

What are constructive anxiety levels in wilderness therapy? An exploratory pilot study

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ARTICLE INFO

Keywords:

Day-to-day measurements
Friluftsterapi
Perceived risk
State anxiety
Wilderness therapy

ABSTRACT

Background and purpose: Participant state anxiety in outdoor therapeutic practices continues to raise many questions. To help inform this important topic we present and discuss the results of an exploratory pilot study on participant day-to-day state anxiety throughout a Norwegian wilderness therapy intervention.

Materials and methods: Thirty-three adolescents from six groups completed a total of 251 state sections of the State-Trait Anxiety Inventory.

Results: On average, there was a slight decrease in state anxiety as the program progressed and a significant reduction in anxiety between the first and final days. The between-subject range was large, and boys reported significantly lower anxiety than did girls.

Conclusion: In light of the results, we discuss general understandings of day-to-day state anxiety, gender differences, group differences, the perception of risk, and the relationship between perceived autonomy and state anxiety. The paper concludes with implications for the outdoor therapy field at large.

1. Introduction

The overall purpose of this paper is to explore and consider state anxiety levels in the context of wilderness therapy (WT), an adventure-based therapy treatment modality. We know that participant state anxiety (i.e., there-and-then) fluctuates as WT interventions unfold, just as we know that subjective levels of anxiety tend to vary considerably among participants in a group. However, how do we navigate these issues so that the treatment offered reaches its full potential and is also provided in an ethically sound manner? We carried out a pilot study in a Norwegian WT program to begin exploring levels of state anxiety reported throughout the treatment process. Rather than attempting to provide answers, this paper aims to discuss what may be considered constructive levels of anxiety in outdoor therapy. Directing the attention to one of the most important psychological states of our WT clients, we hope to lay the groundwork for further discussions and critical reconsiderations of this topic.

1.1. Background

Anxiety is a complex phenomenon. In this paper, we focus on anxiety as a fluctuating psychological state rather than a diagnosis. In this

sense, anxiety is, as we say in Norway, a two-headed troll. As an emotional state, anxiety can inspire new insights as well as life-affirming and life-enhancing behavior. However, if the anxiety level increases further and remains high over time, then anxiety could become a disruptive problem that poses a major threat to one's psychological well-being [1]. More than a century ago, Yerkes and Dodson [2] demonstrated the relation between arousal and performance. Performance increases with arousal but only to a certain level, at which point a further increase in arousal leads to a decrease in performance. This is important, as arousal and worry are the key ingredients of anxiety [3]. As opposed to arousal, worry directly counteracts performance. Worry is understood as a concern regarding what lies ahead; this is in contrast to the type of worry often seen in people who suffer from depression, which tends to focus on the past. Therefore, from these perspectives, one can argue that an effective therapeutic window is reached when arousal is at a medium level and future-oriented worry remains low [4].

Welcoming a certain level of anxiety is also recognized in many classic psychological directions - the essence of these understandings being expressed in the adventure education and therapy literature as the *comfort zone* model [5]. This model states that personal growth and transformation are most likely to occur in the emotional landscape that lies between comfort and panic. The comfort zone model, and

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<https://doi.org/10.1016/j.ctcp.2019.08.007>

Received 23 April 2019; Received in revised form 22 August 2019; Accepted 22 August 2019

Available online 22 August 2019

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adventure programming, has included perceived risk and challenge as central components of a theoretical change process [6], with idealized learning and development occurring as a result of well-facilitated experiences in a middle zone where competence and challenge are balanced for the client. The work of Vygotsky [7,8] and the zones of proximal development theoretically align with this approach. Vygotsky described challenge with support as the key to human development, and the application of these ideas to therapy outdoors includes the use of risk-based activities and challenges (physical, social and emotional). This utilization of challenge and risk for therapy described in the adventure therapy literature has been criticized as potentially harmful if inappropriately applied [9]. Specifically, without a clear assessment of client level and type of anxiety, their capacity to cope with heightened perceived risk, previous trauma and life experiences, and the generalized universal assumption that risk and challenge are required for growth and development [10,11].

