effectiveness in treatment of a broad range of social, emotional, and substance use issues. Bettman, Lundahl, Wright, Jasperson, and McRoberts (2011) identify the typical client in wilderness therapy as substance-abusing and oppositional, with close to 30% reporting self-harming behaviors, and half reporting recent trauma in their lives. Bettman, Tucker, Tracy, and Parry (2014) add that females in wilderness therapy were more likely than males to have received prior out-patient treatment while males were more likely to have had self-harming behaviors including suicide attempts. Both studies led by Bettman carry significant implications for treatment providers related to presenting issues of clients and a heightened need for client-specific interventions and quality of care.

Russell and Phillips-Miller (2002) described wilderness therapy process as including physical exercise and hiking, primitive wilderness living, group counseling, peer feedback, and the therapeutic relationship established between youth, their guides and therapists, as key factors. Subsequent studies from Russell showed significant social and emotional change as measured by the Y-OQ (Youth-Outcome Measure) at discharge as well as maintenance of change at 12 months post-intervention (Russell, 2003). A two-year follow-up to wilderness therapy treatment showed 'aftercare' (e.g., residential treatment) was very common, most youth and parents perceived wilderness therapy as effective, although reports of continued substance use as well as social and legal problems persisted (Russell, 2005). A single-program wilderness therapy case study found positive outcomes in youth's home-life behavior although negative deterioration was found in some aspects of family functioning (Harper, Russell, Cooley, & Cupples, 2007). Bettman and Tucker (2011) found reduced anger and increased emotional connection between youth and parents following wilderness therapy. In the same study the researchers found reduced trust and communication between youth and parents regarding their attachment to each other, and suggested further exploration of the out-of-home context for treatment. Lewis (2013) found significant reduction in substance use and behavioral problems post-treatment as well as maintenance of change over twelve month's post-treatment. Canadian researcher's Paquette and Vitaro (2014) found levels of antisociality diminished for wilderness therapy interventions of 8–10 days as well as 17–20 days. In the same study, longer interventions showed improved social skill development and accomplishment motivation, suggesting treatment length as a factor in outcomes.

Meta-analysis comparing wilderness and non-wilderness treatment programs showed parent's reporting greater improvements in youth on the Y-OQ following wilderness therapy treatment while youth self-reported greater improvements on the YO-QSR following non-wilderness treatment programs (Gillis et al., 2016). Both groups in this study reported large effect sizes. A second recent meta-analysis with the stated aim to "educate the clinical community as to [wilderness therapy's] effectiveness" found medium positive effect sizes on all six constructs measured across the 36 studies included: self-esteem, locus of control, behavioral observations, personal effectiveness, clinical measures, and interpersonal measures (Bettmann, Gillis, Speelman, Parry, & Case, 2016, p. 2659). This review focused on one population of interest—private pay clients—yet no inclusion/exclusion criteria shared by the authors could identify de facto whether clients were private pay or funded by other means.

A longitudinal study of treatment outcomes showed youth entering

wilderness therapy "with clinically significant levels of emotional and behavioral dysfunction" on the Y-OQSR yet were discharged at normal levels of functioning and showed maintenance of change at six and eight month's post-treatment (Combs et al., 2016). Combs et al. identified that their study supports the "OBH literature which has consistently found dramatic changes from intake to discharge for adolescent clients" (2016, p.3327). Magle-Harberek, Tucker, and Gass (2012) found no significant difference in treatment outcomes for clients in residential treatment centers over wilderness therapy programs. They also found residential clients had more pronounced clinical scores upon intake, and both settings showed clients leaving treatment with nonclinical scores on the Y-OQ 30. Tucker, Smith, and Gass (2014) found no difference between residential treatment and wilderness therapy clients relative to presenting problems or individual characteristics.

Two publications reviewed examined wilderness and adventure therapy interventions with youth involved in the juvenile justice system with differing results (Gillis, Gass, & Russell, 2008; Jones, Lowe, & Risler, 2004). Jones et al. (2004) compared youth in wilderness adventure therapy intervention with a group home program and found no difference in recidivism rates. Gillis et al. (2008) in an expressed direct response to Jones et al. (2004), and using similar methods, compared 3-year outcomes of youth involved in an adventure-based behavior management program, and youth involved in an outdoor therapeutic camping program with standard youth development center programming. The researchers found statistically significant positive outcomes with the adventure-based behavior program and stressed the importance of defining practice in detail relative to population, range and type of interventions, and fidelity within adventure therapy approaches, particularly when reporting research findings.

Two publications of research in wilderness therapy were included in this review from Israel (Margalit & Ben-Ari, 2014; Romi & Kohan, 2004). Considering cultural differences and the likelihood of models of practice differing from those reported above from the United States (e.g., private pay, program length), they were reviewed concurrently but reported here separately. One study was conducted on at-risk male students aged 14–16 who either undertook full treatment (12 single-day group sessions and a four-day backpacking trip), partial treatment (10 of the single-day group sessions), or no treatment (Margalit & Ben-Ari, 2014). This study found measures of self-efficacy and cognitive autonomy significantly improved in the full wilderness therapy treatment group when compared with the no treatment control group, and these improvements were sustained at five months' post-treatment. The second study (Romi & Kohan, 2004) described a wilderness program (six-day desert trek) for school drop-outs compared to an alternative program (six-day residential program) and a comparison group (no intervention). The researchers found significant increases in most self-esteem factors with the wilderness intervention relative to the comparison group but no difference relative to the alternative intervention. They also found both experimental groups increased locus of control significantly after the interventions relative to the comparison group.

Two publications distinguished adventure therapy as a community-based intervention as distinct from the previously reviewed wilderness therapy approach (Norton et al., 2017; Tucker et al., 2013). Tucker et al. (2013) asked whether an adventure-based approach was more effective than a traditional counseling. In a sample of over 1000 youth, they found increased positive outcomes in an adventure-based community mental health intervention over a more traditional counseling approach. Utilizing adventure therapy approaches in counseling children and families affected by child abuse, Norton et al. (2017) found an adventure therapy community-based family enrichment intervention successfully reduced child trauma symptoms, particularly anxiety and depression. Although no significant change was found in measures of family functioning, the intervention was described qualitatively by family participants as improving family communication, problem-solving, and trust. The community-based program was comprised of multiple families engaging in hiking, occasional overnight camping,

and other outdoor adventure activities along with regular 'talk therapy' and was described as 'trauma-informed' practice. Adventure therapy practice in both publications were described as clearly differentiated from wilderness therapy practice, specifically as community-based versus contained expeditions in wilderness. While a distinction was suggested by the authors, similar literature from adventure therapy, wilderness therapy, and 'wilderness adventure therapy' are present in both of these publications. It is assumed that field practices and philosophical underpinnings are not yet distinct enough to clearly delineate adventure therapy from wilderness therapy—further complicated as *adventure therapy* is used as the 'umbrella' term capturing both—but separation is suggested by the authors of these two studies (Norton et al., 2017; Tucker et al., 2013).

