

## ORIGINAL RESEARCH

## Children's Experiences of Winter Living in Northern Finland

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**Keywords:** children, winter, cold climate, photo-interview, well-being.

**Summary.** The aim of this qualitative study was to describe children's experiences of winter living in Northern Finland. The goal was to increase our understanding how winter will influence children's well-being. Thirty children aged 7–8 years were recruited from schools in Northern Finland and were asked to reflect on their winter experiences. The photo elicitation method was utilized. The pictures and interviews were analyzed using content analysis.

Three aspects of children's experiences of winter were revealed: (1) variety of nature in winter, (2) winter activities, and (3) cold climate. The children saw winter as an opportunity to engage in various activities and were pleased to spend time outdoors in winter. The children experienced cold, but they reported that the cold climate was not an obstacle if they wore sufficiently insulating clothes. The children enjoyed winter and the opportunities it provided.

When promoting children's well-being, it is important to support children's natural enthusiasm for outdoor recreation in winter and enable them to engage in safe, healthy outdoor activities, while taking into account the risks of cold and body-cooling. Long-term follow-up studies that investigate the effects of the winter season and cold-related complaints or injuries to children are needed.

## Introduction

### Children's Experiences of Winter Living in Northern Finland

Health and well-being are defined internationally as multi-dimensional and holistic concepts that concentrate primarily on aspects of quality of life and physical and mental well-being (1). In this study, we investigate well-being through the experiences of children, which means that well-being refers to positive and negative types of assessment that individuals make about their lives, the events that happen to them, their bodies and minds, and the circumstances in which they live (2, 3). In addition, well-being in a multi-tiered context can both promote and limit well-being (4).

Winter can severely affect an individual's well-being in terms of the mind, body, and spirit. Cold is known to be a major risk-factor for numerous health problems including cold-related injuries, musculoskeletal or respiratory disorders, and cardiovascular symptoms among adults (5). It is also known that the cold and darkness of winter can increase mental health problems, particularly seasonal affective disorder (SAD), a combination of

biological and mood disturbances with a seasonal pattern, occurring in the autumn and winter with remission in the spring or summer (6). Due to the geographical location of Finland at latitudes between 60° and 70° N, winters are cold and long, lasting from about 100 days in southwestern Finland to 200 days in Lapland (7). In winter, children can spend time outdoors engaging in diverse activities while being exposed to climatic conditions (8). In Finland, children typically start their outdoor life as infants when they take daytime naps outdoors (9). Spending time outdoors continues into adulthood. For example, cross-country skiing is currently part of the everyday winter lifestyle of 38% of Finns (10).

Previous studies on the health effects of winter on children have found that their physical activity and outdoor recreation decrease during winter in various countries (11,–13), particularly when the outdoor air temperature decreases (8) and especially among non-native children (14). Studies have also found that the increase in sedentary lifestyles has lessened children's outdoor recreation in general (15). This is alarming given the increase of overweight and diseases caused of sedentary lifestyle among children and adolescents, which has been linked to a reduction in physical activity (16–18).

To our knowledge, no previous qualitative study has been carried out on children's experiences of winter. Therefore, there is a need to improve our understanding of the nature and magnitude of

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the influences of wintertime and cold weather on children's well-being, both nationally and internationally (19, 20).

### Research Purpose

The objective of the research is to increase the understanding of how winter will influence children's well-being and thus give important information to health care providers and educators how to promote the health and well-being of children in the northern environment. The research question is: What kind of experiences do children aged 7–8 years have about winter?

### Methods

*Participants and Setting.* For this research, we recruited primary school pupils aged 7–8 years from five Finnish schools located in Northern Ostrobothnia and Lapland in city (18%) and municipal centers (82%). This age group was selected because at this age children start to take care of their clothing by themselves during schooldays. In Finnish culture, children are commonly allowed to go to school independently and can play outdoors without particular supervision (21).

We approached the principals of four schools in northern Finland for permission to contact primary school pupils and their parents. Information and a permission letter covering the purpose of the research were sent to all pupils/families in the four classes, and those who were willing to participate returned the permission letter. We obtained informed consent from the parents and children by asking participants to sign a consent form stating their voluntary willingness to participate, and also requested permission for tape recording. The participants were free to withdraw their participation at any time, and their parents were given contact information in case they had any questions.