One can also approach anxiety in WT using a neurobiological lens. Allan, McKenna, and Hind [12] argue that the experiences we offer our participants will affect the development of the brain differently depending on the content of these experiences. In addition to the positive psycho-physiological there-and-then effects of being in nature [13], the brain, like a muscle, will become harder and more complex if challenged constructively; “growth emerges by overcoming progressive levels of constructive anxiety” [12 p.6]. They advocate what they call thriving-related activities, as opposed to threatening situations that merely evoke stress and survival responses. Thriving-related activities are often open-ended and tend to promote choice and intrinsic motivation [14]. This allows for increased adaption, meaning that clients “experience activities which are scaled according to capacity” [12 p.7].

1.2. Wilderness therapy

Wilderness therapy (WT) is an outdoor adventure-based treatment modality offered to clients with mental health challenges and/or behavioral issues [15]. Meta-analyses of adventure/WT outcomes have reported overall effect sizes of 0.43–0.47 [16,17], which in a clinical sense are quite substantial [18]. Nevertheless, WT approaches vary greatly in framework, content and duration; thus, coming to grips with what the key health-promoting components are is challenging. An effort to remedy this is the development, through the use of realist synthesis, of the Wilderness Therapy Clinical Model [19]. In this model, the authors highlight three therapeutic factors that reoccur in previous wilderness therapy research: 1) the wilderness (as a healing environment), 2) the physical self (the mobilization and awareness of one's body), and 3) the psychosocial self (internal and external psychological processes as a result of interacting in a group). Harper, Gabrielsen, and Carpenter [20] delve further into the wilderness aspect, as this element sets WT apart from other group therapeutic approaches. Because, for many, the wilderness is an unfamiliar environment, clients typically experience an initial sense of disequilibrium (e.g., causing unrest, fear and anxiety). However, as the client experiences new learning, insights and attachments, disequilibrium may turn into equilibrium, a therapeutic shift in emotions that is suggested to be part of a healing process [21].

Adventure-based approaches have been criticized due to the expressed components of risk, both physically and emotionally, and how these may affect outcomes for different populations [10,11]. These risks may be due, not only to the inherent risk aspects of outdoor activities, but also various forms of perceived risk, such as disclosure in the group and the fear of being a burden to the group. Also particularly relevant to outdoor expeditions are the asymmetrical power issues between the counsellor and the client, as well as, of course, ethical considerations of professional distance versus emotional care [22,23]. Activities, environments, group dynamics, and interactions weave together in WT and provide clients with clear and unambiguous feedback on their choices [24]. In our view, risks are an integral element of outdoor

therapy as in life in general, that can be successfully navigated in a therapeutic and caring environment; however combined with the potentially elevated levels of state anxiety we enter into a more complex ethical, practical and professional terrain with vulnerable populations [22,23,25].

1.3. *Friluftsterapi*: a Norwegian approach to WT

Friluftsterapi – therapy in the open air – is inspired and informed by international adventure therapy and wilderness therapy traditions [26,27]. This WT intervention was adapted to the Norwegian/Nordic outdoor culture (e.g., the acceptance of some objective risk in wilderness-like settings, simple outdoor life, the promotion of risky play), and the ideological approaches to mental health treatment found in this context (e.g., preference for voluntary outpatient treatment, no or low medication, the inclusion of the client's network). Relational dignity between client and therapist is a corner stone of this approach, the goal being that the young person throughout the program feels empowered to make autonomous choices on decisions concerning himself.

Finally, because *friluftsterapi* is conducted within a government-run specialized mental healthcare setting, regulations and formal expectations apply (e.g., evidence-informed treatment, clients' legal rights, journal keeping, trained staff, cost-effectiveness).

Friluftsterapi is based on principles from eco-philosophy [28], eco-psychology [29] and eco-therapy [30]. Nature in general, and the wild in particular, is believed to facilitate and strengthen the personal growth processes that one seeks to achieve, and although taking an entire mental health treatment outdoors has been uncommon in Norway [31], the individual and group therapy processes that are relied on are well known.