One publication by Marchand and Russell (2013) examined high turnover rates of field instructors in wilderness therapy and found those who underestimated job stressors such as the demands of the therapeutic environment to have lower levels of job satisfaction. The researchers found an overall high level of satisfaction for the nature of the work, but low levels of satisfaction for pay and benefits, and interestingly, a decreasing job satisfaction for field instructors after one year. This study included a discussion of previous work by Marchand (2008) indicating difficulties in maintaining qualified and competent field staff in wilderness therapy practice.

On a critical note, ethical issues presented in three publications (Becker, 2010; Scott & Duerson, 2010; Tucker, Bettman, Norton, & Comart, 2015) were reasoned worthy of further discussion: involuntary treatment, related use of transport services, and publication concentration from a small group of researchers. The first and second ethical issues are closely entangled. All three publications identify involuntary treatment as common for youth entering wilderness therapy programs; either by parent coercion and deception, or escorted by 'transport' service providers. Tucker et al. (2015) explored the role of transport relative to treatment outcomes, stating that transportation is a common practice in wilderness therapy in the United States and may include physical force to ensure successful placement of the child into a program. Private pay versus state-managed treatment services have varying laws across American states including some where parents can decide to place their child in treatment against the child's will, and without external professional assessment and diagnoses such as that from a psychiatrist or medical doctor (Tucker et al., 2015). Under these circumstances, the admission decision will fall to parents in discussion with program administrators and their admission criteria.

A second ethical issue identified by Becker (2010) related to lack of informed consent and involuntary admission to a mental health treatment program, is the potentially traumatic experience of being physically 'taken' into treatment programs. Norton et al. (2017) introduced 'trauma informed' practice in her adventure therapy study of a particular family intervention program. Considering CYC philosophy, life-space and socio-ecological approaches to practice, it is not surprising that Bettman & Tucker's, 2011 study of "mostly involuntary adolescents participating in a private pay wilderness therapy program" reported, among positive findings, reduced levels of trust and communication between youth and their parents (Tucker et al., 2015, p. 671). Involuntary treatment is not uncommon in residential treatment, and not an issue in wilderness therapy alone, however, the lack of professional assessment and/or diagnoses prior to the engagement of transport use or parent coercion into programs demands attention. The practices bring into question the additional crisis and trauma a young person may experience when arriving in treatment versus the benefits. Further, involuntary youth are asked to complete social and psychological measures upon intake, it would be highly likely to find elevated scores at a level of 'clinical dysfunction' which the youth may not have scored if competing the assessment days earlier in their home or community prior to being 'escorted', or even having knowledge of being sent into treatment. Taken a step further, can an involuntarily youth in treatment freely and honestly complete measures without suspicion of how their

responses may determine their immediate and long-term future? And, if not consenting for treatment, and potentially under duress, is it likely these youths consented to being participants in ethical research reviewed and approved by institutions of higher education? Practitioners, therapists, educators and researchers in mental health treatment or 'care' settings will have to reconcile these practices within their profession's code of ethics.

Regarding research, Becker (2010) identifies a third ethical issue of importance to the present study. He points out that while wilderness therapy gains an evidence-base, the majority of published research has originated within the OBH community, including a small representative of programs from the larger whole, and there remains "an absence of research undertaken by professionals from varied perspectives" (p. 53). To illustrate this concentration as fair criticism, nineteen of the 30 (63%) wilderness therapy and adventure therapy publications reviewed in the present study include at least one author identified as a "Research Scientist" with OBH (https://www.obhcenter.org/research-scientists) and some of the remaining publication's authors are affiliated with OBH member programs. Last, Scott and Duerson (2010) questioned wilderness therapy program costs relative to efficacy and access? How well does wilderness therapy fits into a continuum of care? And are there adequate levels of staff training, safety, and oversight of programs is in place? On the last point, the authors bring attention to the efforts of government to increase tracking and accountability to residential programs including wilderness therapy, both in the public and private sectors (e.g., Kutz & O'Connell, 2007). While now most of a decade on from these critiques, all three questions raised are deserving of further discussion and research relative to treatment efficacy and professional practice for children and youth, especially from the perspective of the CYC field.

3.2. Therapeutic camping: a detailed analysis of processes and outcomes

Nineteen publications identified in this review described therapeutic camps for children, youth, and families. Fourteen of the publications (74%) were from the United States, with three from Canada and one each from Israel and Netherlands. Analysis of these 19 publications isolated three conceptual areas: camping included as part of residential treatment (six publications), camps addressing mental health issues and general youth development (seven publications), and camps specifically for children, youth, or families living with disabilities or chronic illness (six publications). Fourteen of the publications presented empirical results of research while five publications shared conceptual and theoretical arguments for therapeutic camping approaches as well as descriptions of camping practices and program models.

Therapeutic camping descriptions included overnight and weekend family camping, as well as camping as part of longer-term residential programs for youth, and more traditional summer-camp settings for specific populations. Activities described include physical outdoor challenges through sports and recreation such as canoeing, hiking, games, and outdoor cooking and living; often identifying the significance of the intensive group process (Loughmiller, 2007). Group living pushes youth to address and overcome communication, behavioral, and relational issues (Howell, 2007; Van Vugt, Deković, Prinzie, Stams, & Asscher, 2013) and the strength of the outdoor experiential approach—and time away from day-to-day life stress in natural environments—are identified as core camping elements which can increase children's capacity for goal attainment, reflection and building self-identity (Thurber, Scanlin, Schueler, & Henderson, 2007).

Six publications described camp interventions for rebellious or 'troubled' adolescents as part of residential treatment. Beker (2001) included residential summer camps in his overview of 'effective residential treatment' paper re-printed from 1991. Grounded in the work of Redl, Beker (2001) set out the ethical framework by which residential programs—camps included—should adhere to, to be effective

and relevant in the continuum of care. Arieli, Beker, and Kashti (2001) put an interesting spin on the argument for/against residential treatment, including therapeutic camps, by directly comparing the choice of parents to place children in private schools. The authors support residential approaches by shifting focus from a normalizing developmental perspective—which should ideally take place within the child's community and lifespace—to one of socializing development; that which young people are exposed to, and whose attendance is rationalized by, for their education and 'leadership training' at private schools (Arieli et al., 2001). They acknowledge the realities of children in crisis and ultimately support the function of residential settings which can provide separation and intensity as appropriate for a child's developmental and needs. Arguments for camp settings as residential treatment are well represented in the publications included in this review. Howell (2007) argued for the challenges and opportunities of adventure and camping to advance a young person's need for growing independence and autonomy, and to experiment. Grover Loughmiller (2007) promoted his father's work—Campbell Loughmiller—in developing camp programs that relied heavily on daily social interactions and negotiations to maintain healthy community. Small groups with progressionally increasing challenges of simple outdoor life and travel, Loughmiller Sr. believed, were the essence of growing up responsibly, identifying strengths and making a positive contribution to community. Cooper and Jobe (2007) offered another camp approach, equine programs, through the Cal Farley Boys and Girls Ranch. The equine program described reflects similar trends in models used for youth development and treatment such as *Circle of Courage* and *ReEd*. Similar to other programs included in this review, the ranch program includes core elements of strengths-based approaches, service work, leadership development and meeting children's need for "safety, belonging, achievement, power, purpose and adventure" (Cooper & Jobe, 2007, p. 40; Natural, 2007).