*Data Collection and Procedure.* When studying children's attitudes, it is important for the researcher to ensure that children are respected participants in the research process and optimize the children's ability to express themselves and willingness to communicate at the point of data collection in order to maximize the richness of findings (22, 23). Thus, we collected the data for this research by using the photo elicitation method. In a photo elicitation method, research participants document their life experiences using photography (24, 25). The researcher includes photographs in the interview context and talks and asks questions about the photographs the participants have taken (26). Introducing photographs, taken by either the researcher or participants, into interviews can elicit more varied information that can capture associations of participants' experiences of social networks,

culture and history. Pictures can also evoke deeper elements of the human consciousness and stimulate a greater cognitive response than words alone (23, 25, 26). Hence, this kind of methodological triangulation can provide a broader and more complex understanding of focal phenomena (27).

Thirty children (13 girls and 17 boys) were involved in the study. The data were collected during the winter months (January to March) when temperatures in Northern Finland varied from  $-34.3$  to  $+3.7^{\circ}\text{C}$  (8, 28). We collected the data using a photo elicitation method and one of the authors (HK) met the children at their schools and asked them to form groups of 2–3 friends to enable them to interact, to stimulate individual children to develop their descriptions, and to remind them of things they otherwise might not have mentioned (22). The groups were given a disposable color-film camera for two weeks and asked them to take photographs that illustrated their perceptions of winter. After two weeks, they returned the cameras, when the films were developed, and then the interviews with each group were arranged in the schools. Interviews were open-ended, addressing interviewees with questions such as "Can you describe to me the kind of thoughts or experiences you have related to winter?"

The duration of the interviews ranged from 7 to 26 minutes, and all the interviews were audio-recorded. In addition, the children were informed that they could interrupt the audio-recording at any time during the interview. The interviewer (HK) began the interviews by allowing the children to talk about winter without viewing the photos. In the second part of the interview, children discussed the photographs the group had taken, and the interviewer asked them to speak in more detail about what was in the pictures, the reasons for taking them, and the background of the photos.

*Data Analysis.* The data used in the analysis included both the children's interviews and pictures (202 pictures). We transcribed the recorded interviews (83 pages at 1.5 line spacing) and analyzed the data using inductive conventional content analysis (29, 30). The semantic unit was a word or statement and the topics depicted in the selected photos. We analyzed all the data together with related points to distill the meanings assigned by the children to different subjects and aspects portrayed in the photos. The photographs were assigned a code and they were sorted into only one category based on the description of the photograph given by the children during the interviews. Also, the transcribed interview data were sorted using open coding. At this point of the analysis, two data types emerged, and the analyzing process was continued by collapsing patterns, creating subcategories, and determining final categories. Finally, we performed some quantitative analysis by

Table 1. Main categories, upper categories and subcategories of children's experiences of winter

Subcategories	Upper Categories	Main Categories
Landscape in winter Playground provider Impacts of cold climate	Wintry landscape	Variety of nature in winter
Marks / tracks of animals / in winter Survival of animals and nature	Animals in winter	
Winter sports Winter games and play	Hobbies in winter	Winter activities
Mechanized tasks	Essential tasks in winter	
Winter holidays Traditional food (of celebration days) in winter Decorations belonging to winter	Winter celebrations	
Parts of the body feeling cold Nature of symptoms	Cold-related symptoms	Cold climate
Needing warm clothes Physical activity Limitations in everyday life Safety aspects in winter	Impacts of winter and cold weather on everyday life	
Preparations to survive through winter		

