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Client perspectives on wilderness therapy as a component of adolescent residential treatment for problematic substance use and mental health issues

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ABSTRACT

Wilderness therapy is a specialized approach to adolescent substance use and mental health treatment. While empirical evidence of positive outcomes grows to support this approach, qualitative understandings are lacking in the literature, thereby limiting theoretical explanations. Additionally, the voice of adolescent clients is hardly present, and was therefore the focus for this research. A sample of 148 adolescent wilderness therapy clients at one Canadian residential treatment program for addictive behaviour and mental health issues participated in the study. A realist approach utilizing thematic analysis of written open-ended responses produced six major themes; three depicting participant experiences (social dynamics, wilderness, catalyst for change) and three for perceived outcomes (skill development, self-concept, health). These findings are discussed in relationship to the development of a clinical model of wilderness therapy and the potential of wilderness interventions in adolescent residential treatment. Recommendations for practice and future research are discussed.

1. Introduction

Canadian rates of adolescent mental health issues and disorders are reported to be between 10 and 20% and this rate of occurrence has remained consistent since the early 2000's (McEwan, Waddell, & Barker, 2007; Waddell, Offord, Shepherd, Hua, & McEwan, 2002). Rates of adolescent substance use (drugs and alcohol) in young Canadians is also substantial, along with co-occurrence of mental health issues (Hammond, Ahmed, Yang, Brukhalter, & Leatherdale, 2011; Leatherdale & Burkholter, 2012; Leatherdale & Ahmed, 2010; Thompson, Merrin, Ames, & Leadbeater, 2018). Canada currently has the third highest rate of youth suicide in the industrial world; suicide is currently the second leading cause of death for 15–24 year-olds nationally behind accidents (Mental Health Commission of Canada, 2014; Skinner & McFaull, 2012). Approximately 20% of young people identified as in need of mental health service are not receiving the necessary service (Kirby & Keon, 2006; Kutcher, 2011). Canadian mental health care and treatment for adolescents has been criticized for this gap between need and service, while recognizing the complexity of solving this gap across systems of care and among human service providers (Kutcher, 2011).

Intensive treatment options, such as residential treatment centers, for adolescents with heightened problem behaviours are necessary for adolescents with intractable behavioral and mental health issues that are not resolved through community-based interventions (McCurdy & McIntyre, 2004). Wilderness therapy (WT) is one residential treatment option suggested to successfully engage this adolescent population in substance abuse and mental health treatment, and has a growing body of positive social and psychological outcomes (Bowen & Neill, 2013; Gillis et al., 2016; Harper, 2017; Russell, 2007a). Becker and Russell (2016) suggest that models of practice in WT are too diverse to be described as a modality, but that a reasonable evidence-base is building, and that the approach is deserving of further inquiry. Theoretical support for the use of wilderness environments in adolescent treatment is lacking and calls for its development have been made (see Beringer, 2004; Harper, Gabrielsen, & Carpenter, 2018; Rutko & Gillespie, 2013). The aim of this study was to respond to the need for further investigation and theoretical development of WT by exploring and articulating youth perspectives of WT as a component of adolescent residential treatment for problematic substance use and mental health issues.

2. Residential treatment

Variations of group and residential care models are often categorized together in reviews of practice, research and reporting which may "blur and confuse key distinctions" (Whittaker et al., 2016, p. 95). Describing group homes, residential treatment centers (RTC),

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therapeutic boarding schools and WT programs requires care and attention to ensure nuanced and significant differences are clearly articulated and understood in the context of treatment for specific populations served and issues being addressed. When many treatment approaches for children and youth are collapsed under umbrella terms like 'residential treatment,' this actually complicates the move to greater understanding of unique modalities that vary by population, require increased specificity on setting, intensity, protocols, change theories and other treatment factors (Whittaker, del Valle, & Holmes, 2014).

The present study shares findings from the wilderness component of one Canadian RTC for youth 13–19 years of age who are experience problematic addictive behaviour, mental health issues, truancy, running away, and academic problems (http://pineriverinstitute.com/, n.d.). We will describe the specifics of the RTC and its WT intervention under study to ensure our findings are accurately associated with a particular practice, and have relevance to similar treatment options, however, we still view the overall intervention as conforming to general definitions of therapeutic residential care. For the purposes of this paper, we adopted the definition from Whittaker et al. (2014):

> 'Therapeutic residential care' involves the planful use of a purposefully constructed, multi-dimensional living environment designed to enhance or provide treatment, education, socialization, support, and protection to children and youth with identified mental health or behavioral needs in partnership with their families and in collaboration with a full spectrum of community-based formal and informal helping resources. (p. 24).

While continuing to carry the burden and experience the difficulties of what has been termed a "last resort" treatment option for children and youth (Frensch & Cameron, 2002; Pumariega, 2007), it would be naïve to suggest that all youths' needs could be met in community settings, hence, the need for RTC remains. As Whittaker et al. (2014) suggest:

> The case for residential placement increasingly goes beyond the need for basic care and involves a decision that high intensity treatment services are needed for a small but challenging number of children and youth who present with multiple needs that cannot be effectively met in their family homes or communities. (p. 330).