Eight publications shared therapeutic camp approaches addressing mental health issues including grief, loss, anxiety, depression, and multidimensional approaches to growth for young people including spirituality. Two publications addressed how camps and camp counselors can design therapeutic activities and train facilitators to improve outcomes for participants dealing with loss (Farber & Sabatino, 2007; McEachron, 2014). Farber and Sabatino engaged in a community action-oriented project which looked at camp design and practices to increase engagement of grieving youth in psychoeducational therapeutic activities. The intervention resulted in positive increases in engagement, psychosocial functioning, and parent levels of satisfaction. Ehrenreich-May and Bilek (2011) investigated a recreational camp as a preventative measure for anxiety and depression. The *Emotion Detective Prevention Program* was integrated into an existing recreational sports camp and the researchers found significant reductions in anxiety but no significant change in depression symptoms or other emotional regulation. The study supported the feasibility of the intervention that teaches cognitive-behavioral strategies that apply to many emotional experiences. One publication showed a large-scale evaluation of 80 camp programs where children spent at least one week (Thurber et al., 2007). The study aimed to identify growth across social skills, values, cognitive development, positive identity, and spirituality as reported by children, parents, and camp staff. Findings included significant positive change across all domains with a strong maintenance of change found at six-months following the camp experience. The authors touted these outcomes as "more than would be expected by maturation alone" and suggested "different variations of summer camp can provide potent developmental experiences" (p. 241).

Six studies suggest a range of benefits of camps for children, youth, and families living with disabilities or chronic illness. Michalski, Mishna, Worthington, and Cummings (2003) found campers presenting with learning disabilities and psycho-social problems reporting high levels of satisfaction, modest improvements in self-esteem, and a reduction in social anxiety. Wu, Prout, Parikshak, and Amylon (2011)

evaluated the effectiveness of a summer camp for children with cancer and their siblings. Participating campers reported recreational activities, peer support, and a break from home as significant to their experience, while parents identified respite from home-life stress, and improved child behaviors following the camp as significant to them. A psychoeducational therapeutic camp for children with FASD was investigated relative to the coping behaviors of caregivers (Shepard, O'Neill, Jonathon, & Ashley, 2012). Two studies from Gillard and colleagues (Gillard & Allsop, 2016; Gillard & Watts, 2013) identified camps as places for belonging and promotion of well-being regardless of conditions experienced such as children living with illness's like cancer. This qualitative study found positive results described as life changing and instilling hope in caregivers of young people with FASD. White, Moola, Kirsh, and Faulkner (2016) evaluated psycho-social well-being of parents of children with congenital heart disease who attended a therapeutic recreation camp. The researchers found, similar to Wu et al. (2011) and Walker, Barry, and Bader (2010), that parents benefited positively from the respite but also identified how camp afforded their children the opportunity to grow independently and reduced their tendencies to be overprotective parents.

3.3. Adventure education & physical activity: a detailed analysis of processes and outcomes

Twelve publications were identified in this review and here described as adventure education (ten publications) and physical activity (two publications). These two categories provide the framework to share results in the CYC context. While sharing activity and program elements similar to wilderness and adventure therapy, and therapeutic camping, this category highlights how those common elements can emerge or be intentionally engaged across settings that wouldn't be described by the first two categories. Eight of the 12 publications were from the US (66%) with three from New Zealand, and one from each of Singapore and Germany. Seven of the publications presented empirical results of research while five publications shared conceptual and theoretical arguments for OA approaches as well as descriptions of practice.

Adventure education is described in the literature reviewed as novel outdoor activities that are challenging, experiential, and facilitated in a way to meet a certain developmental outcome (Strother, 2007). This approach was found to be comprised of OA activities built into other CYC practice, recreation or educational programs for targeted youth, or as stand-alone expedition-style programs a week or longer in duration (Ang, Farihah, & Lai, 2014; Mutz & Müller, 2016). Adventure education was also identified as a component for alternative programs for spiritual development (Schuler, 2006) and in alignment with Indigenous teachings for contemporary youth (Hall, 2007). Duerden, Taniguchi, and Widmer (2012) evaluated a two-week adventure recreation program for 11–15-year-olds and sought to better understand identity development. They found the adventure education approach was comprised of new experiences, challenges, support from peers, and fun, which led to increased self-confidence, and new perceptions of self.

Ang et al. (2014) evaluated a high school truancy reduction program in Singapore in which students participated in a five-day 'Intercept' program with Outward Bound, a long-standing international outdoor experiential education organization. The researchers concluded that the intervention group increased problem-solving, attendance and engagement in school over the no-treatment control group. Trying to better understand the mental health benefits of outdoor adventure programs, Mutz and Müller (2016) conducted two studies utilizing trekking across wilderness areas; one for nine days with 14-year-olds in the Alps, and the other for eight days with undergraduate university students in an isolated wilderness region in Norway. The researchers found positive benefits including reduced time pressure and mental stress, and increased self-efficacy, mindfulness, and overall subjective levels of wellbeing in both age groups.

Physical activity is identified in both publications from this review as ideal for physical, social, and emotional well-being in both at-risk and general youth populations (Lubans, Plotnikoff, & Lubans, 2012; Pelligrini, 1992). A systematic review by Lubans et al. looked at physical activity program effects on youth presenting with depression and low self-esteem. The 15 studies identified and reviewed included outdoor adventure, sports, and skill-based and physical fitness programs. While the review suggested low quality of studies, they did find positive outcomes and suggest clinicians who work with at-risk youth to consider including or developing programs with physical activity to support health and social-emotional interventions. Pelligrini (1992) examined boy's versus girl's preferences for outdoor play during their transition to middle school. Results suggested that boy's preference is more pronounced until the sixth grade at which time increased gender mixed activity begins along with adolescence. Up until this shift, Pelligrini suggests boys have higher frequency of outdoor vigorous play, while girls outdoor play is more social and with fewer peers. Considerations may be extended from these physical activity studies to the OA approach in the broadest sense for their location (i.e., outdoors), being kineasthetic (i.e., active), and often occurring in social (i.e., group) settings; strong parallel to OA approaches shown in Table 1.