1.4. Constructive levels of anxiety in *friluftsterapi*

The participants in *friluftsterapi* were referred to mental health treatment due to considerable struggles in terms of their mental well-being and daily life functioning, with anxiety and depression being the predominant symptoms. In the development and implementation of the intervention, we were particularly concerned with presenting and visualizing the program's potential physical and psychosocial challenges to the clients in a manner that enabled optimal conditions for intra- and interpersonal growth.

Predicting fluctuations in client anxiety levels throughout a complex intervention such as *friluftsterapi* is quite difficult because there are so many variables at play simultaneously. Many participants described prolonged social interaction with fellow patients and therapists as the greatest hurdle to overcome [32], provoking a continuous string of anxious situations as the *friluftsterapi* intervention unfolded. Clearly, if the first days were repeated over and over, then one would expect anxiety levels to drop from habituation alone. Instead, more “pressure” is applied throughout the programs by gradually increasing the intensity and dosage of social interaction and the complexity of tasks.

Prolonged emotional closeness alongside increasingly composite assignments will predictably heighten the feeling of personal vulnerability, unless the adolescents' psychological robustness, because of the experience of increased self-efficacy and assertiveness, increases along the way as well. In *friluftsterapi*, the amount of time spent in social settings culminated in a six- or seven-day expedition, during which the practical, physiological and psychosocial challenges also peaked.

What may be regarded as constructive levels of anxiety in *friluftsterapi*, and how to ensure such levels throughout the treatment process, has been a recurrent topic of discussion within our therapist team, in part because there is no simple answer to this question and in part because we have not found much research on the topic in the general WT literature. Therefore, in response to the lack of research in the area of anxiety in outdoor therapy settings, we decided to undertake this exploratory pilot study to (a) gain a general picture of day-to-day state

anxiety throughout the main friluftsterapi trip, (b) identify clinical and practical questions requiring further inquiry, and (c) cautiously discuss themes relevant to the adventure/WT field at large.

2. Materials and methods

2.1. Context of the study and program description

This study is part of an ongoing clinical research project, and the friluftsterapi program is developing as we gain more knowledge. Therefore, two versions of the friluftsterapi program are the subject of this paper, referred to as Program 1 and Program 2. Program 1 consisted of eight single-day sessions and two trips of three and six days, while Program 2 was composed of three half-days, two single-day sessions, and a seven-day wilderness trip. Program 2 was shorter and more intense than Program 1, and the main trip was conducted in a more remote nature setting. The programs were run in spring or fall, so the participants were exposed to a mix of winter- and summer-like conditions typical of these seasons. Because we are interested in the effect of the wilderness components of our treatment program, this pilot study centers on the concluding 6–7-day nature/wilderness trips. These days were also more conducive to consistent data collection. Comparatively, US outdoor behavioral healthcare programs have an average length of 208 days, where typically half this time is spent in the wilderness [33], the friluftsterapi programs were limited to a total of 18 (Program 1) and 12 (Program 2) days. For further program descriptions please see Gabrielsen with colleagues (2018).

2.2. Participants

The sample consisted of six mixed-gender groups (one group consisted of girls only) of 5–9 adolescents. An interdisciplinary team of three mental health professionals led each group. In total, 33 adolescents, 10 boys and 23 girls aged 16–18 years, participated in the pilot study. The participants were admitted to the specialized mental health care system due to the severity of their mental health challenges. Frequent diagnoses were social anxiety, depression, behavioral disorder, adjustment disorders and fatigue. These struggles were expressed by symptoms of social withdrawal, low self-esteem, apathy and reduced self-efficacy. The mean admission scores (Program 1, $N = 21$) on the Youth Outcome Questionnaire (YOQ-SR 2.0) [34] were 84.7 (SD 39.3). To endow these numbers with some clinical relevance, higher scores on the YOQ indicate increased distress. US community norms (YOQ scoring manual) are 34, and outpatient norms are 67. The mean outdoor behavioral healthcare treatment YOQ scores were 70.5 (SD 32.9) at the time of admission [35]. This result indicates a considerable presence of symptoms and overall compromised mental health in the sample of the present study.