Recent efforts are advancing quality of care, effectiveness, and efficiency of out-of-home service provided by RTCs (Daly et al., 2018). International consensus groups and reviews of evidence are suggesting how best to maintain RTC as a viable option in the continuum of care for those in need of this intensive intervention (Grietens et al., 2014; Whittaker et al., 2016). At the same time, other theorists, advocates and youth 'voices' suggest the need recognize systemic issues of out-of-home residential care and re-invest in family and community-level interventions, resources and systems of care (Pumariega, 2007; Whitehead, Keshet, Lombrowski, Domenico, & Green, 2007). As a last resort intervention with often complex presenting behaviours, residential care providers have been critically challenged to ensure child- and family-centred ethical practices (Brown et al., 2010; Kutcher, 2011).

3. Wilderness therapy

Spending time in nature is considered a contributing factor to healthy emotional, cognitive and spiritual development of young people (Maller, Townsend, Pryor, Brown, & St. Leger, 2005; Lubans, Plotnikoff, & Lubans, 2012; Trembley et al., 2015). Results of a recent Canadian study suggested time spent in nature is a protective factor for mental health in young people (Piccininni, Michaelson, Janssen, & Pickett, 2018). These researchers were able to identify that as little as a half-hour spent in nature each week reduced prevalence of psychosomatic issues in girls by 24% compared to their peers who had spent no time in nature. Even youth simply believing in the importance of connection with nature was found to reduce the prevalence of heightened psychosomatic issues in both boys and girls such as occurrences of depression, irritability, bad temper, feeling nervous, difficulty sleeping, head, stomach, and back-aches, and dizziness. This large and nationally representative study highlights the importance of being active outdoors, and nature-connected, for wellbeing and healthy human development (Piccininni et al., 2018; see also Mutz & Muller, 2016). Contact with nature through outdoor adventure activity, in the residential treatment realm, has long-standing historical precedence. Therapeutic camps, wilderness young offender programs, and adventure-based programs across the human service field have included time in nature and challenging physical and adventure activities in their design and delivery of treatment services for more than half a century (Durkin, 1988; Harper, 2017).

WT is a treatment approach undertaken in remote and less-inhabited places with field guides, therapists and groups of youth, creating a continuous therapeutic milieu 24/7, although often operating in a similar fashion to licensed RTCs administratively and therapeutically (Harper & Russell, Gillis, & Lewis, 2008; Williams, 2000). Numerous versions of WT practice exist, which may place the approach beyond a discernable manualized model or clear definition (Becker & Russell, 2016; Gabrielsen & Harper, 2017). With hundreds of WT programs operating in the United States, this approach is one of significance which serves more than ten thousand youth per year, and with annual revenues between 100 and 300 million dollars as an industry (Russell et al., 2008). While numerous iterations of WT exist internationally (Norton, Carpenter, & Pryor, 2015), only a few of these programs are located in Canada. The majority of WT literature portrays models of practice and outcome studies of treatment programs in the United States (Harper, 2017).

While WT has been criticized for its lack of theoretical development for utilizing wilderness environments, there does exist a significant and growing body of WT outcomes research (Beringer, 2004; Bowen & Neill, 2013; Dobud & Harper, 2018; Rutko & Gillespie, 2013). A clinical model of wilderness therapy has been proposed for a wide range of treatment models and approaches utilizing wilderness as part of the intervention (See Fernee, Gabrielsen, Andersen, & Mesel, 2017; Russell & Farnum, 2004). The model suggests that three major factors interact and provide the primary program theory: the wilderness environment, the physical self, and the psychosocial self.

3.1. Wilderness

The ecological reality of being separated from community and increasingly embedded in the *more-than-human* world is a key aspect to setting the stage for wilderness therapy. Connection to nature, time for reflection, and nature as metaphor for life have been suggested as amplifiers of therapeutic processes (Harper, Peeters, & Carpenter, 2015).

3.2. Physical self

Clients engage with risk and challenge through outdoor living and travel. The physicality of the program becomes a key change factor in that discomfort, perceived risk and a sense of accomplishment are all experienced through reaching goals and overcoming challenges (Russell & Farnum, 2004).

3.3. Psychosocial self

Wilderness therapy provides ample opportunity for clients to engage in intense social dynamics, experience conflict and resolution, and engage intimately with changes in self, others and the environment. Peer support and therapeutic alliance are also found to be important change factors in this domain (Fernee et al., 2017). One limitation to the

proposed clinical model is that it was developed based on a small number of qualitative publications, and all from studies of WT programs in the US and the authors therefore encouraged future empirical and theoretical studies to critique and refine the proposed framework and further, to broaden the perspective beyond the dominant literature from the United States.