Brendtro & Strother, 2007 suggest that adventure education, drawing on the rich traditions of experiential learning, is a powerful medium for adolescent development. The authors suggest the core practices of problem solving, team work, informal learning, risk-taking and challenge "foster the development of courage, resilience, and responsibility" (p. 2). Hall (2007) added that youth can prove to themselves they are capable of more than what they have been told by others. He provides an example: "Going through a ropes course or rappelling off a cliff or rock climbing are incredible metaphors for the struggles that young people are facing in their lives everyday" (p.14). Hall (2007), along with Marlowe et al. (2009) reviewed in the wilderness therapy section, are two publications drawing direct connections to Indigenous land- and place-based practices for health and well-being, although numerous publications throughout the three sections speak to the *Circle of Courage* model developed on Lakota and Western traditions of working with children, youth, families, and communities (Brendtro et al., 1990/2002). In regard to Indigenous models of land-based practice, it is surprising more recognition is not given to the source of inspiration for many OA practices including traditional travel and living practices of First Peoples (e.g., canoe, kayak, snowshoe, dogsled, use of seasonal and trade routes…) as well as theoretical models of health such as the medicine wheel used in the Circle of Courage model (Brendtro et al., 1990/2002).

4. Conclusions

4.1. Breadth of literature

This study aimed to illuminate OA practice and research in CYC literature, and second, to identify key findings, themes, and gaps which may provide direction for CYC practice and research. Overall, this review found OA to be present and varied in practice across the CYC literature. Wilderness therapy and therapeutic camping as OA practice were the most prominent practices identified, and reflect the long-standing connections to early days in the establishment of CYC as a distinct field from other human service work (Beker, 2001; imock & Hendry, 1939). In general, the use of OA in day-to-day CYC practice, outside of wilderness therapy and therapeutic camps, was nearly absent in the literature reviewed, yet assumed still present in practice (e.g., outdoor recreation and experiential activities). This criteria-driven review produced only 63 publications for inclusion, however, a simple Google Scholar search for *wilderness therapy* produced 43,000 + hits and *therapeutic camps* produced 112,000 + hits at the time of writing. These results depict the penetration of these OA approaches in the broader academic literature. The educational and

therapeutic use of OA appears to be distributed across the literature of psychology, education, social work, and outdoor adventure. Dispersion of literature may prevent consistent sharing of knowledge across disciplines, especially those driven by practice orientation and generalist literature such as found in CYC and OA. This is further exacerbated by the sheer volume of published research today. In 2015, there were more than 28,000 scholarly English language journals with almost 6500 other non-English journals resulting in approximately 2.5 million articles published each year (Ware & Mabe, 2015). Capturing a comprehensive picture of OA in CYC is seemingly unlikely due to the diversity and proliferation of literature alone, although generating a renewed interest in OA research and practice in CYC is encouraged.

Of specific interest to this researcher, is the dearth of Canadian OA literature in CYC with only four publications meeting the criteria for inclusion. A similar history of program development and practice ideology exists in North America yet Canadian literature as research, conceptual/theoretical developments, or program descriptions is scarce. Carty, Harper, and Magnuson (in review) identified intersections between OA and CYC in Canada including the camping movement of the early 1900′s and prominent program development in youth justice and mental health interventions; these include Outward Bound in 1969, Project Dare/Wendigo Lake in 1971, Enviros Wilderness School in 1976, Coastline Challenge Camp 1984–2016 (Carty et al., in review; Church Council of Justice & Corrections, 1996; Harper et al., 2009). This review serves as a call for research and an exploration of historical contributions to the CYC field in Canada and other nations.

This review provides insights for CYC practice including very promising evidence for OA approaches in recreation programming, education, and treatment services. It also reiterates previously raised ethical issues of practice, as well as long-standing critical questions such as the role of residential treatment and the need for family involvement in CYC practice (Beker, 2001; Arieli et al., 2001). Each of the three emergent areas are briefly discussed below.

4.2. Wilderness therapy as residential treatment

The majority of outcome studies in this review conclude with unwavering support for wilderness therapy as a treatment or intervention for young people with mental health and behavioral issues. This scoping review did not include quality assessment of studies but OA practices have been criticized elsewhere for lacking solid empirical evidence such as seen in controlled trials (Becker & Russell, 2016). While arguably beneficial, residential treatment approaches in CYC have long been debated and seen to be appropriate only when no other family or community-based options exist (Fewster & Garfat, 1993). While wilderness therapy is by default 'residential treatment' and shares, in some nations, the issues of involuntary treatment and transport services as a part of practice, it is important to understand that this practice is more than just out-of-home, but often out-of-state or even country. Sparsely or non-inhabited wilderness locations in desert, forest or coastal regions are often used for wilderness therapy, with youth having little to no public contact, or access to phones or internet communication during expeditions. International CYC understandings of 'care' and human service practice have advanced considerably over the years and criticism of involuntary treatment and the effects of child separation from family are present in the literature of CYC and other human service fields (Bettman et al., 2011; Harper, 2009; Hill & Garfat, 2004). The rationale for family involvement in residential treatment is necessary to reduce the pain of separation and loss of child identity and self-concept when removed from home and community, as well address guilt and feelings of failure experienced by parents (Jenson & Whittaker, 1989). In the cases where residential treatment has become the last alternative, OA programs need to ensure the highest levels of care are taken to bring a youth into wilderness therapy in the least harmful manner, to maintain meaningful levels of family involvement, and to ensure quality aftercare (Harper & Russell, 2008; Russell, 2005; Tucker et al., 2015).

Practitioners across residential and inpatient settings will generally agree—although the nature of involuntary treatment remains highly contentious—that it is possible to foster a meaningful client-therapist alliance which includes acknowledgement and possible acceptance of involuntary attendance (Sullivan et al., 2008). Other key influences in the treatment process include the therapeutic relationships between staff and parents, and parents and youth willingness to be active participants in treatment processes (Karver, Handelsman, Fields, & Bickman, 2006; Shirk & Karver, 2003). Encouraging or even mandating family participation in residential treatment models, as a strong predictor of outcomes, is easily recommended as an area to develop, maintain and maximize in wilderness therapy programs.

The effectiveness of treatment, the rights of the child, including sense of safety and autonomy will remain in question due to the involuntary nature of treatment models such as expressed in wilderness therapy studies in this review (de Valk, Kuiper, van der Helm, Maas, & Stams, 2016). Needing to firmly establish its place in a 'system of care' model, wilderness therapy in general, and predominantly the work of Outdoor Behavioral Healthcare, considerable effort has been taken to address questions of effectiveness (e.g., Combs et al., 2016) through an active research agenda. Additionally, questions of quality of care and efficacy are deemed equally important and needing further attention to locate wilderness therapy in the broader service to children, youth and families (Becker & Russell, 2016; Russell, 2005; Tucker et al., 2014).

4.3. Therapeutic camping and its roots in CYC

Overlap exists in the historical development and programming philosophies present in the publications reviewed for wilderness therapy and therapeutic camping. The camping movement and range of camps serving diverse populations are in close alignment with early pioneers of residential treatment exploring the environment (i.e., context and/or milieu) and outdoor and experiential activity approach to CYC. Redl (1947, 1966) in particular, deserves further treatment in the CYC and OA literature to contextualize his ideas, contributions, and influence over time.