2.3. The State-Trait Anxiety Inventory

State anxiety reflects a participant's there-and-then experience and is in principle independent of a possible anxiety diagnosis. The State-Trait Anxiety Inventory (STAI) [36] is an introspective measure containing 40 self-report items, where 20 items measure state anxiety and 20 items measure trait anxiety. The 20-item state section (STAI-S) was chosen because this section captures fluctuations in anxiety affect, whereas, as the name implies, anxiety traits are considered to be of a more stable character. State anxiety can be defined as “fear, nervousness, discomfort, and the arousal of the autonomic nervous system induced temporarily by situations perceived as dangerous (i.e., how a person is feeling at the time of a perceived threat)” [37] p.292]. The 20 items/statements, of which nine (10 in the Norwegian version) are reversed, are rated *not at all*, *a little*, *somewhat* and *very much so*. The total score ranges from 20 to 80; higher scores indicate higher state anxiety. Scores of 40 and above may indicate clinically significant

anxiety symptoms [38].

2.4. Procedures

During both programs, the STAI-S was administered each day except for the introductory day. Meeting new people in unfamiliar settings is challenging for most people, and with our client sample, we anticipated high levels of personal discomfort and corresponding increased state anxiety levels. Beginning a new therapeutic relationship by completing questionnaires seemed unwarranted and unethical. However, the clients had previously been informed about this portion of the research project, the objectives behind the project, and that the STAI-S from day two would be administered as we first teamed up every day. We emphasized that the forms would not be inspected while the interventions were ongoing and that the information regarding the participants' state anxiety would not be used clinically. Taking only a few minutes to complete, the participants could soon return to their morning activities. The administration of the STAI-S appeared to be a nonissue routine that was not frequently talked about.

2.5. Ethics

The Regional Ethics Committee for the Norwegian South Eastern Health Region formally approved the project (REK no. 2013/1841 and REK no. 2016/2228).

3. Results

In this pilot study, we include the wilderness trip from day 1 to day 6 (labeled *expedition days*, ED, 1–6). Unfortunately, we do not have data from the final day of the 7-day expeditions. We also chose to include the very first STAI-S measurement (labeled *first day*) and the final STAI-S submission from the closure day of the intervention (labeled *final day*). In other words, this study focuses on the very beginning of the friluftsterapi intervention, the expedition, and the final day. From the total of 264 individual days in therapy included here, we have 251 STAI forms. In the graphs presented below, the 13 missing forms were replaced with interpolated values from neighboring STAI-S data for enhanced clarity. However, in the statistics they were entered as missing data. All statistics are estimated using SPSS 25.0.

The first and final day total sample means on the STAI-S were 45.1 (SD 14.1) and 38.2 (SD 13.5), respectively. The final day was the only day in our dataset for which the sample mean was below the clinical cutoff point of 40 (38.2). On this day, 17 clients were in the nonclinical anxiety range, as opposed to 13 clients on the first day. Twenty-three clients, more than two out of three, reported lower state anxiety on the last day than on the first day. Two reported the same, while seven reported higher state anxiety on the final day compared to the first day (we have one missing form on the final day). A paired-samples *t*-test between the first and final days shows that this decrease was significant [$p < .0005$, $t(31) = 5.7$]. Cohen's *d* is 0.50, which is generally considered a medium effect size when interpreting changes following an intervention [18].

The STAI-S total sample mean during the wilderness therapy trips was 42.9 (SD 12.2). The interclient range was large, with one client averaging as low as 21.4, whilst another participant reported an average anxiety level of 65.8. Fig. 1 shows the mean day-to-day measures of state anxiety for all 33 participants, as well as the means for boys and girls. One-way repeated-measures ANOVA yielded no significant differences between the six expeditions days (except for that between ED 3 and ED 6, $p < .1$). Notably, for boys, the mean was 33.1 (SD 11.9), whereas for girls, the mean was 47.1 (SD 9.9). Independent-samples *t*-tests indicated significant differences between the genders for all days ($p < .05$), except for ED 5 and 6 ($p < .1$).

