Qualitative Health Research
2017, Vol. 27(1) 114–129

DOI: 10.1177/1049732316655776
qhr.sagepub.com
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# Unpacking the Black Box of Wilderness Therapy: A Realist Synthesis

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**Abstract**

Despite considerable progress within wilderness and adventure therapy research over the last decade, researchers are still unable to precisely answer why, how, and for whom this treatment modality works. There is also a need for more knowledge regarding the circumstances under which the treatment does not appear to be effective. In this realist synthesis, we attempt to unpack this "black box" of wilderness therapy more specifically, defined as a specialized approach to mental health treatment for adolescents. Through a focused review of the primary qualitative wilderness therapy studies, empirical findings are used to test and refine a key program theory. The synthesis results in a proposed *wilderness therapy clinical model* and offers informed implications for future theory development, research, and practice.

**Keywords**

adolescents/youth; health care; mental health and illness; psychosocial issues; realist synthesis; research; clinical; review; theory development; qualitative

Wilderness therapy is a group treatment modality in mental health care that seeks to augment the restorative qualities of nature combined with structured and intentional individual and group-based therapeutic work (Davis-Berman & Berman, 2008). Wilderness therapy has the potential to engage adolescent patients in particular, including those who might be less responsive to traditional methods of treatment (Lariviére et al., 2012).

Wilderness therapy is rooted in the larger field of adventure therapy (Gass, Gillis, & Russell, 2012), which has mainly been developed in the United States. Today, adventure therapy is practiced in numerous countries around the globe, and there is a wide diversity in terms of philosophies, theories, and formats (Norton, Carpenter, & Pryor, 2015). However, adventure therapy has yet to establish itself as a viable treatment option within the continuum of care for adolescents in need of mental health treatment in most places (Berman & Davis-Berman, 2013).

Despite considerable progress in terms of professional practice and research over the last two decades, a number of challenges remain. As with other treatment forms, wilderness therapy should demonstrate efficacy across programs and populations, as well as develop a clearer understanding of how this approach to treatment in fact stimulates change (Magle-Haberek, Tucker, & Gass, 2012). Over the last few years, practitioners and scholars have initiated international, regional, and national networks with the mission to promote and support the practice, development, and research of adventure therapy around the globe. Examples are the International Adventure Therapy Committee where 23 nations are represented to date, as well as the Outdoor Behavioral Healthcare Center in the United States, the Australian Association for Bush Adventure Therapy, Adventure Therapy Europe, and the Nordic Adventure Therapy Network. In addition, two recent meta-analyses have been put forward in response to the call to demonstrate efficacy (Bettmann, 2012; Bowen & Neill, 2013). However, despite increased knowledge of the potency of the group treatment, Norton and colleagues (2014) noted that as of yet "we are still not able to answer the question of why adventure therapy works or does not work; the answer remains in the black box" (p. 51).

The "black box" points to the seemingly limited knowledge of what actually takes place within the wilderness and adventure therapy treatment process (Russell, 2012). Many studies do not provide detailed program

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descriptions and guiding theories (Norton et al., 2014). This lack of a clear framework can limit the ability to make viable propositions and to replicate and compare studies. The "black box problem," in terms of research in general, commonly refers to outcome studies that are concerned only with effects, paying little attention to how these effects are produced (Astbury & Leeuw, 2010). Bettmann, Russell, and Parry (2013) encouraged future wilderness therapy research efforts to "dig deeper to investigate why, how and for whom such treatment is effective" (p. 1048).

The overall objective of this synthesis is to further explore and unpack the black box of wilderness therapy. To acquire an overview of the existing insight into the black box that has been produced by previous in-depth investigations, the realist synthesis (Pawson, 2006, 2013) was chosen as the method of preference. The realist synthesis is a theory-based review method that explores the contextual factors, mechanisms, and outcomes of a given intervention to seek an increased understanding of what seems to work or not work, for whom, and under what circumstances. The realist review claims compatibility with the complexities of today's health interventions and is increasingly used to synthesize primary studies on multi-faceted programs (Pawson, Greenhalgh, Harvey, & Walshe, 2005). According to Caulkins, White, and Russell (2006), "the context of a wilderness therapy program is complex, dynamic, and emergent" (p. 23). The treatment takes place in a semi-unpredictable wilderness environment. The programs are commonly run by a multi-disciplinary therapist team and often serve a heterogeneous population of adolescent clients. The intervention is multi-faceted, consisting of primitive outdoor life, various sequenced tasks and challenges, and structured individual and group-based therapeutic work. These various program components "interact in a non-linear fashion to produce outcomes that are highly context dependent" (Wong, Greenhalgh, & Pawson, 2010).

The aims of this synthesis are to explore the following questions: (a) Which hypotheses regarding the "black box" of wilderness therapy have been proposed in previous in-depth qualitative inquiries? (b) What are the possible conducive combinations of the therapeutic contexts, mechanisms, and outcomes (CMO) within wilderness therapy according to the included studies? and (c) What is a plausible theory or model of wilderness therapy that can be tested and refined through these explorations into the "black box"?

## Method

In the "Method" section, the methodology of a realist review is addressed. Next, the selected procedures and program theory are presented.

### *The Realist Synthesis*

Introducing the realist synthesis, the realist framework is addressed briefly, including a more detailed presentation of CMO. Finally, the purpose of theory testing and refinement is provided.

*A realist framework.* The realist synthesis is underpinned by a realist philosophy of science (Bhaskar, 1975). In applied critical realism, society is studied as an open system with an emergent understanding of causality. Realists are particularly concerned with the interplay between social structures and human agency on many levels (Maxwell, 2013). A realist review, however, does not necessarily seek to explain all these levels. An underlying assumption is that all interventions are based on a theory, or several theories concerning how change comes about. Using such underlying program theory or theories as a starting point, in this case the *wilderness therapy treatment milieu model* (Russell & Farnum, 2004), the realist synthesis seeks to explain why and how a "family of programs," such as wilderness therapy, work or do not work in particular circumstances. More specifically, the CMO of this treatment modality are investigated in-depth (Pawson, 2013). Pawson and Tilley (1997) explained, "Programs work [outcome] only in so far they introduce appropriate ideas and opportunities [mechanisms] to groups in the appropriate social and cultural conditions [context]" (p. 57).

*CMO.* Causality in a realist synthesis is presented as configurations that explain how particular conditions or contexts trigger certain mechanisms, which again generates an observed or perceived outcome (Pawson, 2006). Contextual factors are complex and layered and can be categorized as follows: (a) individuals, that is, the characteristics and capacities of the various stakeholders (clients and therapists) in the program; (b) interpersonal relations, that is, the relationships between these stakeholders; (c) intervention setting, that is, the immediate surroundings, as well as the rules, norms, and customs represented in a given program; and (d) infrastructure, that is, the wider social, economic, and cultural context of the program (Pawson, 2013, p. 36–37). These wider contextual factors can influence, for instance, the individual capacities of the various stakeholders and/or the resources available to a program. According to Wong and colleagues (2010), mechanisms are processes operating within a program that provide opportunities for change. A realist understanding holds that it is not the program itself that causes change in its participants; instead, a positive outcome depends on the participants' ability to make use of the opportunities that emerge throughout the treatment. Outcome refers to both the expected and unexpected

intermediate and final outcomes of a given program (Macaulay et al., 2011). CMO configurations may pertain to the program as a whole or to certain aspects of it. Explanations may take the form of a single configuration or may be embedded within another, such as in a series in which one outcome becomes the context of the next and so forth (Jagosh et al., 2011).