Camp models reviewed described serving children, youth, and families "both normal and with special needs, within the context of the family, community, and the life span" (Ferguson et al., 1993, p.12). Playing on an earlier definition and the philosophy of CYC, the camp approach articulated in the literature reviewed is well aligned as milieu for practice, and again, supports historical ties to the work and writing on earlier therapeutic OA initiatives. Examples include the *Detroit Group Project Summer Camp* (Redl, 1966; Redl & Wineman, 1957) the *Wilderness Road Therapeutic Camping* model (Loughmiller, 1965; 1979) and *Sage Hill* (Durkin, 1988; Durkin et al., 1989). Camps served those with learning disabilities, psychosocial problems, chronic illness such as cancer and congenital heart disease, youth at risk, autism, fetal alcohol spectrum disorder, traumatic loss, depression, and anxiety. A wide range of positive outcomes were identified and programming was designed and delivered through a strengths-based and relational, versus pathological and clinical approach of more 'treatment' oriented approaches of wilderness therapy. That said, some camp program research was for high-risk youth and carried in its descriptions many similarities to wilderness therapy (e.g., Loughmiller, 2007). The ongoing group process and daily challenges faced in camp life were, according to Loughmiller, 2007 a therapeutic modality in and of themselves, and not a treatment tool. He described the camp approach to therapy as holistic and "far ahead of its time, and [yet] even now is not fully understood and appreciated" (p.10). This author suggests researchers look back at the decades of research and writing on camps and therapeutic camping to gain better understanding of these historical contributions and knowledge of OA in CYC.

4.4. Adventure education and physical activity: Everyday CYC practice

Publications reviewed on adventure education and physical activities suggest OA can be introduced and incorporated with intention as part of existing educational and therapeutic programs and services, rather than stand-alone experiences such as those at camps or on expeditions. Studies reviewed in this realm suggest physical and outdoor recreational activities containing elements from Table 1 could build group cohesion and individual responsibility to others, reduce stress, increase mindfulness and self-care, and in assist in addressing issues ranging from truancy to depression (e.g., Ang et al., 2014). Youth work programs can design and deliver outdoor experiential learning activities in treatment or residential settings with little resources required beyond a bit of imagination and willingness to try. It is acknowledged that many CYC practitioners already engage in OA but that this has eluded recognition as an intentional intervention or type of programming. This may be due to a lack of training and knowledge, or is outside of the scope of practice and policies set out by organizations. Trips to the local swimming hole from a group home, trail hikes from a residential treatment center into a neighboring forest, and experiential group games facilitated by CYC practitioners across settings would fall under the definitions of OA presented in this paper. It is the scarcity of OA literature surfacing on CYC practice outside of the obvious expedition-based wilderness therapy, and the location-based therapeutic camps, that supports the notion of an under-recognized, and potentially underappreciated practice which could be the subject of 'revival' in the education, training, and research realms of CYC.

5. Final remarks

The aims of this study were to identify and examine intersecting fields of practice, report on research outcomes, and to discover potential gaps in the knowledge base for CYC as it relates to OA. The scoping review is a relatively new method of analyzing a body of literature and remains open to criticism for its limitations such as lack of quality assessment, calculations of effect sizes, its inclusion of a broad range of methodologies and content—both empirical and conceptual, and leaving the interpretation of results open to the effects of biases (Arksey & O'Malley, 2005; Peters et al., 2015). It is acknowledged here that the researcher sought to identify and articulate an expression of OA found in the CYC literature. While openly biased toward OA approaches, processes undertaken and methodological choices made by the researcher are transparent and thereby replicable, increasing study reliability. Analysis of literature and formation of the narrative categories for exploration and discussion, however, were subjectively determined by the researcher in his analysis and influenced by personal and professional experience in OA and CYC.

This review identified a body of OA literature and wilderness and adventure therapy, therapeutic camping, and adventure education and physical activity emerged as dominant themes. These themes represent programs, services and 'approaches' to practice in CYC. The majority of literature in this 20-year review was from the continental US with few expressions of OA practice or research from other nations. Suggestions for future research include: (1) to review the historical confluence of CYC and OA to inform practice, (2) to increase the quantity of qualitative studies to temper the dominance of clinical outcomes research and increase comprehension of OA process mechanisms; (3) to ascertain where OA approaches serve as valued components of a 'continuum of care' for children, youth, and families, and (4) to explore cross-cultural understandings of OA in CYC.

Funding

Conflicts of interest

None.

References

Ang, R. P., Farihah, N., & Lai, S. (2014). An outcome evaluation of the implementation of the Outward Bound Singapore 5-day "intercept" program. *Journal of Adolescence, 37*(6), 771–778.

Annerstedt, M., & Wahrborg, P. (2011). Nature-assisted therapy: Systematic review of controlled and observational studies. *Scandinavian Journal of Public Health, 39,* 371–388.

Arieli, M., Beker, J., & Kashti, Y. (2001). Residential group care as a socializing environment: Toward a broader perspective. *Child and Youth Care Forum, 30*(6), 403–414.

Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology, 8*(1), 19–32.

Becker, S. P. (2010). Wilderness therapy: Ethical considerations for mental health professionals. *Child and Youth Care Forum, 39*(1), 47–61.

Becker, S. P., & Russell, K. C. (2016). Wilderness therapy. In R. J. R. Levesque (Ed.). *Encyclopedia of adolescence*(2nd edition). New York: Springer.

Beker, J. (2001). Back to the future: Effective residential group care and treatment for children and youth and the Fritz Redl legacy. *Child and Youth Care Forum, 30*(6), 443–455.

Bettman, J., & Tucker, A. (2011). Shifts in attachment relationships: A study of adolescents in wilderness treatment. *Child and Youth Care Forum, 40*(6), 499–519.

Bettman, J. E., Lundahl, B. W., Wright, R., Jasperson, R. A., & McRoberts, C. H. (2011). Who are they? A descriptive study of adolescents in wilderness and residential programs. *Residential Treatment for Children and Youth, 28*(3), 192–210.

Bettman, J. E., Tucker, A. R., Tracy, J., & Parry, K. J. (2014). An exploration of gender, client history, and functioning in wilderness therapy participants. *Residential Treatment for Children and Youth, 31*(3), 155–170.

Bettmann, J. E., Gillis, H. L., Speelman, E. A., Parry, K. J., & Case, J. M. (2016). A meta-analysis of wilderness therapy outcomes for private pay clients. *Journal of Child and Family Studies, 25*(9), 2659–2673.

Bowen, D., & Neill, J. (2013). A meta-analysis of adventure therapy outcomes and moderators. *The Open Psychology Journal, 6,* 28–53.