When inspecting the group mean anxiety levels throughout the entire WT trip, it is difficult to discern any clear patterns (Fig. 2). The

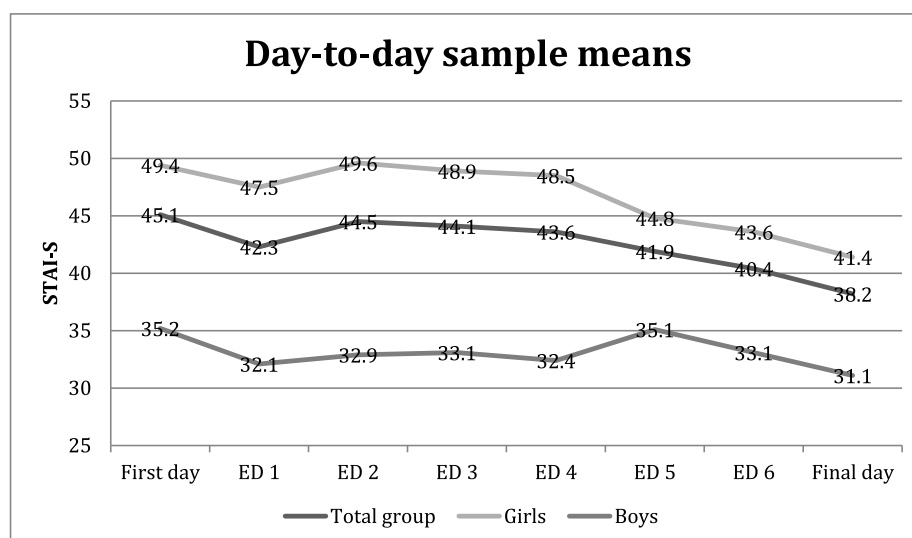


Fig. 1. Mean day-to-day state anxiety trends for all participants and by gender.

state anxiety levels remain in the same “landscape” but with a slight general trend of dropping toward the end of the expeditions and the subsequent final day. This result coincides with mixed methods research findings from P1 [39], revealing that for many clients, the full effect of the friluftsterapi program does not occur until several months later.

Inspecting the STAI-S levels on both the individual and group levels, we note that many clients remained within roughly the same range of state anxiety throughout the intervention. However, some groups reported a large anxiety span among their participants, while others have a smaller spread in anxiety. In the following, these tendencies are applied as primers for general discussions on state anxiety in WT.

4. Discussion

The young clients in this pilot study participated in one of six independent friluftsterapi groups. Although these programs were conceptually similar, variables such as the therapist teams, geographic locations, and weather conditions varied. Perhaps more importantly, the composition of the groups resulted in six groups with different internal dynamics, strengths and challenges. Variations such as these affect all research on WT. Generalizing and giving definitive answers is

simply more straightforward when comparing blue and red pills than when trying to understand a multifaceted outdoor treatment approach. We kindly ask the reader to bear this in mind as we embark on the discussion section.

4.1. How can we understand day-to-day state anxiety during WT?

The STAI-S scores indicate that although psychological and physiological demands objectively increased as the friluftsterapi trip progressed, client anxiety levels remained mostly stable. In attempting to understand these findings, we propose three possible explanations:

First, as the intervention unfolded, the participants gradually increased their psychological assets to address the increasing demands of the program. This hypothesis may indicate that the program was succeeding in strengthening their mental health.

Second, as the intervention unfolded, the participants became more familiar with interacting with the group and coping with the challenges. Habituation, desensitization and increased practical skills may all decrease anxiety levels. However, this effect is negated by the chronological increase of program stress, which, in turn, is likely to push anxiety levels upwards. Hence, when measured, it appears that the STAI-S level remained stable. This hypothesis indicates that the