As a therapeutic modality, WT is gaining visibility as an engaging approach for the adolescent population but has yet to firmly establish a broad evidence base grounded with theory (Becker & Russell, 2016). Recent research efforts, including three meta-analyses of treatment outcomes, offer support for WT in general as a viable alternative to conventional RCT settings (Bettmann, Gillis, Speelman, Parry, & Case, 2016; Bowen & Neill, 2013; Gillis et al., 2016). Bowen and Neill's (2013) review included almost 200 studies and 17,000+ clients and found positive pre- to post-treatment outcomes with moderate effect sizes across behavioral and clinical problems, family functioning, physical health, inter- and intrapersonal communication, and school performance. Outcomes reported at post-treatment were also found, on average, to be maintained at 6-months post-treatment. One study of 3 WT programs serving adolescents with addiction issues found clinically and significantly reduced substance use scores from pre-treatment to post-treatment and a maintenance of lowered use 3–12 months post-treatment (Lewis, 2013). These longitudinal findings are contextualized by the reality that nearly half of WT clients transition into another form of residential treatment or aftercare program (Russell et al., 2008).

The theoretical processes of WT have been supported by a limited number of qualitative studies which include youth perspective on the treatment process (e.g., Caulkins, White, & Russell, 2006; Russell, 1999). Caulkins et al. (2006) interviewed six female clients (13–25 years old) who attended a WT program for 6–12 weeks and found three general outcomes experienced early in their treatment process: reflection, perceived competence, and a sense of accomplishment. The researchers also identified 5 substantive impacts which came later in the treatment process and which the youth depicted as more intense, harder to describe, and as "nearly ineffable" (p. 27)—as having spiritual or emotional qualities. These included a sense of timelessness, awareness of surroundings, awareness of self, awareness of others, and self-efficacy. Russell and Phillips-Miller (2002) interviewed 12 adolescent participants across four WT programs and found the following factors contributed meaningfully to their therapeutic progress: the physicality of outdoor living and travel, peer feedback from the intensive social milieu and group work, and the relationships they developed with the therapists. Gabrielsen et al. (2018) interviewed and observed youth clients in a Norwegian WT program to advance understanding of therapeutic mechanisms in the wilderness setting. The authors found venturing outdoors, disconnecting from modern distractions such as technology, and a sense of reconnection with nature as catalysts for change during the wilderness experience. The physicality of the intervention was described as the second therapeutic mechanism and is comprised of the actual physical lived experience and body-mind restructuring and stabilizing. The third therapeutic mechanism was the social milieu, comprised of the synergy experienced in the group (in this case a heterogeneous group), the fine balance of vulnerability and support, and the therapy which was delivered in a healthy and positive manner and environment (Fernee et al., 2017). Overall, WT as an intervention option will benefit from further research to support its theoretical base, better understand the clinical outcomes and improve overall client care (Becker & Russell, 2016).

Two areas lacking in WT research are (a) understandings of the adolescent client's perceptions of their experience and (b) client-perceived outcomes associated with treatment. Adolescent treatment services can be improved clinically and ethically if client perspectives of their treatment experience, often ignored in literature, are included in knowledge sharing, and utilized to improve clinical practice (Bell, 2015; Graham, Powell, & Taylor, 2015; Grover, 2004; Mawn, Welsh, Kirkpatrick, Webster, & Stain, 2016). With that in mind, we sought to gain insights from youth to add the 'client perspective' to the limited theoretical basis for the practice of WT.

The aim of the current study is to explore adolescent client perceptions of (1) their overall experience, and (2) the perceived outcomes of the wilderness component of their residential treatment.

4. Methods

4.1. Program

This research is focused on Pine River Institute (PRI), an RTC with a WT experience, located in rural Ontario, Canada for youth aged 13–19 with addictive behaviours and often co-occurring mental health issues (http://pineriverinstitute.com/, n.d.). PRI uses an intensive milieu model; youths attend individual, group, and family therapy in the context of a highly structured and supportive environment (Mills, Pepler, & Cribbie, 2013). PRI's model also includes school, creative arts, physical activity, and nutrition programs, and parents engage in treatment to cultivate a healthy family environment (Mills et al., 2013). Youths are admitted to the program on a rolling, next-on-the-waitlist basis and join one of four therapeutic teams, each of which bunk, attend school, and work therapeutically with a consistent set of clinical, academic, and line staff.

Youths engage in the WT component (i.e., the outdoor learning experience - OLE) at the outset of their time at PRI. Youths typically spend "6-8 weeks in the OLE in Algonquin Park camping, canoeing, hiking, snowshoeing, participating in group initiatives, group and individual therapy, and journaling" (http://pineriverinstitute.com/our-program/, n.d.). Following their time in the OLE youths typically spend eight months in residential treatment living on a 200 acre campus in Central Ontario and take part in academics, recreational activities and ongoing individual, group, and family therapy. Students are then closely supported during four months in transition, which includes home visits that gradually increase in frequency. Once home full-time, families are engaged for up to one year involved with an aftercare provider. Ongoing evaluation is a considerable strength of PRI, and previous outcomes studies indicate that youths have experienced significant improvements from pre-treatment to 1–2 year's post-treatment across substance use, relationships, school success, and mental, physical, and behavioral health (Creighton & Mills, 2016; Mills et al., 2013; http://pineriverinstitute.com/our-program/, n.d.).