Bratman, G. N., Hamilton, J. P., Hahn, K. S., Daily, G. C., & Gross, J. J. (2015). Nature experience reduces rumination and subgenual prefrontal cortex activation. *Proceedings of the National Academy of Sciences, 112*(28), 8567–8572.

Brendtro, L. K. (2016). The dueling needs for safety and adventure. *Thriving: Children, Youth, Families, 1*(4), 1–3.

Brendtro, L. K., & Strother, M. A. (2007). Back to basics through challenge and adventure. *Reclaiming Children and Youth, 16*(1), 2–6.

Brendtro, L. K., Brokenleg, M., & Van Bockern, S. (1990/2002). *Reclaiming youth at risk: Our hope for the future.* Bloomington, IN: Solution Tree Press.

Brofenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design.* Cambridge, MA: Harvard University Press.

Canadian Council of Child and Youth Care Associations (2008). Definition of child and youth care. Retrieved from http://www.cyccanada.ca/.

Carpenter, C., & Harper, N. J. (2016). Health and wellbeing benefits of activities in the outdoors. In B. Humberstone, H. Prince, & K. A. Henderson (Eds.). *International handbook of outdoor studies* (pp. 59–68). London, UK: Routledge.

Carty, E., Harper, N. J., & Magnuson, D. (2017). Outdoor adventure and CYC practice: Intersections and opportunities. In K. Gharibaghi (Ed.). *Child & youth care across sectors*University of British Columbia Press (in review).

Child and Youth Care Certification Board (2010). *Competencies for professional child & youth work practitioners.* Association for Child and Youth Care Practicehttp://www.cyc-net.org/pdf/2010_Competencies_for_Professional_CYW_Practitioners%20(1).pdf.

Church Council of Justice and Corrections (1996). *Satisfying justice: Safe community options that attempt to repair harm from crime and reduce the use or length of imprisonment.* Ottawa, ON: Correctional Service Canada.

Combs, K., Hoag, M., Roberts, S., & Javorski, S. (2016). A multilevel model to examine adolescent outcomes in outdoor behavioral healthcare: The parent perspective. *Child and Youth Care Forum, 45*(3), 353–365.

Cooper, T., & Jobe, T. (2007). Equine encounters. *Reclaiming Children and Youth, 16*(1), 40–44.

Davis-Berman, J., & Berman, D. (2002). Risk and anxiety in adventure programming. *The Journal of Experimental Education, 25*(2), 305–310.

Derksen, T. (2010). The influence of ecological theory in child and youth care: A review of the literature. *International Journal of Child, Youth and Family Studies, 1*(10), 326–339.

Dimock, H. S., & Hendry, C. E. (1939). *Camping and character.* Camp Ahmek, ON: Association Press.

Duerden, M. D., Taniguchi, S., & Widmer, M. (2012). Antecedents of identity development in a structured recreation setting: A qualitative inquiry. *Journal of Adolescent Research, 27*(2), 183–202.

Durkin, R. (1988). A competency-oriented summer camp and year-round program for troubled teenagers and their families. *Residential Treatment for Children and Youth, 6*(1), 63–85.

Durkin, R., Forster, M., & Linton, T. E. (1989). The Sage Hill program for competency promotion. In E. A. Balcerzak (Ed.). *Group care of children: Transitions toward the year 2000* (pp. 297–313). Washington, DC: Child Welfare League of America.

Ehrenreich-May, J., & Bilek, E. L. (2011). Universal prevention of anxiety and depression in a recreational camp setting: An initial open trial. *Child and Youth Care Forum,*

40(6), 435–455.

Faber Taylor, A., & Kuo, F. E. (2008). Children with attention deficits concentrate better after walk in the park. *Journal of Attention Disorders, 12*(5), 402–409.

Farber, M. L., & Sabatino, C. A. (2007). A therapeutic summer weekend camp for grieving children: Supporting clinical practice through empirical evaluation. *Child and Adolescent Social Work Journal, 24*(4) (385–40).

Ferguson, R., Pence, A., & Denholm, C. (1993). *Professional child and youth care.* Vancouver: University of British Columbia Press.

Fewster, G., & Garfat, T. (1993). Residential child and youth care. *Professional Child and Youth Care, 9–36.*

Flavin, H. (1996). *Kurt Hahn's schools & legacy.* Wilmington DE: Middle Atlantic Press.

Gass, M. A., Gillis, H. L., & Russell, K. C. (2012). *Adventure therapy: Theory, research, and practice.* New York: Routledge.

Gharabaghi, K., & Stuart, C. (2014). Life space intervention: Implications for caregiving. *Relational Child and Youth Care Practices, 27*(3), 6.

Gillard, A., & Allsop, J. (2016). Camp experiences in the lives of adolescents with serious illnesses. *Children and Youth Services Review, 65*, 112–119. http://dx.doi.org/10. 1016/j.childyouth.2016.04.001.

Gillard, A., & Watts, C. E. (2013). Program features and developmental experiences at a camp for youth with cancer. *Children and Youth Services Review, 35*(5), 890–898. http://dx.doi.org/10.1016/j.childyouth.2013.02.017.

Gillis, H., Speelman, E., Linville, N., Bailey, E., Kalle, A., Oglesbee, N., ... Jensen, J. (2016). Meta-analysis of treatment outcomes measured by the Y-OQ and Y-OQ-SR comparing wilderness and non-wilderness treatment programs. *Child and Youth Care Forum, 45*(6), 851–863.

Gillis, H. L., Gass, M. A., & Russell, K. C. (2008). The effectiveness of project adventure's behavior management programs for male offenders in residential treatment. *Residential Treatment for Children and Youth, 25*(3), 227–247.

Hall, M. (2007). Mentoring the natural way: Native American approaches to education. *Reclaiming Children and Youth, 16*(1), 14–16.

Harper, N., Potter, T., Bilodeau, M., Cormode, T., Dufresne, A., Dyck, B., ... Turgeon, S. (2009). Canada and the state of adventure therapy: Wilderness expeditions, integrated service delivery models and democratic socialism? In D. Mitten, & C. M. Itin (Eds.). *Connecting with the essence of adventure therapy*. Boulder, CO: Association for Experiential Education.

Harper, N. J. (2009). Relation of the therapeutic alliance to outcome in adolescent wilderness treatment. *Journal of Adventure Education and Outdoor Learning, 9*(1), 1–15.

Harper, N. J., Peeters, L., & Carpenter, C. (2015). Adventure therapy. In R. Black, & K. S. Bricker (Eds.). *Adventure programming and travel in the 21st century* (pp. 221–236). State College, PA: Venture Publishing.

Harper, N. J., & Russell, K. C. (2008). Family involvement and outcome in adolescent wilderness treatment: A mixed-methods evaluation. *International Journal of Child and Family Welfare. 11*(1), 19–36.

Harper, N. J., Russell, K. C., Cooley, R., & Cupples, J. (2007). Catherine freer wilderness therapy expeditions: An exploratory case study of adolescent wilderness therapy, family functioning, and the maintenance of change. *Child and Youth Care Forum, 36*(2/3), 111–129.