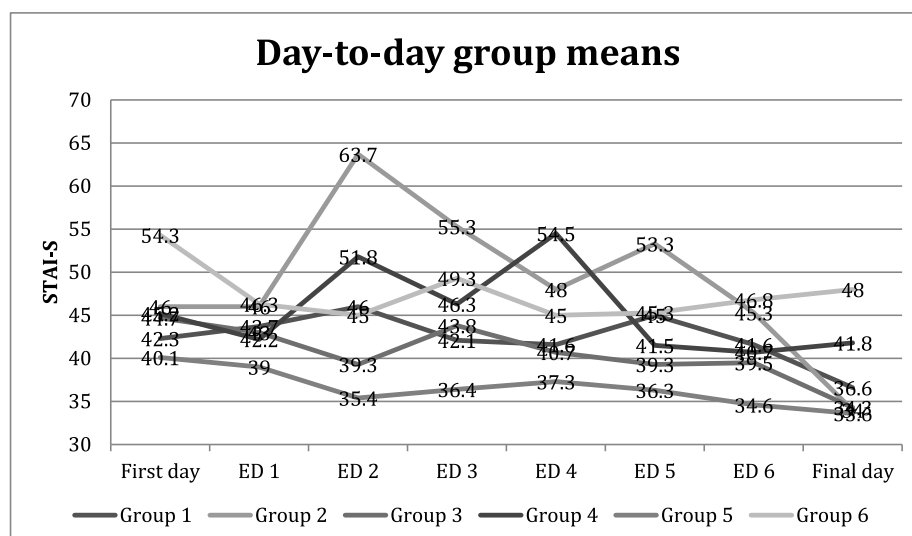


Fig. 2. Longitudinal repeated measures of STAI-S group means.

program was succeeding in strengthening mental health only to a limited extent.

Third, there is a combination of the first two explanations. In other words, the friluftsterapi program does indeed appear, to some extent, to positively affect most clients' psychological robustness and mental health. However, we cannot dismiss the effects that familiarization with the intervention itself had on the results.

State anxiety was significantly lower on the final day compared to the first day. Here, two possible explanations are likely:

First, the lower state anxiety on this last day may have reflected relief among the participants that the toils of friluftsterapi were over and that it was time to celebrate their accomplishments and possible notions of health improvement.

Second, there was a group trend toward reduced state anxiety during the final expedition; however, because of the relatively low number of participants, this result was not statistically revealed before the final day.

4.2. Gender differences in state anxiety

First, we admit that the gender checkbox in this study included the options "female" and "male" only. This is an outdated way of categorizing participants and we acknowledge that this section plays along with this binary approach to gender. Nevertheless, we choose to include this topic due to its potential importance for the WT field.

Examining our total sample, we find that seven of the ten lowest mean state anxiety levels during the trip were reported by male participants, bearing in mind that this pilot study included only ten males in total. This difference between genders cannot fully be explained by differences in the presence of symptoms. Among the participants in Program 1, for example, no significant difference was found in sense of coherence and depression (measured by the Sense of Coherence Scale and the Hospital Anxiety and Depression Scale, respectively). However, boys reported lower anxiety on the Hospital Anxiety Scale ($p < .05$) and less distress on the YOQ ($p < .1$). In fact, several boys' STAI-S levels were so low that they most likely did not move significantly out of their comfort zones at all, and some may even have experienced understimulation along the way. Recalling the Yerkes-Dodson law [2], some boys may simply not have been aroused to the point at which the clinical effects of the friluftsterapi program could be expected. Conversely, some girls had worryingly high STAI-S levels. These tendencies raise a number of questions, with the paramount question being whether the friluftsterapi program was perceived as more anxiety inducing by the female participants than by the male participants. If so, what program elements caused this phenomenon, how can the situation be explained, and if this conclusion is true, how should the situation be rectified?

Arguably, several WT program elements are closely connected to evolutionary and traditional masculine behavior (e.g., carrying heavy backpacks) and challenges associated with perceived risks (e.g., getting lost) or real risks (e.g., chopping firewood, animal attacks) of injury. We wonder whether some female participants, when exposed to these types of activities, demonstrated resistance by developing physiological arousal and subsequently reported higher levels of state anxiety. Another factor may be the outdoor gender role with which some males identify [40]. In our enduring cultural roles, the occasionally (dysfunctional) standard of being a man includes not identifying anxiety when aroused. If we measured emotional distress instead of state anxiety, then we may have identified lower differences between genders.

4.3. Group differences in state anxiety

This pilot study reveals that our groups vary by the extent to which the participants within the group differ in their state anxiety. This begs the question: how do these within-group variations affect group dynamics? This question may be approached from at least two directions,

with the answers differing considerably:

First, we observed several incidences in which within-group variations in arousal/anxiety/well-being caused a moderating effect among the group's members. This effect appeared to occur particularly in situations in which some participants were quite uncomfortable while others had "care to spare". The benefits are obvious: this situation presents therapeutic opportunities that lie within the experience of providing or receiving support. In addition, this situation can, at least temporarily, reduce some of the span of different psychological states within the group.