4.2. Data collection

Participants were recruited for this study as a function of their application for treatment at PRI. At the time of their application, parents had the option to decline participation in the research. At the time of data collection, youth clients were asked to read and acknowledge understanding of consent forms and had the option to decline participation in the research. Only those who consented to contribute information were included in this study.

Data were collected using a pen and paper post-wilderness survey. The survey was co-created by the clinical and research teams at PRI for clinical interest and ongoing program evaluation purposes and is aligned with standard questions for program evaluation (Mills et al., 2013). Ethics approval for the analysis of these data was granted by the University of Victoria (HREB #17-386). Upon receiving the anonymized data corpus from the Director of Research and Evaluation at PRI, we identified and utilized seven of the 12 open-ended questions and participant demographics for our dataset which were in alignment with and assisted in meeting our research aims.

Youth who attended PRI between 2010 and 2016 completed the surveys as they were being transported from the OLE to PRI's residential campus or, in some cases, on the way to another drop-off location if they were leaving the program. There were 213 youth admitted to PRI between the start of 2010 and the middle of 2016 and 149 agreed to

participate in the research.

4.3. Data analysis

A realist approach was taken to conceptualizing our research as our aim was to theorize experience and meaning in a straightforward way while ensuring themes were strongly linked to the data (Braun & Clarke, 2006). Data were analyzed using an inductive approach to thematic analysis, a theoretically flexible and rigorous method of identifying patterns within data (Attride-Stirling, 2001; Braun & Clarke, 2006). Themes were identified at a semantic level, meaning they were derived directly from participants' words (Boyatzis, 1998; Braun & Clarke, 2006).

Thematic analysis was performed manually following Braun and Clarke's (2006) guidelines: familiarizing oneself with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. The second and third authors were involved in this process to improve trustworthiness and reliability of the analysis. These two researchers were less familiar with existing WT literature and theory, allowing initial codes and subsequent themes to be generated from the data, and less from biases, supporting the inductive approach taken (Ryan & Bernard, 2003).

After initial codes were generated across all responses, survey questions and their associated initial codes were then grouped into two distinct domains relating to the research questions (i.e., experience of OLE, and outcomes) as seen in Table 1. As thematic analysis is concerned with searching for themes and patterns across an entire data set rather than within a single data item (Braun & Clarke, 2006), the two researchers then analyzed the initial codes in each domain for broader, overarching themes. If a difference of opinion regarding initial codes or themes occurred, the researchers engaged in an iterative process of going back and forth between the codes, or themes, and the raw data. This iterative process continued until consensus was met between the two researchers. The first author assisted in establishing the methodology and was consulted at each stage of analysis to contextualize findings and discuss themes as they developed.

5. Findings

One hundred and forty-eight PRI adolescent clients who took part in the OLE participated in this study; a sample volume that provides strength in speaking to one specific WT program model. Ninety-nine (66.9%) participants identified as male and forty-nine (33.1%) as female. The mean age of the sample was 17.02 (+/− 1.88 SD) years.

Table 2 shows participants in our sample spent 3 to 10+ weeks in the OLE, with almost 75% between 6 and 9 weeks. While needing to be considered for context and client-specific needs, the ideal OLE length as a precursor to immediate entry to RTC is suggested by PRI at 8 weeks (Mills et al., 2013). Our sample is then situated in the norm for program length. We identified seven reasons that participants described in their responses to the question "In your opinion, why are you at Pine River?" that included substance use and/or addiction, mental health, behavior, family, to change, the legal system, and other. These are shown in Table 3. Some participants identified more than one reason.

In our analysis of responses to the seven open-ended questions we identified 58 initial codes and 27 condensed codes. After combining the original survey questions into the two conceptual domains of (1) overall experience and (2) outcomes, we identified six themes and sixteen sub-themes depicted in Table 4. In our description of these themes we have considered the uniformity and diversity that we observed in participants' responses.

Table 1
Domains and survey questions.

Domains	Survey questions
Overall experience	What was your overall wilderness experience like? Who or what was most useful to you in OLE? Who or what was most unhelpful to you in OLE? What is your greatest accomplishment from wilderness?[a]
Outcomes	What changes have you been able to make and maintain since participating in wilderness? What have you learned from OLE? What is your greatest accomplishment from wilderness?[a]

[a] Participants responded to the question, "What is your greatest accomplishment from wilderness?" in two distinct ways that allowed responses to be partitioned into one of the two domains

Table 2
Weeks in OLE (N = 148).

Weeks	n (%)
3	1 (00.6%)
4	1 (00.6%)
5	9 (06.1%)
6	25 (16.9%)
7	24 (16.2%)
8	39 (26.4%)
9	22 (14.9%)
10	13 (08.8%)
> 10	14 (09.5%)

Table 3
Why are you at PRI? (N = 148[a]).