*Theory testing and refinement.* The realist synthesis attempts to make comparisons among hypotheses of how a certain program, or family of programs, is supposed to work, that is, the program theory, and the empirical findings that offer insights into how it actually plays out in different situations (Wong, Greenhalgh, Westhorp, Buckingham, & Pawson, 2013). The realist review does not result in definite answers about what works but rather seeks in-depth, detailed information about the contexts and mechanisms that explain how, for whom, and under what circumstances a given intervention is hypothesized to work or not (Pawson, 2006), thereby providing examples of "success, failure, and various eventualities in between" (Wong et al., 2013, p. 1006). The focus is explanatory rather than judgmental, and the findings may provide a refined theory as well as informed implications for further research and practice (Rycroft-Malone et al., 2012).

## Procedures

The procedures include a definition of wilderness therapy, followed by descriptions of focus and scope, inclusion and exclusion criteria, the search process, and finally the quality assessment, data management, and theoretical synthesizing of this realist review.

*Definition of wilderness therapy.* Wilderness therapy distinguishes itself from adventure therapy in terms of treatment context by primarily operating in remote wilderness settings, where basic outdoor life and the experience of nature are integral to the treatment process (Fernee, Gabrielsen, Andersen, & Mesel, 2015). Furthermore, it is set apart from the larger group of wilderness experience programs because it applies clinical and therapeutic methods that are targeted to treat adolescents' emotional, behavioral, psychological, and/or substance use issues. In this specialized approach to treatment, adolescents practice group living with peers and therapists, undergo individual and group therapy sessions, and learn basic outdoor skills. Wilderness therapy programs appear to reveal and address certain problem behaviors of adolescent clients, in addition to foster their personal, emotional, and social growth (Russell & Farnum, 2004).

Defining wilderness therapy as a specialized approach to mental health treatment through the use of targeted clinical and therapeutic methods in a wilderness context can be considered narrow as a definition, as it excludes a number of studies that investigate wilderness experience programs, adventure-based interventions, and programs with non-clinical populations. However, this delineation is considered important for the process of conceptualizing wilderness therapy as a mental health treatment modality, and for the implementation of this group treatment in the established health care services around the world as a viable treatment option within the continuum of care.

*Focus and scope.* This realist review is narrowed in focus by (a) utilizing a specific definition of wilderness therapy; (b) including only clinical populations of adolescents; (c) using one key program theory; (d) including only primary, empirical qualitative studies that have explored single or multiple therapeutic factors within the wilderness therapy treatment process; and (e) being limited in terms of evidence base. The reason for these limitations, besides restrictions in terms of time allotted for the review, is that the in-depth nature of qualitative research is considered a good starting point for exploring the black box. Focusing on wilderness therapy as a specialized approach to mental health treatment was intentional to contribute toward the theory building and evidence base that is necessary for it to acquire status as a viable treatment option.

*Inclusion and exclusion criteria.* The primary studies were to include adolescent populations limited to the ages of 12 to 18 years. The synthesis focused on qualitative studies of clinical populations of adolescents; therefore, student and general at-risk populations were excluded. The narrow focus on wilderness therapy as a specialized approach to mental health treatment excluded recreational programs that did not explicitly offer an intentional therapy component, according to the aforementioned definition. Studies that focused selectively on treatment for delinquency or substance use, as opposed to mental health problems in general, were also excluded. Furthermore, it was preferable that the studies included a description of the treatment program and investigated process factors in relation to psychosocial outcomes. Further limitations were the decision to only include peer-reviewed articles published in English from the year 2000 onward because we were interested in the more current literature at this stage. Also, books, dissertations, unpublished work, and gray literature were not included.

*The search process.* A university-based librarian assisted in the planning stage of the search. Considering that several terms are used almost interchangeably for wilderness therapy, that is, adventure therapy and outdoor behavioral

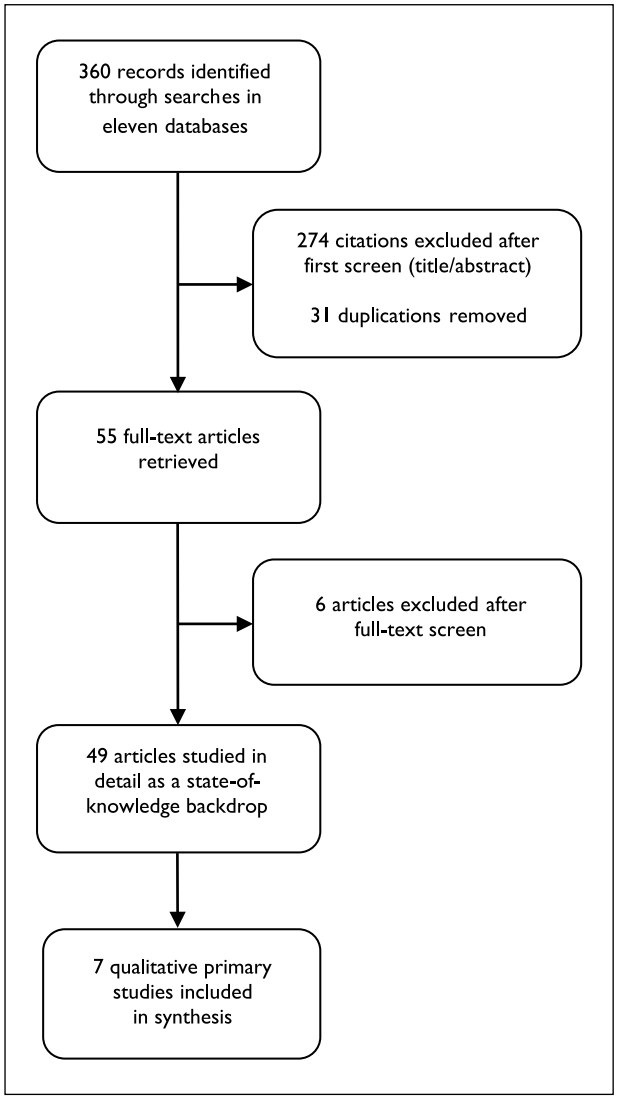


**Figure 1.** Flow diagram.

health care, we decided to also include these terms in the following search string: (Adolescent* OR youth OR young* OR teen*) AND (At risk OR mental health OR mental disorder OR mental illness*) AND (Adventure therapy OR wilderness therapy OR outdoor behavior* healthcare). The search was performed in a total of 11 electronic databases in October 2014, including the following: Medline, PsychINFO, Embase (all OVID SP host), ERIC, Social Work Abstract, Academic Search Complete, SocINDEX, Cinahl (all Ebsco host), and, finally, Campbell, Cochrane, and Svemed+.

Based on the literature search (see Figure 1), 360 citations were found. Of these, 274 were deemed non-applicable after screening the title and abstract according to the criteria for inclusion and exclusion. After removing duplicates, we were left with 55 articles that were retrieved in full text. Six citations were excluded after the full-text read, because these articles did not meet the definition of wilderness therapy and/or were not concerned with a clinical adolescent population. Finally, a total of 49 articles remained of relevance for the synthesis topic. These articles were studied in detail as a knowledge base for the subsequent focused synthesis, and as a contribution to a state-of-knowledge article (Fernee et al., 2015). However, only seven articles were considered for the final inclusion in the synthesis, after removing the articles that were not empirical (15), not qualitative (16), not aligned with the definition of wilderness therapy (three), and/or did not describe a clinical population of adolescent participants (eight).