Second, the members of some groups appeared to react more similarly both in strength and across situations. The challenge here is when an entire group dynamic enters a negative spiral that reinforces itself to the point where the intervention might have to be terminated ahead of schedule. However, the major advantage is that if we can identify the groups' common level of state anxiety, then we can also make the appropriate adjustments to the intervention content so that the participants' arousal levels provide a catalyst for our therapeutic work [41]. The subject of the factors of group dynamics connected to fluctuations in anxiety levels among the group's participants is quite complex, and we intend to report on this topic in greater depth in another article.

4.4. Perception of risk

We believe that a discussion of state anxiety in WT is also a discussion of perceived risk. This highly subjective experience is affected by numerous factors, including the prospects of social threats and failure, the absence of a *safe haven*, the fear of fatigue, loneliness, cold, and a lack of predictability of and control over the situation at hand. Davis-Berman and Berman [10] suggested that the "best scenario for growth and change is the one in which participants feel safe, secure and cared about" (p. 308). Brown [42] also questioned the comfort zone model, arguing that promoting "situations of disequilibrium/dissonance does not find strong support in the educational literature" (p.3). Similarly, Leberman and Martin [9] concluded that "activities, which participants identified pushed them out of their comfort zones, may not necessarily be the activities that result in peak learning experiences" (p. 10). These discussions are necessary within the WT field, particularly because there are abundant stories of excessive use of added stress [11,22] and approaches that appear unprofessional, unethical and ineffective. A young person who has succumbed to the totality of challenges and slipped into a survival modus is no longer accessible in a therapeutic sense. That said, the very nature of WT is such that it involves activities in what, for many, are unfamiliar settings, with initially unknown group members and leaders/therapists. Participants cannot rely on withdrawing to their *safe places*, and previously learned strategies for maintaining a feeling of personal security may no longer be applicable in unfamiliar settings. Of course, the antidote is our attempt to establish the all-important therapeutic relationship that is the very prerequisite for feeling *cared about*, the third factor in Davis-Berman and Bermans' quote above. We must convey to adolescents our genuine care and interest in their well-being. Everything that we do during WT ought to have one main purpose: to support each participant in moving in the direction of his or her recovery. Nevertheless, interventions are mostly conducted in remote wilderness settings that inherently pose some degree of risk (e.g., canoeing, crossing streams, hiking slippery terrain, using knives and axes). Nature is the habitat of animals, snakes and insects throughout nonurban areas around the world, and it provides weather conditions that have a harder impact when outdoors day and night. In addition, the groups sometimes navigate on their own, occasionally get lost, work to stay warm or cool, hydrated and nourished, and experience what, for some, may be an eerie absence of urban lighting and sounds. All of these elements may potentially affect patients' anxiety levels, particularly when they have limited outdoor experience, reduced psychological robustness, and already are potentially fatigued due to past trauma and difficult life

circumstances. In retrospect, during friluftsterapi, we observed that clients with high average state anxiety and/or a severe anxiety diagnosis may have become overactivated or unfortunately moved into the previously mentioned survival modus, rendering them temporarily inaccessible for therapy, the very processes we hoped to achieve.

4.5. Power dimensions and autonomy

Another topic, perhaps of some sensitivity, is that of perceived participant anxiety in voluntary versus involuntary programs. This discussion is in part ethical and in part practical. In a voluntary program, the client is free to terminate the intervention at any time he or she chooses, thus supposedly having fundamental control over any anxiety-provoking situation. In an involuntary program, the therapist/field guide maintains this control, leaving the client “at the mercy” of staff decisions. A recurring topic in the children's books of Swedish author Astrid Lindgren is the following: he who is very powerful must make sure that he is also very gentle. Bearing this in mind, one can argue that voluntary programs in principle can induce higher state anxiety in their participants than involuntary programs, simply because the power between the client and the therapist is more evenly distributed. A seemingly “identical” situation could cause different levels of state anxiety depending on the perceived degree of autonomy in a given program, simply because the presence of autonomy is believed to increase intrinsic motivation, as well as fostering the notion of empowerment, safety and tolerance of stress [43].