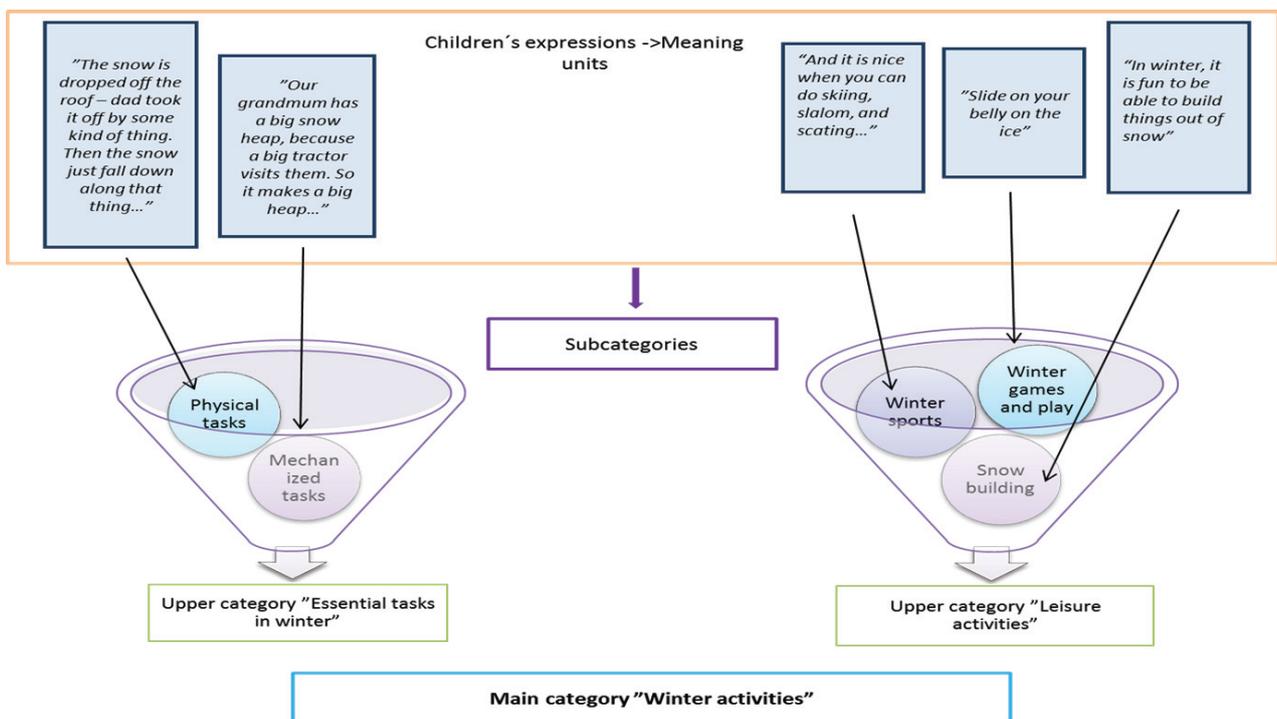


Fig. 1. Creation of the category "Winter activities"

calculating the quantity and percentage of photographs taken in each category. The analyzing process is shown in Table 1, and the construction of the main category, “Winter activities”, is presented in Figure 1.

*Ethics of the Research.* The study considers and respects the ethical principles of human privacy, autonomy, data security, confidentially and empathetic behavior towards participants (31, 32). According to Finnish law, no separate ethical statement was required for the study (33, 34).

The participants and their parents were informed about their right to withdraw from the research at any point of time during the study (35), and they received information including the study objective. The study ensured informed consent from the parents and children, ensured that the children were not harmed of participating or during the interviews, and the study did not assess any risks. The activities related to the study were fun for the children and during the interviews the children could tell freely, without any pressure about their experiences. No children or schools involved in the study can be identified from the research report.

## Results

### *Children’s Experiences of Winter*

Three aspects of children’s experiences of winter were revealed: (1) variety of nature in winter, (2) winter activities, and (3) cold climate (see Tables 1

Table 2. Three aspects children associate with winter

Category	Photos Taken	%
Variety of nature	150	73.52
Winter activities	35	17.15
Cold climate	19	9.31
Total	204	100

and 2). Nature was the main aspect of a vast majority, including 150 pictures of all the pictures taken by the children. Winter activities were illustrated in 35 pictures, and cold climate in 16 pictures.

### *Variety of Nature in Winter*

The variety within nature mentioned by the children related to the wintry landscape and animals, suggesting multiple different kinds of features of wild nature (see Table 1 and Fig. 2).

*Wintry Landscape.* The beauty of nature in winter was strongly represented when the children spoke about their experiences of winter (see Fig. 2). Most of the pictures (132) depicted snowy forests and landscapes. In all landscape photos, the natural environment was portrayed. The children noted that the wintry landscape was beautiful and fantastic with white and leafless trees and icy, shining scenery. The snow was the most common aspect photographed by the children in the environment photos.