*Quality assessment, data management, and theoretical synthesizing.* The seven articles were read in detail and assessed according to relevance and rigor. In the realist review, the quality assessment is primarily a consideration of fitness for purpose (Pawson et al., 2005). Studies are rarely excluded based on methodological rigor alone, as long as their contents are considered of relevance for the process of theory testing and refinement. Primary studies, instead of being the unit of analysis themselves, "contribute different elements to the rich picture that constitutes the overall synthesis of evidence" (Kastner et al., 2011). The seven articles were found to be of relevance to the review and were therefore included in the subsequent synthesis (see Table 1). Considering that the included articles were all peer reviewed and published in scientific journals available in the public domain, we trust that the ethical standards have been maintained in the primary studies.

The moderate number of included studies allowed for manual data management, in which the empirical findings were carefully examined by the first author and subsequently analyzed in the process of populating the conceptual framework offered by the selected key program theory. This process focused in particular on eliciting influential contextual factors and therapeutic mechanisms, and identifying the range of reported outcomes. Following this rough, preliminary analysis, the conceptual map was introduced to the review team (made up of the three co-authors) for discussion and critical reflection. The first author then returned to the primary studies to test the preliminary hypotheses, thus continuing the iterative process that finally resulted in an extended or refined theoretical model. Next, this framework was re-introduced to the review team. At this point, the draft was also assessed by an appointed expert in the field who was invited to provide comments. Finally, attempts were made to arrive at a final proposition of a refined program theory, which will be presented at the end of the "Results" section.

**Table 1.** Included Primary Studies.

| Authors | Year | Purpose of Studies |
|---|---|---|
| Bettmann, Olson-Morrison, and Jasperson | 2011 | Evaluating the narratives of adolescents involuntary enrolled in WT treatment to understand how they perceive relationships with important adults—specifically parents and therapists. ($n$ = 13. Six female/seven male, aged 14–17. $M_{age}$ = 16). |
| Caulkins, White, and Russell | 2006 | Exploratory case study that isolates one component of the therapeutic process—backpacking—investigating how this factor is related to self-reported outcomes for troubled adolescent women. ($n$ = 9. Six female, aged 15–16 and three female staff). |
| Cook | 2008 | Gaining insight into the effect of a residential wilderness program on self-evaluation of male adolescent clients where the aim is to identify specific aspects of the program that were associated with these changes. ($n$ = 13, all male, aged 12–16). |
| Davis-Berman and Berman | 2012 | Longitudinal study that interviews participants > 20 years after they took part in a 10-day WT program at age 14–16. The participants were asked to reflect on their lives, the WT trip and the impact of the trip. ($n$ = 4. Three female/one male). |
| Russell | 2000 | Examining the WT process in context at four WT programs to illustrate how the treatment process works and what outcomes emerged from the intervention through four client case studies. ($n$ = 4, all male, age not found). |
| Russell and Phillips-Miller | 2002 | Examining the WT process through a multi-site case study at four WT programs to identify key change agents and how these relate to reported outcomes for treatment. ($n$ = 12. Three female/nine male, aged 13–17. $M_{age}$ = 17). |
| Russell | 2005 | Evaluating youth well-being 24 months after the conclusion of WT treatment. Exploring youth transitioning to a variety of post-treatment settings and assessing the role of aftercare. ($n$ = 47). (This study also included parent informants, but these were excluded from the synthesis.) |

*Note.* WT = wilderness therapy.

### *Program Theory*

Russell and Farnum's (2004) wilderness therapy treatment milieu model (see Table 2) was selected as the key program theory for further testing and refinement through this synthesis. This model stands alone in terms of establishing the theoretical basis for distinguishing the unique treatment milieu within wilderness therapy as opposed to more traditional treatment forms. This theoretical framework is also referred to as the concurrent model in that it replaces the previous stage-based models of wilderness therapy. The model conceptualizes the dynamic and interrelated nature of three therapeutic factors that are believed to be unique to the wilderness therapy milieu and each able to facilitate change in the participants. These three components are hypothesized to be present at all times, but to varying degrees, according to the temporal progression of the program (Russell & Farnum, 2004).

The three factors are as follows: (a) the Wilderness, which refers to nature itself; (b) the Physical Self, which comprises both personal interactions with the wilderness environment and activities that facilitate learning or personal growth; and (c) the Social Self, which represents the variables associated with social interaction among the adolescents and the wilderness leaders/therapists, in which communal wilderness living is considered a rather unique platform for social learning to occur.

Russell and Farnum (2004) anticipated the time of peak intensity of the three components, where the wilderness quality is hypothesized to be the most prominent factor at the beginning of the treatment. Everything is new, and the wilderness experience may be fascinating, intimidating or overwhelming. As the participants acclimate to the wilderness context, the physical self is more salient as the adolescents challenge themselves and attempt to manage the various tasks and challenges of the experience. As the group members become more comfortable in the setting and feelings of mastery and self-efficacy increase, social interaction begins to occur. Thus, the social self becomes the third therapeutic factor, where the participants are expected to increasingly engage in the group process in the latter phases of the treatment.

Although Caulkins et al. (2006) represented the only study to date that explicitly followed up on the theoretical framework proposed by Russell and Farnum (2004), we still chose to use the model in the synthesis both as a means to (a) structure the findings of the realist review and (b) test and/or refine the model through this exploratory exercise, potentially arriving at a refined program theory.

## Results

### *Search Results and Study Characteristics*

Of the seven included studies (see Table 1), four (Davis-Berman & Berman, 2012; Russell, 2000; Russell, 2005; Russell & Phillips-Miller, 2002) had a general focus in terms of investigating the wilderness therapy process as a

**Table 2.** Conceptual Framework of the Wilderness Therapy Treatment Milieu.

| Category | Time of Peak Intensity | Proposition |
|---|---|---|
| | Therapeutic Factors of the Wilderness Experience | |
| Wilderness | Beginning | The wilderness environment, acting alone, can be seen as a restorative environment for at-risk youth who have high levels of anxiety and are stressed from mental fatigue caused by too much direct attention. |
| Physical self | Middle-late | By combining the effects of feeling and looking better physically through consistent physical activity and wilderness activities that are designed to challenge while allowing opportunities for immediate feedback and success, the wilderness works as a therapeutic medium to foster an enhanced image of the self. |
| Social self | Late | Research has shown that wilderness experience programs, through a variety of day-to-day activities while on the program, helping at-risk youth learn more cooperative behaviors. |
| | | Breaking down barriers of stereotypes and preconceived notions allows participants get to know each other better, meeting the needs of youth at risk who have limited capacities to form close interpersonal relationships. |

*Source.* Adapted from Russell and Farnum (2004, p. 41).

whole rather than selected elements of the treatment. Two of these studies were longitudinal in nature interviewing a sample of clients 2 years (Russell, 2005) and two decades (Davis-Berman & Berman, 2012) post-treatment. The final three studies were more targeted per se, specifically investigating attachment relationships (Bettmann, Olson-Morrison, & Jasperson, 2011), treatment effects on self-evaluation (Cook, 2008), and backpacking as a physical component of a wilderness therapy program (Caulkins et al., 2006). Most of the studies had small sample sizes ranging from four to 13 participants, with the exception of Russell (2005), who included 47 adolescents. The majority of the studies utilized purposive or convenience sampling, with the exception of two studies in which client cases were chosen based on randomly selected admittance dates (Russell, 2000; Russell & Phillips-Miller, 2002).

Information provided about the programs and participants varied from little information to detailed case descriptions and studies that included demographics, reasons for referral, and/or diagnoses. Most studies focused on a single wilderness therapy program, whereas two articles presented case studies from four different programs (Russell, 2000; Russell & Phillips-Miller, 2002). There were multiple variations among the programs represented in the studies. For example, the duration of treatment varied, ranging from 10 days (Davis-Berman & Berman, 2012), 21 days or 52 days (Russell, 2000), 12 weeks (Bettmann, Olson-Morrison, & Jasperson, 2011; Caulkins et al., 2006), and up to a year-long residential program (Cook, 2008). The wide variation among the programs represented in this synthesis and the fact that all the included studies originated from one country, the United States, limits the generalizability of the findings to other programs, contexts, and countries.