5. Implications

Considering the large within-group variations in state anxiety, performing a more precise preintervention selection appears warranted. It may also be prudent to assess the related but broader factor of emotional distress tolerance [44] prior to the intervention. Nevertheless, at this point, we remain uncertain as to whether a homogeneously aroused group is in fact desirable, and we realize that there may not be a definitive answer to this question. However, we acknowledge that if a person reports very high anxiety levels upon admission, then that person will most likely benefit from reducing those levels by other therapeutic means before entering a WT program.

Still, a moderate level of anxiety appears beneficial in achieving the level of activation that allows for personal growth and openness to new insights [45,46]. Our experiences do not enable us to define with certainty a preferred therapeutic STAI-S level among young mental health clients; however, bearing in mind the clinical cutoff point of 40, an approximate range of 30–55 may appear appropriate. Monitoring STAI-S data continuously, or other client feedback for that matter, as the intervention proceeds allows for adjustments to be made so that individual- and/or group-level fluctuations in anxiety remain within the desired range. Such a flexible approach to WT will arguably require well-trained therapists, as they will have to adjust the therapeutic intensity continuously depending on the feedback from the participants. Furthermore, understanding the relations among variables such as gender, age, diagnosis, and autonomy and how these variables may interact with state anxiety and other variables across situations will improve the odds for making therapeutic and effective adjustments to the intervention on both group and individual levels.

In Program 2, we were able to facilitate differentiated interventions based on our monitoring of the participants' anxiety levels. These modifications were accomplished by dividing the intervention into sections in which some participants challenged themselves with action-packed excitement and feat-oriented tasks while other participants pursued experiences related to mindfulness, slowness, awareness and reflection. We have also come to realize that the interventions should preferably occur in nonlimiting settings that allow for adjustments in terms of increasing or decreasing the level of challenge according to the arousal state and feedback from the group and the individual

participant.

5.1. Limitations and validity issues

Administering the same psychometric tool several times within a short time span raises the question of habituation [47]. Nevertheless, all participants varied in their scoring, although the results could have been even more informative if the STAI-S was completed some days before and after the WT program. In addition, obtaining pre- and post-STAI-Trait anxiety would help nuance our findings. Finally, we question whether the results would differ if the STAI-S were administered at a later point during the day, for instance, during lunchtime, at which point the participants likely would have obtained more knowledge of each day's content. The anxiety levels may have been elevated when the participants first showed up in the morning.

The objective of this pilot study was not to provide conclusions based on comprehensive statistical work. Instead, by cautiously examining data in an exploratory manner, we can identify some trends and provide insights to better inform our clinical work. This knowledge enables us to pinpoint areas of concern for practice and to identify anxiety-related topics for further investigation.

5.2. Suggestions for further research

There is a need for more knowledge about how participants' state anxiety interacts with adventure and WT programs. We must increase our efforts in applying available basic research on arousal/anxiety/worry in practical everyday settings. How do these variables relate to outcomes and to potentially mediating factors such as gender, age and group composition? Therapists should to a larger degree enable and encourage client feedback during the intervention, not only on anxiety in itself, but also on a wider specter of issues so that continuous adjustments can be made to ensure as large therapeutic efficiency as possible.

6. Conclusion

This exploratory pilot study certainly raises more questions than it answers; however, the questions are gradually becoming more informed, and we have a better idea of where we should begin to seek further answers. It has become clear to us that although topics concerning client state anxiety definitely needs further academic work, this is also very much a fieldwork issue. Practitioners can easily gain a valid idea of their clients' anxiety by observing them, by talking to them, or simply by asking for a thumb evaluation (i.e., “can you show me with your thumb how you feel right now?”). Besides revealing care and interest for the participant, these feedbacks can be hugely informative. By actively using this knowledge to (micro)adjust the next hours of program content, the beneficial health impacts will likely improve, and the participants will have a better overall experience, which, in the end of the day, is why we do WT work.

Conflicts of interest

The authors declare that they do not have a conflict of interest.

Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.ctcp.2019.08.007>.

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