Reason given	n (%)
Substance use / Addiction	60 (40.1%)
Mental health	34 (23.0%)
Behavior	33 (22.3%)
Family	32 (21.6%)
To change	32 (21.6%)
Legal system	10 (6.8%)
Other	4 (2.7%)

[a] Participants could select more than one response.

5.1. Overall experience

Three themes highlight the first domain of overall experience: social dynamics, wilderness, and catalyst for change.

5.1.1. Theme: social dynamics

Social support, connection, and conflict were emphasized as common elements of participants' overall OLE experience. Participants

Table 4
Themes and sub-themes for participant overall experience and perceived outcomes.

Domain	Themes	Sub-themes
Overall experience	Social dynamics	Support Conflict Connection
	Wilderness	Challenge Change in environment
	Catalyst for change	Counselling Interpersonal relationships Program-specific activities Overcoming adversity
Outcomes	Skill development	Psychosocial skills Hard skills
	Changes in self concept	Self-efficacy Perspective Self-esteem
	Health improvements	Physical Mental

identified staff as supportive in statements like "staff check-ins really helped to remind me of my goals and work through frustrations…and helped me stay focused" (P12), "the staff and my therapist…helped support me and they helped me when I faced challenges" (P102), and other youth were also frequently identified as being sources of support, such as "my peers…were there when I needed to talk and that helped me a lot to get through the wilderness" (P54).

Second, participant open-ended responses suggested that youth experienced connection with others during their OLE experience. Representative comments such as, "I met a lot of new people that I really liked" (P108) and, "my wilderness experience was fun and the connections I could make with students and staff alike is what kept me motivated" (P55) exemplify this. Further, as this previous quote reveals, support and connection were often described as being related. Some participants also reported that their experience of connection and support was fluid throughout their OLE experience. Illustrating this, one participant noted that, "I felt very supported at first but then a lot of my friends that I was closer to left" (P88).

Finally, participants noted that the social dynamics during their OLE experience included conflict. Conflict was described as emerging from spending time with and/or working with others, "[what] caused me some difficulty [was] having to move at the pace of the slowest person [which also] frustrated me" (P3), and associated with individual peers, "[Participant's name] harassed me verbally most times, gave me unnecessary attitude, dirty looks … (P61). Illustrating the fluid nature of the social dynamics participants described, some respondents reported that conflict only emerged at specific times during their OLE experience, as indicated by one comment that the most unhelpful thing was, "the bullying that was going on my first week" (P51).

5.1.2. Theme: wilderness

Wilderness as a source of challenge and as a unique context was commonly emphasized by participants in their descriptions of their overall OLE experience. Participants often wrote that the elements of wilderness were challenging. Responses such as, "the physical discomfort of the weather" (P17) was the most unhelpful component of the OLE and, "it was hard and challenging…especially winter camping, I disagree with it" (P31) clarify this. Some respondents alternatively described wilderness as a positive source of challenge, as typified by the comment, "I enjoyed my wilderness experience… and I enjoyed the physical challenge of the wilderness and I also enjoyed overcoming emotional challenges in the wilderness as well" (P102).

Participants also indicated that wilderness was a unique and unfamiliar environmental context. This required some "adjusting" (P76) as the comment, "I feel that [the OLE] was very good once I grew very accustomed and comfortable with the woods" (P 98) demonstrates. Some participants identified this change in environmental context as serving a regulatory function. Comments such as the most useful thing about the OLE was, "space…not knowing the time or day" (P32), "not knowing the time and not having mirrors was useful and helpful" (P14), and, "[it] was calming some days to be out in the woods" (P29) emphasize this. Participants similarly described this change in environmental context as disconnecting them from their home environments. For some participants, this disconnection was reported as a useful component of the OLE, as illustrated by one participant who identified, "the disconnect from my old life" (P92) as the most useful thing about the OLE. Other participants reported that this disconnection was a negative experience. Comments such as, "I was constantly homesick" (P38), the most unhelpful thing was, "I couldn't talk to my dad, brother, family" (P16) are representative examples of this.

5.1.3. Theme: catalyst for change

We found that participants described their overall OLE experience as a catalyst for change, specifically identifying counselling, interpersonal relationships, program-specific activities, and overcoming adversity as catalysts. Representative comments that reflect counselling as a catalyst for change include, "one of the counsellors was very helpful when talking to him in private" (P82) and, "sessions with [counsellor's name] was really helpful" (P51). Interpersonal relationships described as a catalyst for change are illustrated by the comments "those around me …taught me many things" (P46) and, "[staff member's name] taught me quite a bit…he helped me get through the program as much as he could, and was generally a very good role model. He taught me everything I learned from being out here - hard and soft skills" (P41).

Program-specific activities were also identified by participants as notable catalysts for change such as solo, ceremonial aspects and written communication with family. Demonstrating this, one participant reported that their greatest accomplishment was, "writing my letter of accountability to my parents because it took me being honest with myself and having to relive some bad times, and see the pain I caused my parents" (P3) while another described, "my 'loa' [letter of accountability] really changed my perspective on this program in a good way" (P118).