In the subsequent "Results" section, the therapeutic configurations are presented as text, where the contextual factors, proposed mechanisms, and treatment outcomes are illustrated with a C (context), M (mechanism), or O (outcome) in brackets. At times, you will come across a combined C/M, O/C, or M/O, which indicate chains of configuration where, for instance, a contextual premise for one specific outcome can also be the mechanism for another outcome. There are also instances where an outcome can appear as the context or mechanism for a subsequent configuration. The results are structured according to the key program theory made up of the wilderness, the physical self, and the social self. Next, we describe other emerging factors that were manifested through the review process, and we present the overall and longitudinal outcomes. Finally, we explore the study populations with regard to the *for whom* dimension of the guiding research question and search for examples of wilderness therapy not working.

## Testing and Refining the Program Theory

*The wilderness.* The participants in the Russell and Phillips-Miller (2002) study described the initial feeling of being situated in the wilderness as a shock [C]. However, this primary sense of despair was gradually replaced by self-confidence [O], which emerged as the participants started to manage the many inherent challenges [M] of the program. Davis-Berman and Berman (2012) reported that the participants portrayed the wilderness environment as a healing place for them [C] that facilitated change [M]. All the respondents in the longitudinal study stated that the wilderness setting [C] was an important factor of the experience, and they all had their distinct memories of specific

places in nature. Examples provided were the sensation of climbing a large rock [M] and descriptions of finding peace in the woods [O] after having experienced turmoil and loss in their personal lives [C].

Russell (2000) reported the importance of the adolescents experiencing time alone [M], also referred to as *solo*, in the wilderness [C]. This facilitated exercise provided the adolescents with an opportunity to reflect on their lives [M], and it seemed to bring about increased awareness [O] and personal insight [O]. This was exemplified as the adolescents finding out who they were [O] along with the opportunity to contemplate things they had done wrong in the past [M]. The participants in the Russell and Phillips-Miller (2002) study spent up to 3 days on solo [C], where the clients reported gaining another perspective on their problems [O], acquiring a greater appreciation for the things they had in life [O], and having the time and opportunity to confront their problems [M]. One participant statement from the study explained, "Before then I had been really anxious and really everything was still running through my head, I was still panicking. Trying not to deal with my problems. And then on the solo…I faced them, dealt with them" [M] (p. 427). However, the use of alone time, or solo, should be assessed individually. Although the exercise may be conducive for a number of adolescents, Russell (2000) suggested that it might be inappropriate for some. For instance, individuals who struggle with depression might not benefit from spending extensive amounts of time alone in seclusion from the rest of the group.

The opportunity to reflect on life [M] was suggested to be a key agent of change in wilderness therapy treatment (Russell & Phillips-Miller, 2002). Contextual factors that were recognized as generating this experience were the separation from their families [C], perhaps for the first time, in combination with being situated in the wilderness [C]. Russell (2005) also reported similar contributing factors such as being away [C/M] and the appreciation of primitive life in nature [C].

Another mechanism mediated by the wilderness context [C] was the notion that the stigma that is often attached to mental health treatment appeared to dissolve [M] in the wilderness therapy setting [C] (Russell & Phillips-Miller, 2002). Adolescent clients who had formerly been resistant to conventional therapy [C] stated that it was different with wilderness therapy and that it felt less like they were in treatment [C]. Wilderness therapy came across as more natural where they would just "sit and talk" [C/M]. This experience was described as less intimidating [M/O] than former treatment settings. The therapists would also use the wilderness [C] to come up with metaphors [M] for some of the personal issues they were working on.

*The physical self.* The challenging aspects [M] of the wilderness therapy treatment were reported as a key factor, exemplified by the need to be uncomfortable [M], the hardship of enduring primitive outdoor living [M], and the physical demands related to hiking [M]. These program components and experiences were all considered contributing factors in the reported change processes (Russell & Phillips-Miller, 2002).

Caulkins et al. (2006) explored the physical component of wilderness therapy in more detail in their investigation of how backpacking affected their population, described as troubled adolescent women. The context for this specific wilderness therapy program was an extensive use of physical activity as one of the main components of the treatment. Over a 6- to 8-week period [C], the clients hiked anywhere from 5 to 10 hours a day 5 days a week [C]. Two days of the week were layover or rest days [C]. The hiking took place over rugged terrain, and each client carried a 30-pound backpack [C]. Backpacking was always done as a group, and they could only move as quickly as the slowest member and only as far as the most tired person could manage [C]. Participant observation and interviews revealed that the backpacking had an initial general impact in causing the clients to reflect [M/O]. Reflection was described as a relaxed state of thought [O] that appeared to be facilitated by "Simple physical movement in an undisturbed span of time that lacked intense or directed attention" [M] (p. 28), which allowed the clients to "let their thoughts wander" [M] (p. 28). This opportunity for reflection [M] allowed the young people to reevaluate what is important in life [M/O]. The clients also reported perceived competence [O] and a sense of accomplishment [O] that seemed to increase over time. This was related to the observation that they became stronger [M] and that the hiking was gradually perceived as less demanding [M]. The sense of accomplishment mostly appeared after a long day of hiking or during layover days [C/M]. The time to rest [C/M] added perspective [M/O] or contrast [M] to the long hikes the other days [C] (Caulkins et al., 2006).

Over time, more substantive impacts emerged, according to Caulkins et al. (2006). These were more intense in nature and deemed difficult to describe. The first of these was labeled self-efficacy [O], an impact that was most commonly described as follows: "A personal feeling of assurance to overcome emotional or physical obstacles . . . having faith in one's own ability to influence thoughts and behaviors" (p. 30). These sensations seemed to be mediated by the fact that the adolescents persevered through the long and exhausting hikes [M]. One of the participant statements proclaimed, "Now I know I can deal with any emotion that gets turned up in my mind. Like any feeling I have, anything that's thrown at me, I can handle it" (p. 31). As the clients became physically stronger [M] and more

confident [M], they also appeared to be more mentally resilient [O], according to Caulkins and colleagues (2006).

Caulkins et al. (2006) also found an enhanced awareness [O] among the clients that was threefold in its focus: first, of the natural surroundings [O]; second, of the self (i.e., conscious recognition of one's selfhood and taking responsibility for one's behavior) [O]; and third, of the other group members (i.e., development of empathy, suggesting a major advancement in emotional intelligence) [O]. Finally, hiking for 6 to 8 weeks [C] brought about a sense of timelessness [O] and a distraction-free contrast [C/M] to the many pressures of everyday life [C], which Caulkins and colleagues suggested could provide the necessary time and space [C/M] to process emotional upheaval [O].

These realizations coincide very well with the three factors of the wilderness therapy treatment model. However, there is another dimension related to the emotional maturation, mental resilience, cognitive reflection, and emergence of self-efficacy that is not captured in the existing model. These processes represent psychological components that could either feature as a separate factor or be incorporated into the Social Self factor, hence expanding it to a Psychosocial Self factor. We shall revisit this suggestion when we arrive at a proposed refined program theory at the very end of the "Results" section.