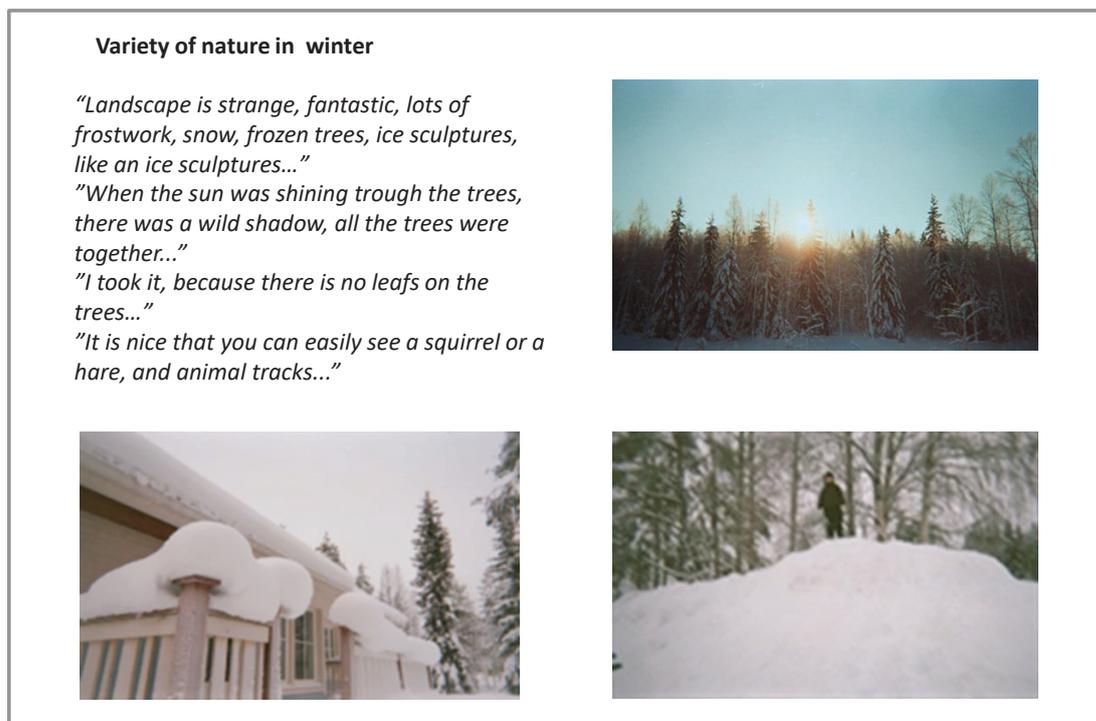


Fig. 2. Children’s photographs and expressions of a variety of nature in winter

They took photos of the snow itself, snow-covered trees, rooftops, toys, and footprints in the snow. The darkness (6 pictures) of the wintertime and the winter sunshine (8 pictures) were also portrayed in the children's pictures. The children described the environment in winter as providing excellent opportunities to play outdoors and to engage in hobbies, and they experienced the white environment as a natural part of winter.

**Animals in Winter.** The children's descriptions related to animals focused on the marks and tracks animals can leave in wintry landscapes and how nature and animals can protect themselves against the cold and wintry conditions. They reported that only a few species of birds can be seen, and some animals are asleep during the winter, while others, such as hares and squirrels, are easy to spot in winter from their footprints in the snow. The children also noted that domestic animals like cats and dogs do not want to go out in the cold weather. There were 4 pictures placed in this category.

### Winter Activities

The winter activities category consisted of leisure activities, essential tasks in winter, and winter celebrations (see Table 1). They also included putting on plays in the snow, winter sports, machinery work to clear the snow from paths and roads, celebrating traditional festivals, and putting up decorations (see Fig. 3). The winter activities were the second most

commonly photographed aspect of the children's experiences of winter. During the interviews, this aspect was the most discussed aspect, and winter activities were included in the conversation when discussing other topics. For example, the children talked about the wintry landscape and icy lakes, and then they started to discuss skating and playing on the ice, even though there were no photographs of skating.

**Leisure Activities in Winter.** The children reported spending their free-time outdoors as much as their parents allowed them to, and they took photographs of themselves building snow castles, snowmen, and tunnels in the snow, and of skiing, skating, and sledging (27 pictures). Most children indicated that they walked, skied, or kick-sledged to school, while a few used a bike all year round. The children reported that winter was very fun because of all the things that could be done, and it was described as an opportunity rather than as an obstacle or a risk. No winter activities were described as boring. The children expressed that they were proud of the quantity of sports like skiing that they had done. One group of the children mentioned that they could spend time inside playing videogames or watching TV.