Finally, overcoming adversity was also discussed by participants as a catalyst for change. Representative comments include, "[the OLE] was physically & emotionally challenging, but it showed me which my problems are, how to cope with them" (P15) and, "my greatest accomplishment was staying in the OLE and not leaving, I stuck with it and I ended up doing really well and learning a lot about myself and how if I put my mind to something I can do it" (P48).

5.2. Outcomes

Three themes highlight the second domain, outcomes: skills, self-concept, and health.

5.2.1. Theme: skills

Skills, including psychosocial skills and hard skills (i.e., camping and outdoor travel skills), were reported as notable outcomes of participants' OLE experience. Some participants identified that their communication skills had improved. As one participant reported, they learned, "how to speak to people better" (P113), while another explained, "I learned to say how I feel rather than translating that to swear words or something" (P88). Other participants identified improved leadership skills, as demonstrated by one participant's comment that they learned how to "connect with the students (especially the ones who are struggling) and to help them out and be a positive mentor for them" (P34). Improved emotional regulation skills were also described by some participants. Representing this, one participant reported, "I've learned how to keep my cool a little better" (P133) and another who explained, "[I] don't get as angry, I still do but not as frequently" (P120).

Participants also reported that they developed hard skills during their OLE experience. These hard skills were directly related to the outdoors and included comments that identified specific skills such as, "how to portage" (P44), "[how to tie] knots" (P75) and, "making fire" (P66), and more general comments, such as, "how to survive outdoors" (P137).

5.2.2. Theme: self-concept

Another notable outcome that participants reported was change in their self-concept. Some respondents described change in their self-concept related to self-efficacy, their perceived ability, as illustrated by the comments, "[I learned] I can do (sic) anything I set my mind to" (P4), and, "[I learned] I am capable of amazing things" (P33). Other participants reported changes in their self-concept related to shifts in their perspective. Responses that illustrate this point include, "I have been able to think about how I was acting out and I know why I am in the position I am now and how to manage my thoughts" (P47), and, "accepting the past and knowing all I can do is learn from it and move forward in life one day at a time" (P82).

Participants also described changes in their self-concept related to improved self-esteem. Representative comments included, “I've made changes in the way I carry myself and to be proud of who I am” (P22), “[I learned that] I'm not worthless, and I'm capable” (P72), and, “I have learned that I am strong, independent, that I am emotionally/physically capable” (P15). These last two examples serve to illustrate that some participants who reported improved self-esteem also reported an improved sense of self-efficacy.

5.2.3. Theme: health

The final theme that we found in our analysis of participants' descriptions of the outcomes they experienced was health. Some participants reported health improvements predominantly related to physical health, such as, “healthy eating and physical activity” (P60), while other participants identified improvements predominantly related to mental health, such as, “not wanting to self-harm and loving myself more” (P20). Most participants, however, reported health improvements that transcended a physical health/mental health distinction. Representative quotes included, “I brush my teeth daily, doing pushups, reduced profanity, eating 3 meals a day, sleeping every night, etc.” (P3), “getting stronger physically and emotionally” (P11), and “I have been able to manage my anxiety better and made myself better physically” (P82).

It is worth noting that participants commonly reported sobriety as an outcome. Responses that illustrate this included, “I have been able to stay sober, and learned to work through and move past my cravings” (P92), being “alcohol and drug free” (P50) as a change made and maintained, and, “being sober 9 weeks” (P94) and “quitting smoking” (P33) identified as participant's greatest accomplishments.

6. Discussion

6.1. Youth involvement in WT research

Part of our interest in conducting this study was to increase youth voice (Bell, 2015; Grover, 2004) in the WT literature, to begin to compliment the commonly published quantitative self-reports of outcomes in WT literature. We sought to understand who might benefit from WT, how and why, by asking the youth themselves. Numerous questions remain to be answered through youth participation in WT research which may address a range of programmatic, ethical and clinical concerns. For example, we found participants having mixed experiences of the social dynamic in WT. There seems to be a relevant nuance within this theme that would require further study of youth's experience of WT. In addition to relevant individual differences, the experience of positive social dynamics (i.e., support and connection) may help participants transition into and learn from a new and challenging environment, thus rendering OLE a catalyst for change. Alternatively, social dynamics that fail to be a source of support and connection (i.e., conflict) may lead to the inverse, and a negative overall experience. Youth wrote short responses to open-ended questions which reduced overall depth of analysis. Longer responses may have provided more profound insights into the WT process for youth. Question structure, time allotted, space provided for responses, and a process facilitated to draw out increased detail and meaning may have produced richer descriptions and further strengthened the findings.