*The social self.* The wilderness therapy treatment setting, with its small treatment groups [C], high staff-client ratio [C], and focused therapeutic approaches [C], can challenge adolescents' relational patterns and behaviors [M] (Bettmann, Olson-Morrison, & Jasperson, 2011). The adolescent clients may become distressed [M] by the separation from their primary support system [C], and these processes are likely to activate the attachment system [O]. The wilderness therapy milieu encourages the adolescents to rely on the group members and the therapist team [M] to meet their physical and emotional needs [O]. The participants are also faced with the opportunity—or threat—of initiating new relationships [M] while taking part in the group treatment. Bettmann, Olson-Morrison, and Jasperson (2011) noted that the ability of the adolescent clients to develop relationships with the other group members and the therapists [C/M] may influence the outcomes [O] of the treatment. However, the ability to engage in social relationships relies, in part, on how they perceive relationships with other important adult figures in their lives [C]. Bettmann, Olson-Morrison, and Jasperson (2011), in their study of attachment relationships within wilderness therapy populations, found that most of the adolescents had highly conflicting relationships with their primary caregivers [C]. This appeared to color their feelings for all adult relationships [C]. In addition, most of them reported negative experiences from former mental health treatment prior to wilderness therapy [C], where they expressed neither liking therapy [C] nor trusting the therapists [C].

Russell and Phillips-Miller (2002) identified a strong relationship with the wilderness therapists [C] as a key change agent in the treatment process. The wilderness therapists came across as more human [C] compared with former therapists. The importance of the alliance with therapists was reaffirmed by Russell (2005), who described relational mechanisms in terms of the therapists being easy to talk to [C], as well as the importance of the leaders' presence in the wilderness [C]; exemplified with this participant quote: "I just really bonded with them because they were all out there with us living it, you know enduring it with us" (p. 218). Russell (2000) reported a number of conditional factors regarding the wilderness therapists that were particularly appreciated by the adolescent clients, including qualities such as genuineness, empathy, and concreteness [C]. Furthermore, a caring and non-confrontational approach [C] helped the clients speak openly of their struggles [M].

All the respondents, according to Russell and Phillips-Miller (2002), also noted peer dynamics [C] as a key change factor. More specifically, the experience of giving and receiving feedback [M], along with the willingness to share their feelings with the other members of the group [M]. Through the communal sharing of experiences [C/M], the individual participant could relate the various accounts to his or her personal situation [O]. According to Cook (2008), positive peer relationships [C] support healthy development of the self [O]. In her study of adolescent self-evaluation, peer relationships were found to be critical in the participants feeling accepted and supported in the group [O] and in developing appropriate social skills [O], exemplified in the following participants' statement: "I would attribute me changing to the relationships with people here and realizing that there are people that care about you" (p. 763). Social support [C/M] appeared particularly salient in bringing about changes in self-evaluation [O], according to Cook, as it seemed to be lacking in many of the clients' previous environments [C]. Difficulties with peer relations [C] were identified as the source of many of the clients' general problems [O]. To establish interpersonal relationships [O] and facilitate social support [M] within the wilderness therapy setting, Cook encouraged the use of cooperative activities that promote pro-social values [C]. Such activities were believed to increase self-esteem [O], social competence [O], and acceptance of others [O], as well as foster trust [O].

Davis-Berman and Berman (2012), on the contrary, reported that their participants presented mixed responses when it came to the importance of relationships. Although one respondent made reference to the social aspects of the

treatment, others viewed wilderness therapy primarily as an individual experience, where the relationship to others appeared unimportant. The researchers were surprised that there was little reference to the other participants, and even therapists, as the relational aspects had been reported as influential in previous studies. Davis-Berman and Berman speculated that the reason for this might be that the therapists and the group were considered conditional and structural elements and, hence, were not thought to stand on their own as something to be mentioned. They could neither rule out nor confirm the role of the group or the therapist as critical elements of change.

We have now looked at the various configurations found within the three factors of the key program theoretical model. We shall now turn to other factors that emerged through this synthesis.

*Other emerging factors*. Cook (2008) isolated one psychological component, self-evaluation, in her inquiry into how a residential wilderness therapy program might influence participants' self-concept. Cook noted that clients tended to make self-deprecating remarks about themselves [M] at the beginning of the treatment, indicative of low self-esteem [C]. The adolescents stated that it was challenging to interact with the other participants in the group [M] due to a lack of social skills [C]. They also expressed difficulties in being themselves [C] and seemed to feel a "lack of voice" [C] (p. 760). After a second round of interviews 4 months into the program, Cook found that the participants showed an increased willingness to discuss their feelings of self [M/O] and that they appeared to have experienced a positive effect on self-evaluation [O]. Participant statements included "This place makes you feel stronger mentally and physically. It helps you be able to deal with things in a positive way…I am feeling a lot better about myself. I want to do more with my life now" [O/M] (p. 760). In exploring how these changes came about, Cook discovered that the program offered opportunities [C] for the adolescents to open up and express themselves in a sincere way [M]. These opportunities for self-expression [C/M], particularly in the circle around the campfire at night [C], combined with experiences of social support [C/M], seemed to lead to certain psychological outcomes. These were suggested to be, besides positive effects on self-evaluation [O], increases in self-esteem [O] and emotional control [O].

Another factor that emerged across studies was that the majority of wilderness therapy clients had received conventional therapy without much success before entering the wilderness therapy treatment [C]. Wilderness therapy appeared to engage many of these adolescents regardless of these prior experiences with therapy [C]. Davis-Berman and Berman (2012) found that many of the personal issues did not surface [M] until they entered the wilderness therapy program [C], and they seemed to reach other outcomes [O] than they had managed to in former conventional treatment settings [C]. Examples provided by Davis-Berman and Berman were, for instance, that one of the participants was finally able to talk about the abuse [M/O] she had experienced in her life, which she had not felt comfortable sharing previously. Another participant had not processed her grandmother passing away [C]. On the wilderness trip, the participant was able to let go of her grandmother [M], which finally brought her peace [O]. Russell (2000) also reported that the wilderness therapy experience brought up issues for the first time [C/M]. The specific mechanisms for how these opportunities were facilitated are not described. However, this opening up to sharing their personal stories [O/M] can be linked to what Cook (2008) labeled "finding a voice" [O] and to the experience of social support [C] that appeared to facilitate self-expression [M]. Russell also found a relationship between the clients learning to express their feelings [O] and developing an increased awareness of when they were getting out of control [O].

Another emerging factor was the importance of timing [C] for the impact of the wilderness therapy treatment. All the clients in the Davis-Berman and Berman (2012) study reported experiencing major personal and family problems at the time of the intervention [C]. These problems made them ready to take part in treatment and to be open to change [C/M].

Finally, Davis-Berman and Berman (2012) suggested that the impact of wilderness therapy may assist the maturation process of adolescents [O]. This proposition was also put forth by Russell (2000), as some of the participants reported that they felt wiser and more mature as a result of the wilderness therapy treatment. However, the context and mechanisms related to these outcomes were not described in detail in either article.