Harper, N. J., & Scott, D. G. (2006). Therapeutic outfitting: Enhancing adolescent mental health service through innovative collaborations with a wilderness experience program. *Therapeutic Communities, 27*(4), 524–545.

Hill, M., & Garfat, T. (2004). Moving to youth care family work in residential programs: A supervisor's perspective on making the transition. *Child & Youth Services, 25*(1–2), 211–223.

Howell, J. N. (2007). Adventure boosts empowerment. *Reclaiming Children and Youth, 16*(1), 45.

James, A. B. (2008). The life space pioneers. *Reclaiming Children and Youth, 17*(2), 4–10.

Jenson, J. M., & Whittaker, J. K. (1989). Parental involvement in children's residential treatment: From placement to aftercare. In E. A. Balcerzak (Ed.). *Group care of children: Transitions toward the year 2000* (pp. 145–166). Washington, DC: Child Welfare League of America.

Jones, C. D., Lowe, L. A., & Risler, E. A. (2004). The effectiveness of wilderness adventure therapy programs for young people involved in the juvenile justice system. *Residential Treatment for Children and Youth, 22*(2), 53–62.

Karver, M. S., Handelsman, J. B., Fields, S., & Bickman, L. (2006). Meta-analysis of therapeutic relationship variables in youth and family therapy: The evidence for different relationship variables in the child and adolescent treatment outcome literature. *Clinical Psychology Review, 26*(1), 50–65.

Khan, K. S., Kunz, R., Kleijnen, J., & Antes, G. (2003). Five steps to conducting a systematic review. *Journal of the Royal Society of Medicine, 96*(3), 118–121.

Krippendorff, K. (2004). *Content analysis: An introduction to its methodology.* Thousand Oaks, CA: Sage.

Krueger, M. (2002). A further review of the development of the child and youth care profession in the United States. *Child and Youth Care Forum, 31*(1), 13–26.

Kutz, G. D., & O'Connell, A. (2007). Residential treatment programs: Concerns regarding abuse and death in certain programs for troubled youth. *Testimony before the Committee on Education and Labor, House of Representatives. GAO-08-146T.* Government Accountability Office.

Levac, D., Colquhoun, H., & O'Brien, K. O. (2010). Scoping studies: Advancing the methodology. *Implementation Science, 5*(69), http://dx.doi.org/10.1186/1748-5908-5-69.

Lewis, S. F. (2013). Examining changes in substance use and conduct problems among treatment-seeking adolescents. *Child and Adolescent Mental Health, 18*(1), 33–38.

Loughmiller, C. (1965). *Wilderness road.* Austin: University of Texas, Hogg Foundation for Mental Health.

Loughmiller, C. (1978). *Kids in trouble: An adventure in education.* Tyler, TX: Wildwood

Books.

Loughmiller, G. C. (2007). Building strengths through adventure education. *Reclaiming Children and Youth, 16*(1), 9–10.

Lubans, D. R., Plotnikoff, R. C., & Lubans, N. J. (2012). Review: A systematic review of the impact of physical activity programmes on social and emotional well-being in at-risk youth. *Child and Adolescent Mental Health, 17*(1), 2–13.

Magle-Harberek, N. A., Tucker, A., & Gass, M. A. (2012). Effects of program differences with wilderness therapy and residential treatment center (RTC) programs. *Residential Treatment for Children and Youth, 29*(3), 202–218.

Maller, C., Townsend, M., Pryor, A., Brown, P., & St. Leger, L. (2005). Healthy nature healthy people: 'Contact with nature' as an upstream health promotion intervention for populations. *Health Promotion International, 22*(1), 45–54.

Marchand, G. (2008). Challenges affecting field instructors in wilderness therapy. *The Journal of Experimental Education, 30*(3), 286–289.

Marchand, G., & Russell, K. C. (2013). Examining the role of expectations and perceived job stressors for field instructors in outdoor behavioral healthcare. *Residential Treatment for Children and Youth, 30*(1), 55–71.

Margalit, D., & Ben-Ari, A. (2014). The effects of wilderness therapy on adolescents' cognitive autonomy and self-efficacy: Results of a non-randomized trial. *Child and Youth Care Forum, 43*(2), 181–194.

Marlowe, J. M., Pearl, N. L., & Marlowe, M. J. (2009). School of urban wilderness survival and the circle of courage. *Reclaiming Children and Youth, 18*(3), 3.

McEachron, G. (2014). Compassion for the young experiencing the trauma of death. *Journal of Child & Adolescent Trauma, 7*(1), 63–72.

Michalski, J. H., Mishna, F., Worthington, C., & Cummings, R. (2003). A multi-method impact evaluation of a therapeutic summer camp program. *Child and Adolescent Social Work Journal, 20*(1), 53–76.

Mishna, F., Michalski, J., & Cummings, R. (2001). Camps as social work interventions: Returning to our roots. *Social Work with Groups, 24*(3/4), 123–171.

Mitchell, M., & McCall, H. J. (2007). The Montcalm outdoor challenge program. *Reclaiming Children and Youth, 16*(1), 22.

Mutz, M., & Müller, J. (2016). Mental health benefits of outdoor adventure: Results from two pilot studies. *Journal of Adolescence, 49*, 105–114.

Natural, J. (2007). Standing on principle: Values trump rules. *Reclaiming Children and Youth, 16*(1), 49.

Natural, J. (2008). Heroism. *Reclaiming Children and Youth, 17*(1), 23–25.

Nichols, G. (1999). Is risk a valuable component of outdoor adventure programmes for young offenders undergoing drug rehabilitation? *Journal of Youth Studies, 2*(1), 101–115.

Norton, C. L., Tucker, A., Farnham-Stratton, M., Borroel, F., & Pelletier, A. (2017). Family enrichment adventure therapy: A mixed methods study examining the impact of trauma-informed adventure therapy on children and families affected by abuse. *Journal of Child and Adolescent Trauma,* 1–11. http://dx.doi.org/10.1007/s40653-017-0133-4.

Paquette, J., & Vitaro, F. (2014). Wilderness therapy, interpersonal skills and accomplishment motivation: Impact and analysis on antisocial behavior and socio-professional status. *Residential Treatment for Children and Youth, 31*(3), 230–252.

Pelligrini, A. D. (1992). Preference for outdoor play during adolescence. *Journal of Adolescence, 15*(3), 241–254.

Pence, A. (1988). *Ecological research with children and families: From concepts to methodology.* New York: Teachers College Press.

Peters, M. D., Godfrey, C. M., Khalil, H., McInerney, P., Parker, D., & Soares, C. B. (2015). Guidance for conducting systematic scoping reviews. *International Journal of Evidence-Based Healthcare, 13*(3), 141–146.

Redl, F. (1947). Psychopathologic risks of camp life. *The Nervous Child, 6*(2), 139–147.