6.2. Support for a clinical model of wilderness therapy

Themes that emerged from participants' responses are in strong alignment with previous qualitative research attempting to understand how WT works (e.g., Caulkins et al., 2006; Cook, 2008) and supportive of the depiction of WT elements comprising the wilderness therapy clinical model (Fernee et al., 2017; Russell & Farnum, 2004). Our findings provide general support for the three factor model of ‘wilderness’, ‘physical self’ and ‘psychosocial self’ (Fernee et al., 2017) in a number of ways:

- Wilderness – subtheme ‘change in environment’
- Physical Self – subthemes ‘challenge’, ‘overcoming adversity’
- Psychosocial Self – major theme ‘Social Dynamics’ and subthemes ‘interpersonal relationships’, ‘counselling’, ‘program-specific activities’

Interestingly, the wilderness factor is not supported in alignment with elements of the clinical model in a way that was anticipated. The present study's findings also do not support much of the current WT literature related to connection to nature, time for reflection, or nature as metaphor (Berger & McLeod, 2006; Beringer, 2004). These elements did not come up with a frequency warranting a theme, although they were present in the data to a lesser extent. For example, three clear examples where participants noted the role of wilderness in their treatment were as follows:

- “OLE helped me open my eyes to the value of a wilderness experience. It was calming some days to be out in the woods.” (P29)
- “I loved connecting with nature because it connected me with myself.” (P46)
- “… just being able to take space when needed and enjoy the wilderness” (P60)

Further, two examples of instances where reflection was discussed explicitly are:

- “Writing in my journal and having time to reflect was useful, also the physical aspect was helpful in making me healthier and feel better physically.” (P 48)
- “I have been able to take my time from the group when I was feeling frustrated and upset with myself or peers to reflect on what I am angry or frustrated with.” (P 87)

While no clear examples arose depicting nature as metaphor, as described in the clinical model and elsewhere in WT literature, we were tempted to interpret some participant responses as such. However, we also theorized that research seeking to confirm the role of nature as a metaphor, and as a healer, may often utilize scripted leading questions that prompt participants to confirm these roles. Further, this line of rationalizing wilderness as healing place has been criticized for carrying Romantic notions of wilderness found in the words of early Western nature-writers and philosophers (Harper, 2017). While our data was limited by short written responses, and longer journal-type entries may have shown deeper thinking on the role of nature, the ‘youth voices’ in this two-month (average) WT experience did not identify nature as a metaphor. Interestingly, this finding runs in alignment with a study of factors identified in the clinical model of WT. Russell, Gillis, and Kivlighan Jr (2017) also did not find nature to be a significant predictor of change in clinical outcomes in a WT program, while social and adventure factors of the program were significant. This suggests the role of nature in adolescent mental health and substance use WT may be more complicated than first assumed as it remains a central feature of practice, and often conceptualized in the literature as a contributing factor of importance. Clinicians and theorists continually identify wilderness (aka nature) as a key process feature of WT yet little is empirically shown value as a variable in the therapeutic process. Could it be that nature facilitates and magnifies cognitive, emotional, social and adventure aspects of WT? There are increasing indications of positive mental health surfacing in current research on nature contact which provides encouragement for further WT research into what role nature plays in therapy (Mutz & Muller, 2016; Piccininni et al., 2018).

6.3. Client 'fit' for WT needs to be considered

Although we found support for the clinical model of WT, we also identified that not all elements of the model necessarily work for all clients. For example, while wilderness was found as a main theme of the participants' overall experience, we also found that the challenging aspects of wilderness – those related outdoor travel and living practices – were described as positively contributing to some participants change process, while others stated openly that they disagreed with it, and found these aspects to be the least helpful part of the OLE. In discussing these findings with the director of research at PRI, it was confirmed that this is not an uncommon experience. It was also stated that some youth, when living in residence at PRI and months and years after the program, acknowledge the value of their WT experience (L. Mills, personal communication, January 29, 2019).

From a clinical client-centred and ethical practice standpoint, WT programs, as illuminated by findings in this study, need to consider 'fit' upon initial contact with clients and their families. Routine outcome monitoring has been suggested for WT and would provide ongoing youth input on what is working and what is not (Dobud, 2017). WT clinical outcomes were shown in one study to be similar for adolescent clients when matched with a conventional RTC suggesting youth should be admitted to treatment which best suits their needs (Magle-Haberek, Tucker, & Gass, 2012). To the best of our knowledge, there is no specifically designed assessment for WT that could pre-determine the fit of an adolescent and the WT treatment environment. It is our contention that intentional interviewing to specifically identify the youth's preference, connection or aversion to being in nature, and taking on physically challenging activities, would need to be included in the assessment and acceptance of clients into WT programs. This would require the youth's knowledge of being assessed for a WT program which may not always be the case. We are not suggesting assessment and fit are not currently undertaken, but the youth themselves should be included in this decision as WT is an intrusive intervention relative to community-based and outpatient programs (Dobud, 2017). It is worth noting that counsellors utilizing *nearby nature* in outpatient settings have begun to develop assessment approaches to best align interventions with client needs, preferences and abilities (Harper, Rose, & Segal, 2019; Reese & Myers, 2012).