*Overall and longitudinal outcomes*. From a longitudinal perspective, participants appeared to regard the wilderness therapy treatment as a valuable experience through which they learned lessons for life [O]. According to Davis-Berman and Berman (2012), the participants used elements of the trip when navigating through rough patches later in life [M]. One of the participants, over two decades later, for instance, still made reference to the wilderness therapy experience and used it as a focal point [M]. However, Davis-Berman and Berman (2012) note that none of the respondents portrayed the intervention as life changing or life altering [O], and it certainly did not inoculate clients against future difficulties [O]. Rather, it had the potential to provide the young people with skills to "make these hardships somewhat easier to bear" [O] (p. 336). Russell (2005) also problematized the idea that

wilderness therapy "fixes youth" such that the adolescents return from the wilderness as highly confident individuals who are equipped to cope with any pressing situation that might concern peers, family, or school/work. Participants in Russell's (2000) study described wilderness therapy as "a fresh start" [O] and a "wake-up call" [O] (p. 174). Moreover, the overall outcome of wilderness therapy was described as a pivotal step in the right direction [O] away from a destructive path [O] (Russell, 2005). As such, the group treatment was depicted as an intervention that could turn things around [M] rather than something that would ameliorate all forms of prior and future suffering. According to Russell, the participants spoke of many ups and downs the first 12 months following the treatment [O], along with difficulties in functioning in peer social settings [O]. In many cases, some form of aftercare was recommended. Still, 87% stated that they were doing well 24 months post-treatment [O] (Russell, 2005). When asked to reflect back on the wilderness therapy experience, many reported that they were just then realizing the impact of the experience on their lives. One client expressed that he hated wilderness therapy at the time, but now that 2 years had passed, he rated it as "one of the most important experiences of my life" [O] (p. 217). This finding suggests that in some incidences, improvements can be gained or realized over time, even if individuals originally found the treatment experience to be difficult.

Furthermore, the wilderness therapy experience appeared to generate a desire in the participants to change for the better [O]. According to Russell (2000) and Russell and Phillips-Miller (2002), this desired change was often manifested in a clearer direction in life [O] and concrete behavioral goals [O], such as to try harder at and finishing school [O], and staying away from old friends or environments that had a poor influence on them in the past [O]. Also of importance was the wish to enhance the relationship with their families [O], particularly through improving their communication and striving for increased openness [O].

*For whom?* In addition to detailed program descriptions, there is a need for more precise descriptions of the patient population to understand the full picture of the black box and to ensure a more prescriptive use of the treatment. The included studies did not explicitly explore individual characteristics in relation to the treatment process and outcomes. However, there were some brief descriptions of reasons for referral and/or listing of diagnoses. Most programs served a heterogeneous population of adolescents with a range of psychological symptoms, and the majority of the participants across studies were reported to have an unsuccessful experience of counseling or mental health treatment prior to entering the wilderness therapy program. Reasons for referral to wilderness therapy included (a) school problems, (b) drugs and alcohol, (c) resistance to other forms of counseling and treatment, (d) suppressed anger and emotions, (e) disobedience and conflicts at home, (f) trouble with the law, (g) suicidal ideation and self-harm, and, finally, (h) the clients themselves stating that they needed help (Bettmann, Olson-Morrison, & Jasperson, 2011; Russell & Phillips-Miller, 2002). The population in Cook's (2008) study were all male and commonly included defiance of authority, behavioral problems, low self-esteem, poor communication skills, and low academic achievement, with the most recurring diagnoses being oppositional defiant disorder, conduct disorder, attention deficit hyperactivity disorder, and secondary substance use. Russell (2000) described a similar population, also including depression, severe emotional disorder, and dysthymic disorder. The participants in Caulkins et al.'s (2006) study were all female and similarly represented a range of psychological symptoms. However, the only diagnosis mentioned was the one all the participants had in common, namely, clinical depression, frequently combined with suicidal ideation. Bettmann, Olson-Morrison, and Jasperson (2011) reported that most of the clients had highly conflicting relationships with their primary caregivers. These relational experiences were hypothesized to affect the adolescents' abilities to engage in new relationships with both the peer group and the therapists. This again could very well influence the outcome of the treatment, perhaps particularly if the attachment status was not assessed and addressed during the initial stages of the treatment process.

*What does not work?* Overall, there were very few accounts of incidences or examples of wilderness therapy not working, either partially or entirely, in the included studies. This can perhaps be due to the nature of convenience sampling, where clients might be willing to participate in research because of their positive experience with wilderness therapy (Davis-Berman & Berman, 2012). Considering that many of the clients in wilderness therapy programs have not benefited from prior conventional treatment, it is not reasonable to expect that the vast majority of the clients at all times will comply with or benefit from the wilderness therapy approach to treatment.

The included studies, with the exception of Russell (2005), appeared selective in terms of reporting positive experiences, implicitly or explicitly displaying a reluctance to explore neutral or negative results in more detail. Russell provided the most balanced account of both the positive gains and difficulties experienced in a longitudinal time frame. Through qualitative phone interviews conducted 24 months post-treatment, 47 former wilderness therapy clients were reached. Of these, 45 stated that

they believed the wilderness therapy treatment was effective for them. The two who stated otherwise specified the reasons as follows: (a) being too young (only 14 at the time), making the experience too scary, and (b) having a preference for dealing with the personal issues in the environment where they were happening rather than "in the middle of nowhere" (p. 218).

Russell and Phillips-Miller (2002) set out to investigate key periods of the treatment process, both positive and negative, that were exemplary of the experience for each of the three case studies across four programs. However, no negative experiences were reported in the subsequent article. Caulkins et al. (2006) alternatively revealed that "Some young women appeared to benefit less from the backpacking than others, and although all participants commented on a dual aspect of backpacking (difficulty vs. enjoyment), several expressed sincere dislike for the entire endeavor" (p. 35). The researchers stated that this finding could be deemed an obvious outcome and encouraged practitioners to discuss this within their respective programs to be prepared to handle "clients of this sort" (p. 35). We emphasize the need for neutral or negative findings to be further explored through in-depth, critical research to produce knowledge that can inform practitioners. Without this, readers are left with insights into a range of positive impacts of wilderness therapy for them to strive to replicate while being offered little advice on how to manage or stimulate the non-compliant or non-respondent wilderness therapy clients. More detailed knowledge is needed regarding alternative stories that counter successful case narratives.

Having reached the last part of the "Results" section, the reader may agree that the synthesis, to a large extent, lends support to the categories presented in Russell and Farnum's (2004) wilderness therapy treatment milieu model. However, we find merit in extending the theoretical framework in creating a clinical concurrent model as a proposed refined program theory.

### *Proposed Refined Program Theory*

*A wilderness therapy clinical model.* Based on the findings in this realist synthesis, we suggest an extension of Russell and Farnum's (2004) wilderness therapy treatment milieu model, in which a psychological dimension is added. We propose a wilderness therapy clinical model (see Table 3) where the psychological component is integrated into the social self category, arriving at a psychosocial self factor. We utilize a tripartite psychosocial classification that understands human action through cognitive, emotional, and behavioral domains. This extension of the model is aligned with the definition of wilderness therapy as a specialized approach to mental health care, where the treatment follows specific clinical guidelines to treat emotional, behavioral, and psychological issues. The clinical procedures are suggested to involve an initial psychological assessment, including a diagnostic formulation, followed by the creation of an individual treatment plan with explicit treatment goals. The basis of the wilderness therapy treatment milieu model is maintained, where the self-formulations represent the individual focus of the group treatment.

Furthermore, we acknowledge that the temporal description of the therapeutic process provided by Russell and Farnum (2004) may have been observed in contained, long-term programs, where the group spends several consecutive weeks together in the wilderness. The clinical concurrent model proposed here is intended to be applicable to a wider range of treatment formats, including intermittent programs, where the process and various factors may take other forms. Thus, we suggest that the various therapeutic factors can be more or less salient at various points throughout the span of the treatment, though not necessarily as predictable as suggested by Russell and Farnum. This model is therefore presented without a temporal indicator; rather, it is suggested to represent the cyclical nature of psychotherapy.

## Discussion

This realist synthesis has provided some insight into the "black box" of wilderness therapy, through an exploration of the empirical findings from seven primary qualitative studies. This focused review, structured by the wilderness therapy treatment milieu model (Russell & Farnum, 2004), has led to a number of proposed configurations of the multiple contextual factors, therapeutic mechanisms, and range of outcomes drawn from the included studies. These propositions and working hypotheses have been integrated into an extended conceptual framework as presented in the wilderness therapy clinical model.