Redl, F. (1966). *When we deal with children.* New York: Free Press.

Redl, F., & Wineman, D. (1957). *The aggressive child.* New York: Free Press.

Richards, K., Carpenter, C., & Harper, N. (2011). Looking at the landscape of adventure therapy: Making links to theory and practice. *Journal of Adventure Education and Outdoor Learning, 11*(2), 83–90.

Ritchie, S., Patrick, K., Corbould, M., Harper, N., & Oddson, B. (2016). An environmental scan of adventure therapy in Canada. *The Journal of Experimental Education, 39*(3), 303–320.

Romi, S., & Kohan, E. (2004). Wilderness programs: Principles, possibilities and opportunities for intervention with dropout adolescents. *Child and Youth Care Forum, 33*(2), 115–136.

Russell, K. C. (2003). An assessment of outcomes in outdoor behavioral healthcare treatment. *Child and Youth Care Forum, 32*(6), 355–381.

Russell, K. C. (2005). Two years later: A qualitative assessment of youth well-being and the role of aftercare in outdoor behavioral healthcare treatment. *Child and Youth Care Forum, 34*(3), 209–239.

Russell, K. C., & Phillips-Miller, D. (2002). Perspectives on wilderness therapy process and its relation to outcome. *Child and Youth Care Forum, 31*(6), 415–437.

Schuler, N. (2006). "Spirit—Let's hear it!" more than a cheer. *Reclaiming Children and Youth, 15*(2), 103–105.

Scott, D. A., & Duerson, L. M. (2010). Continuing the discussion: A commentary on "wilderness therapy: Ethical considerations for mental health professionals". *Child and Youth Care Forum, 39*(1), 63–68.

Scott, D. C. (2006). Ernest Thompson Seton and BSA — The partnership collapse of 1915. *International Scouting Collectors Association, 6*(2), 10–16.

Shanahan, D. F., Fuller, R. A., Bush, R., Lin, B. B., & Gaston, K. J. (2015). The health benefits of urban nature: How much do we need? *Bioscience, 65*(5), 476–485.

Shepard, B., O'Neill, L. K., Jonathon, D., & Ashley, M. (2012). Intervention of hope: Sustaining caregivers of children with FASD through therapeutic psychoeducational camps. *Canadian Journal of Family and Youth, 4*(1), 79–108.

Shirk, S. R., & Karver, M. (2003). Prediction of treatment outcome from relationship

variables in child and adolescent therapy: A meta-analytic review. *Journal of Consulting and Clinical Psychology, 71*, 452–464.

Stokols, D. (1992). Establishing and maintaining healthy environments: Toward a social ecology of health promotion. *American Psychologist, 47*, 6–22.

Strother, M. A. (2007). A mind for adventure. *Reclaiming Children and Youth, 16*(1), 17–21.

Stuart, C. (2009/2013). *Foundations of child and youth care.* Dubuque, IA: Kendall Hunt.

Sullivan, M. A., Birkmayer, F., Boyarsky, B. K., Frances, R. J., Fromson, J. A., Galanter, M., ... Westermeyer, J. (2008). Uses of coercion in addiction treatment: Clinical aspects. *The American Journal on Addictions, 17*, 36–47.

Thompson Coon, J., Boddy, K., Stein, K., Whear, R., Barton, J., & Depledge, M. H. (2011). Does participating in physical activity in outdoor natural environments have a greater effect on physical and mental wellbeing than physical activity indoor? A systematic review. *Environmental Science and Technology, 45*, 1761–1772.

Thompson, M. (2009). Reviewing ecopsychology research: Exploring five databases and considering the future. *Ecopsychology, 1*(1), 32–37.

Thurber, C. A., Scanlin, M. M., Schueler, L., & Henderson, K. A. (2007). Youth development outcomes of the camp experience: Evidence for multidimensional growth. *Journal of Youth and Adolescence, 36*, 241–254.

Tucker, A. (2009). Adventure-based group therapy to promote social skills in adolescents. *Social Work with Groups, 32*, 315–329.

Tucker, A., Smith, A., & Gass, M. A. (2014). How presenting problems and individual characteristics impact successful treatment outcomes in residential and wilderness treatment programs. *Residential Treatment for Children and Youth, 31*(2), 135–153.

Tucker, A. R., Bettman, J. E., Norton, C., & Comart, C. (2015). The role of transport use in adolescent wilderness treatment: Its relationship to readiness to change and outcomes. *Child and Youth Care Forum, 44*(5), 671–686.

Tucker, A. R., Javorski, S., Tracy, J., & Beale, B. (2013). The use of adventure therapy in community-based mental health: Decreases in problem severity among youth clients. *Child and Youth Care Forum, 42*(2), 155–179.

Ungar, M., Dumond, C., & McDonald, W. (2005). Risk, resilience and outdoor

programmes for at-risk children. *Journal of Social Work, 5*(3), 319–338.

Valaitis, R., Martin-Misener, R., Wong, S. T., MacDonald, M., Meagher-Stewart, D., Austin, P., ... Savage, R. (2012). Methods, strategies and technologies used to conduct a scoping literature review of collaboration between primary care and public health. *Primary Health Care Research and Development, 13*(03), 219–236.

de Valk, S., Kuiper, C., van der Helm, G. H. P., Maas, A. J. J. A., & Stams, G. J. J. M. (2016). Repression in residential youth care: A scoping review. *Adolescent Residential Review, 1*(3), 195–216.

Van Vugt, E. S., Deković, M., Prinzie, P., Stams, G. J. J. M., & Asscher, J. J. (2013). Evaluation of a group-based social skills training for children with problem behavior. *Children and Youth Services Review, 35*(1), 162–167. http://dx.doi.org/10.1016/j.childyouth.2012.09.022.

Walker, A. N., Barry, T. D., & Bader, S. H. (2010). Therapist and parent ratings of changes in adaptive social skills following a summer treatment camp for children with autism spectrum disorders: A preliminary study. *Child and Youth Care Forum, 39*(1), 305–322.

Walsh, J., & Aubry, P. (2007). Behavior management through adventure. *Reclaiming Children & Youth, 16*(1), 36–39.

Ware, M., & Mabe, M. (2015). *The STM report: An overview of scholarly and scientific publishing.* The Hague, Netherlands: International Association of Scientific, Technical and Medical Publishers.

White, L. C., Moola, F. J., Kirsh, J. A., & Faulkner, G. E. J. (2016). A therapeutic recreation camp for children with congenital heart disease: Examining impact on the psychosocial well-being of parents. *Journal of Child and Family Studies, 25*(10), 3034–3043.

Wilson, S. J., & Lipsey, M. W. (2000). Wilderness challenge programs for delinquent youth: A meta-analysis of outcome evaluations. *Evaluation and Program Planning, 23*(1), 1–12.

Wu, Y. P., Prout, K., 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 and Youth Care Forum, 40*(2), 121–133.