Last, while WT may be a reasonable treatment approach for many adolescents with mental health and substance use issues, the question of *fit* can be extended to the question of whether or not participation is voluntary or not. It is well-known in treatment practice that parent, legal or medical coercion is utilized to get youth into programs. How coercion and involuntary treatment may threaten effectiveness (De Valk, Kuiper, Van der Helm, Maas, & Stams, 2016) and to what extent these factors exist in WT remains unanswered (Harper, 2017). WT studies in the United States have reported hired transportation services—often interpreted as involuntary entrance into WT—programs at 50–65% (Russell, 2007b; Tucker, Bettmann, Norton, & Comart, 2015).

6.4. What is the role of WT in residential treatment service in Canada?

Current WT literature suggests that adolescent engagement in this therapeutic approach is higher than that of conventional practices and that treatment adherence and completion has been reported to be quite high (e.g., Russell, 2007b reported it at 93%). While remote program locations, reduced direct family contact and cohesion, and strict client behavioral management in the field may have much to do with this engagement, the programmatic aspects available to adolescents in WT are fairly reasonable and appealing compared to other forms of residential treatment or care. A healthy environment, reduced stigma of therapy, and the aesthetics of nature and the physical challenges have been said to be positives of the approach by attending adolescents (Caulkins et al., 2006).

There are hundreds of RTCs in the United States which utilize wilderness as a component of treatment for adolescents experiencing substance use and mental health issues (Russell et al., 2008) and research findings indicate this approach has strong social and psychological outcomes. A Russell et al. (2008) study included only 3 Canadian programs of 65 who responded to their North American survey, and the first author of this paper can attest (i.e., from his familiarity with WT programs nationally) that only a handful of RTCs in Canada include a wilderness component presently. While not in the scope of this paper to unpack why this is, we are curious as to why not?

With increasing calls for innovative and effective treatment options for adolescents struggling with mental health and substance use issues in Canada (Kirby & Keon, 2006; Kutcher, 2011; McEwan et al., 2007) WT may serve as a viable option. RTC's may always serve a role in the spectrum of services available to adolescents in need (McCurdy & McIntyre, 2004; Whittaker et al., 2016) and the growing body of research suggesting positive treatment outcomes in WT (Bowen & Neill, 2013; Russell et al., 2017) position WT as a viable alternative option.

6.5. Recommendations for practice and research

This study has allowed us to identify salient aspects of youth participants' overall experience and what they perceived as outcomes from their time in WT and how these contribute to the development of the clinical model. The data did not allow us to explore relationships between specific aspects of experience and specific outcomes, in part because of the lack of context provided in the data (short responses). This would be extremely useful to explore in future research through longer and more detailed interviews, across programs and populations, on process factors and the relationship between WT activities and outcomes. A study such as this could be guided by process factors outlined theoretically in the clinical model (i.e., Fernee et al., 2017) and relative to more recent, and increasingly more detailed, process factor research in WT (e.g., Russell et al., 2017) and as found in previous outdoor adventure research (e.g., Sibthorp, 2003).

Our findings are supportive of the developing clinical model for WT, although we do question if there are mediating or confounding variables that need further clarification and delineation? A more in-depth narrative approach to 'youth voice' research could be undertaken to capture the context and sequence of a youth experience in WT and increase their reflexive engagement in the treatment process (Graham et al., 2015). This approach also then would allow for a thicker, richer description of these voices, further illuminating the youths experience, and identifying any parts of the clinical model of WT that do, or do not, work.

7. Conclusion

Findings from this research of youth experiences of WT as a component of adolescent residential treatment for addictive behaviour and mental health issues provides support for the emerging clinical model of wilderness therapy (Fernee et al., 2017). Our results also suggest an environmental effect on the treatment experience as proposed in WT literature (e.g., Williams, 2000), which is unique from conventional RTC settings, and that may act as a potential moderator for change, or as a therapeutic factor itself. Further, the WT approach to RTC has numerous possible explanations for its treatment success which are yet unknown. While maybe not ideal for all youth, the wilderness component of PRIs treatment model was identified by participants to be an effective setting which prepared participants for the on-campus residential phase of their treatment at PRI, and provides further support for PRIs continued use of WT (Mills et al., 2013).

7.1. Limitations and Implications

There are a number of limitations to this study. First, the analysis consisted of anonymized data and researchers had no access to

participants, staff, or administration of the program, nor did they observe the program's OLE intervention in real-time. This reality removes the findings from direct experience and observations and the paper may not represent the actual context of participant OLE experiences. Second, data were collected over a five and a half year period in which program changes and shifts in population profile and client presenting issues may have varied. This leaves findings being expressed in the absence of potential contextual factors that could have bearing on adolescent change processes and responses. With these limitations, we recommend cautious interpretations of the findings and cannot generalize beyond the sample population and program studied. Last, these findings suggest WT utilized in RTC at PRI is similar in some aspects to the WT clinical model yet requires further inquiry, and caution in practice, to ensure client safety and effective care and treatment.

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Compliance with ethical standards: research involving human participants

This study was approved by the University of Victoria's Human Research Ethics Board and informed consent was obtained from youth for their participation in this study.

Declaration of Competing Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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