The synthesis is based on a systematic search to locate the available in-depth primary qualitative studies of wilderness therapy from 2000 to September 2014. The article also presents a realist framework that is aligned with the request for more in-depth explorations of this potent, yet complex, treatment form by thoroughly investigating what works and what does not work, for whom, and under what circumstances. The realist framework can be used prospectively (in the planning stage of clinical interventions and research), concurrently (as a continuous clinical evaluation of the treatment process or as the guiding research question for fieldwork or interviews), and retrospectively (when evaluating a program, analyzing data, and building theory).

This realist review results in a proposed extension of the only existing conceptual framework, to the best of our

**Table 3.** The Wilderness Therapy Clinical Model.

| Therapeutic Factors | Propositions |
|---|---|
| Wilderness | The wilderness environment is believed to be a healing place that for some clients might facilitate change in itself. After having experienced difficulties, turmoil and/or loss in their lives, clients might find peace in the wilderness. Being situated in the wilderness can initially feel as a shock to some individuals. However, this primary sense of despair is believed to be gradually replaced by self-confidence as the clients start to manage the basic tasks of simple outdoor life and the many inherent challenges of this approach to treatment. |
| | Spending time in the wilderness environment is suggested to provide an opportunity for clients to reflect on their lives. Being away from the many pressures of ordinary life, contrasted by the primitive life in nature, are considered to be contributing contextual factors. The opportunity to reflect on life is suggested to be a key change agent that might add new perspectives on the young persons' lives and the struggles they are faced with, in addition to bringing about an increased awareness and personal insight. |
| | Time alone in the wilderness, also called solo, can be a powerful exercise for some clients. However, the use of alone time should as with all other activities, be voluntarily based and both assessed and facilitated individually to ensure physical and emotional safety throughout the experience. It may be contraindicated for some individuals to spend extended periods of time alone. |
| | The wilderness can also be used creatively, for instance, as metaphors in therapeutic work. |
| Physical self | The challenges inherent to the WT treatment are proposed to be a key change factor, that is, at times being uncomfortable, enduring primitive outdoor living and the demands related to various program components, for instance, hiking. |
| | Primary outcomes from physiological processes might be that the clients become physically stronger, more resilient, experience an increase in perceived competence and a sense of accomplishment. Over time such experiences may provide deeper impacts, such as an increase in self-efficacy and/or an enhanced awareness of oneself, others and the environment. Self-efficacy can be explained as having faith in one's ability to overcome both physical and emotional obstacles. These outcomes are hoped to transfer into other domains of life where the accomplishments in the WT program can serve as a reference point later on in life. |
| | On longer hikes or expeditions, layover days can be important not only to rest but also to add perspective or contrast to other more active or strenuous days. |
| Psychosocial self | The WT setting with its small treatment groups and encouragements to rely on the peers and the therapists are likely to challenge the clients' relational patterns and behaviors, in addition to activating the attachment system. The separation from their primary support system can be distressing for some individuals, although it might provide an opportunity for WT to assist the maturation and individuation processes of adolescent clients. |
| | The social aspects of the group treatment can be challenging for many clients. A number of individuals have experienced abuse, neglect, bullying, highly conflicting relationships and/or lack of support, to where relating to peers and/or therapists is demanding. Opportunities for sincere self-expression, along with cooperative activities and social support, are suggested to facilitate pro-social processes, acceptance of others, closer relationships and foster trust. The individual client's ability to develop relationships is likely to influence the treatment experience and outcome. Both, peer dynamics and a strong alliance with the therapist(s) are suggested to be key change factors in WT treatment. Still, some clients might not value the social aspects of the WT process altogether, but instead conceptualize it primarily as an individual journey. |
| | WT differs from conventional treatment in numerous ways. It is suggested that stigma dissolves and that former resistance toward treatment might decrease. Individual and group psychotherapy in the wilderness context has been reported to be less intimidating and more natural compared with traditional treatment settings. Furthermore, the duration and context of the WT treatment might provide the necessary time and space to both address and process emotional upheaval. WT appears to stimulate personal issues to surface that have not been revealed in previous treatment settings and is suggested to reach other outcomes compared with conventional treatment modalities. |
| | Timing, readiness for change, motivation for WT, and former experiences from mental health treatment, are suggested to be of relevance for the potential impact of the WT treatment and should therefore be assessed early on. |
| | Clinical procedures should at a minimum include an initial thorough psychosocial assessment and the creation of an individual treatment plan. Each client's progress is monitored according to the individualized treatment goals. Individual and group psychotherapy is facilitated regularly. Toward the end of the intervention, the need for aftercare must be assessed and any form of follow-up organized accordingly. |

*Note.* WT = wilderness therapy.

knowledge, of the wilderness therapy treatment process. By adding a clinical lens to the model through the incorporation of a psychological dimension, the framework is applicable for use within mental health care settings. Whereas Russell and Farnum (2004) strived for greater conceptual clarity of the distinction between traditional psychotherapy and wilderness therapy, we argue that it is now time to establish a theoretical framework for wilderness therapy as a stand-alone treatment that can work toward acquiring status as a viable group intervention for adolescents on the treatment end of the continuum of care. In their wilderness therapy treatment milieu model, Russell and Farnum addressed the wilderness therapy-specific components of the treatment, more specifically investigating "What factors are present in wilderness therapy that enhance and/or supplement traditional psychotherapy work?" (p. 49). The wilderness therapy clinical model proposed here seeks to integrate the components that are specific to this approach to treatment along with the more psychological/psychotherapeutic-specific elements into the model to arrive at a framework that includes the complete nature of the intervention. In addition, through incorporating the psychological/clinical dimension, we can explore how psychotherapy may present itself in a "new" way in the wilderness setting as opposed to conventional, institutional settings (Williams, 2000). For instance, one can assume that the same therapist is a different version of him- or herself in the wilderness context compared with a hospital-based office setting or that a group therapy session will take a different form when sitting around the campfire rather than being seated on chairs inside the clinic. Also, the common factors found across various therapeutic approaches could also be explored in relation to the wilderness therapy context more intentionally.

In the proposed model, the psychological dimension is incorporated into a psychosocial self factor rather than being singled out as a separate psychological or psychotherapeutic component. The psychosocial conceptualization highlights the inter-connectedness between the internal concerns of individuals and the external sociocultural contexts that largely govern and shape the lives of individuals (Frost & McClean, 2014). This delineation is consistent with a realist framework in that it is concerned with agency and structure, thus trying to understand the balance between an individual's capacity to act or change and the circumstantial constraints or possibilities that influence those abilities. We argue that to understand how adolescents negotiate their lives and how we may support their daily-life functioning through mental health treatment, we need to perform a thorough psychological and social assessment. As clinicians, we must strive to understand not only the young persons' psyche or inner life but also their relational capacities, as well as the wider social and cultural circumstances, aligned with the stratified understanding of context described in the "Method" section. As explained by Hollway and Jefferson (2000), we are concerned with

> subjects whose inner worlds cannot be understood without knowledge of their experiences in the world, and whose experiences of the world cannot be understood without knowledge of the way in which their inner worlds allow them to experience the outer world. (p. 4)

A psychosocial approach thus integrates both psychological and sociological paradigms, and in terms of the wilderness therapy treatment setting, we believe both perspectives are needed, in addition to the ecological and physiological dimensions. However, it is important to note that these various dimensions interact and are hardly separable; hence, they can be viewed as a whole or as connected. Similarly, the singling out of the three therapeutic factors in the wilderness therapy clinical model, in particular the physical self and the psychosocial self, are for theoretical and analytical purposes only. Scholars such as Burns (1998) and others within ecopsychology and environmental psychology operate with similar models, such as the ecopsychobiological framework for nature-guided therapy. Burns similarly recognizes individuals as agents who act upon their environment and are in turn influenced by it. He notes that a person interacting with the environment

> . . . is not a passive process in which the person is an unresponsive receptor of perceptual stimuli or one in which the environment does not respond or become influenced by the presence of the person. It is indeed a two-way street. Meaning is attributed to the environmental stimuli by a person. The way in which these stimuli are then transduced into a psychobiological response is determined interactively by cues from the environment and the internal emotions, knowledge, and memories a person brings to that context. (Burns, 1998, pp. 204–205)

Regarding the application of the wilderness therapy clinical model to different programs, contexts, and cultures, the specific circumstances of a given program must contribute to further refinement and local adjustments of the model based on the diversity found regarding theory, ideology, and traditions across settings. In terms of the practice of adventure therapy more specifically, as opposed to wilderness therapy addressed herein, the wilderness factor may be less relevant in some adventure therapy treatment settings. However, other factors of the model may be directly applicable.

The studies included in this synthesis have several limitations that should be addressed in future research. First, the studies did not explicitly explore individual

client characteristics in relation to the therapeutic process and to each participant's specific set of outcomes, which leaves limited insight into the *for whom* question as well as the programmatic circumstances that may facilitate individual client change. There is a need for an increased understanding of which adolescent clients are likely to benefit, and to what extent, from wilderness therapy. In effect, how the treatment can be used more prescriptively for various populations of adolescents. However, more descriptive studies have recently started to investigate the demographics of wilderness therapy clients as well as the relation between patient and program characteristics and outcome (Bettmann, Lundahl, Wright, Jasperson, & McRoberts, 2011; Bettmann, Tucker, Tracy, & Parry, 2014; Tucker, Smith, & Gass, 2014). Still, more knowledge is needed regarding how wilderness therapy might work differently for various populations, such as males and females, different age groups, and different diagnoses, as well as across various programs, contexts, and cultures. In addition, future studies could provide more in-depth accounts of within-group experiences, particularly when it comes to the often heterogeneous nature of the patient populations, opportunities and challenges with male-female relationships, and more facets of the client–therapist relationships beyond qualities related to the therapeutic alliance.

Second, future studies should include alternative stories to successful treatment, without fearing that doing so will compromise acceptance of the treatment modality. Without such balance, wilderness therapy research might be accused of "preaching to the choir" (Russell, 2006) rather than providing the full picture of both the treatment process and the heterogeneous populations that, at times, will unavoidably include resistant clients. Russell (2000) questioned whether a short-term wilderness therapy program can effect lasting change with severely emotionally disturbed clients. Future studies should include longitudinal data to thoroughly explore the long-term outcomes of wilderness therapy. Cook (2008) emphasized the importance of representing adolescents' voices in research and their unique perception of why specific interventions are successful or unsuccessful. However, it is important to be aware that the wilderness therapy experience in its multi-faceted and complex nature can be difficult for many adolescents to put into words (Cook, 2008; Russell, 2000). Therefore, a triangulation or mix of methods can be useful, for instance, through incorporating participant observation and/or quantitative measures into qualitative inquiries. Also, ethical considerations related to this approach to treatment should be addressed in greater detail.

Third, the role of nature both as a contextual premise and the source of specific therapeutic mechanisms could benefit from further in-depth investigations. Also, the use of facilitated alone time, or solo, could be isolated as a process variable to understand its contribution to the outcome. Russell and Phillips-Miller (2002) suggest that solo shares a resemblance with the rites of passage practices found in some cultures when young people transitioning into adulthood spend longer periods of time to reflect on their lives and their future. This can also be related to the aforementioned reference to the supported maturation of adolescents in wilderness therapy treatment, which to our knowledge has not been explored in detail. In addition, future research could explore the concept of timing and readiness for change in relation to the wilderness therapy treatment (Davis-Berman & Berman, 2012).

Fourth, in regard to the physiological factor, changes could be monitored and cross-referenced with psychometric data and qualitative insights, exploring the correlations and timelines among physiological, psychological, and subjective changes. Other physiological data could also be included, such as changes in diet, body mass, sleeping routines, heart rate variability, and clients' recovery from physical fatigue over the course of the program.

Fifth, the primary studies that formed the basis of this synthesis all represent qualitative research. As opposed to quantitative studies, they are commonly based on small, purposive sample sizes that cannot necessarily be generalized beyond the actual programs and its participants. In addition, there was a wide variety found across the programs represented in the studies, hence the findings are not expected to be applicable to all wilderness therapy programs. The literature search located a limited number of available qualitative studies of clinical adolescent populations published in peer-reviewed journals since the year 2000. All the studies were written in English and originated from the United States, thus being likely to reflect the culture and ideology of wilderness therapy programs existing in that part of the world. Furthermore, a number of the qualitative studies investigated here, including the key program theory, were produced by an individual scholar, Dr. Keith C. Russell. The narrow criteria for inclusion can be critiqued for being too selective, while perhaps providing a more focused and precise review. It also shows that there appears to be a very limited number of qualitative primary studies to be found within the wilderness therapy field, thus demonstrating the need for more in-depth, critical investigations that also represent other parts of the world and an increased number of devoted researchers.

Finally, the wilderness therapy clinical model is intended to contribute toward theory development within the field of wilderness therapy, serving as a structured tool for both training and clinical assessments. It is also hoped to offer a conceptual map to further explore the

black box terrain and the impactful CMO of the treatment modality in more detail. Furthermore, this realist synthesis has introduced a critical realist framework for both reviewing and evaluating complex and multi-faceted health care interventions, such as wilderness and adventure therapy. However, this focused synthesis can benefit from being extended to a more comprehensive realist review that encompasses a larger proportion of the wilderness therapy literature and/or operationalizes wider definitional scopes, for instance, by including equivalent search terms found in other countries, such as bush adventure therapy in Australia, and publications in languages other than English. It is important to point out that presently the proposed wilderness therapy clinical model reflects the moderate number of studies included in this review, with their specific limitations that have already been addressed. The model therefore needs to be further developed, tested, and refined through both theoretical and empirical research, as well as clinical adjustments, from across the international community to arrive at a comprehensive, applicable, and useful framework that is not limited to a specific type of program or context.

Ending on a cautious note, Russell (2012) reminded us of the Heisenberg principle which holds that the more we dig into a certain phenomenon—in this case, shedding light on the black box—the more the phenomenon is likely to change. This obvious paradox sparks the debate as to whether one should unpack the black box of wilderness therapy at all. Some fear that such investigations will ultimately cause wilderness therapy to lose its magic. However, as long as the therapeutic process and treatment models remain elusive, we will not succeed at establishing wilderness therapy as an acknowledged and viable treatment modality in today's evidence-based climate. Future research efforts must move beyond simple descriptions and continue to model relationships among key therapeutic factors and outcomes to develop propositions—or in realist terminology, configurations—that will inform future practice and theory building. We argue that an increased understanding of this treatment modality will benefit the main focus of all our efforts, namely, to support and equip vulnerable adolescents on their journey through life and the turbulent transition into adulthood in particular. More interrogative and critical "voices" from around the globe will not threaten wilderness therapy, we believe, but will rather add to the "magic" of this promising approach to mental health treatment.

## Acknowledgments

We thank librarian Ellen Sejersted at University of Agder for providing guidance in the preparatory stage of this realist review. We appreciate comments from Dr. Keith C. Russell on an earlier version of this article.

## Declaration of Conflicting Interests

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

## Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: A grant from the Competence Development Fund of Southern Norway supported this work.

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