**Essential Tasks in Winter.** During the interviews, the children expressed knowledge of some essential tasks in winter, including shoveling snow and dislodging snow loads from roofs. Some children mentioned that they were helping their parents in

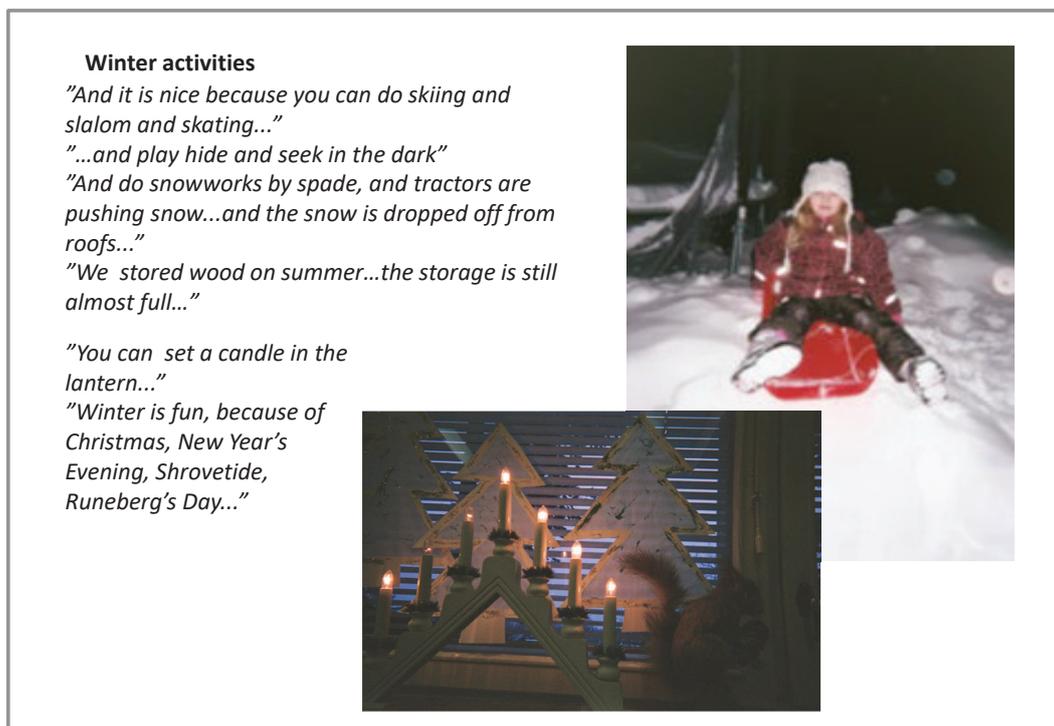


Fig. 3. Children's photographs and expressions of winter activities

essential tasks, which was experienced sometimes as hard, because of the intensity of the tasks. This category contained 2 pictures, one showing a snow-cat machine on a ski slope and the other showing a shovel.

*Winter Celebrations.* The children connected some cultural and traditional habits to winter. They also gave consideration to the special characteristics of winter and winter holidays. They noted that holidays or celebratory days such as Christmas and New Year's Eve were important, nice, and a fun part of their winter experience. They also mentioned decorations (7 pictures) and mentioned window decorations, seasonal lights on trees, and seasonal foods as characteristic of winter. No cultural issues such as food were photographed, but they were mentioned in the interviews.

### **Cold Climate**

Elements that described how children experienced the cold climate included cold-related symptoms and the impact of winter on the everyday lives of their families (see Table 1). The children related the cold climate to their experiences of winter, discussing cold-related symptoms and ways to protect themselves against cold. They experienced cold as either a pleasant or uncomfortable or harmful element, although some indicated that they had never experienced feeling cold (see Fig. 4).

*Cold-related Symptoms.* The children did not take any photographs of cold-related symptoms, but during the interview, they mentioned several symptoms. The children had experienced cold faces, fingers, and toes, or their whole body being cold. They also expressed that the most uncomfortable experience in cold and snowy weather was when snow got under clothing. The children mentioned several cold-symptoms they had experienced, including the fact that cold can feel like tickling and pinching and that body movements can become slow when they feel cold.

*Impacts of Winter on Everyday Life.* Photographs showing the cold climate and the impact of winter on everyday life showed clothes (10 pictures) and wintry yards through a window (6 pictures). The children articulated knowledge of ways to protect themselves against cold. They pointed out that proper winter clothing was essential. Commonly used clothes included middle-layer clothes (e.g., fleece trousers and jackets), hats, gloves, and outdoor wear. Winter shoes and woolly socks were also discussed. They also expressed knowledge of what can happen to the human body after prolonged cold exposure. The children also expressed knowledge of other ways to protect themselves against the cold in winter, i.e., keeping warm by moving more or going indoors. Some children also mentioned that they were not allowed to go out when it was too



Fig. 4. Children's photographs and expressions of cold climate

cold. Then they would stay inside and watch TV or play with Legos and other toys or videogames.

The negative side of winter included some annoying limitations in everyday life. The children portrayed the negative side of winter by photographing wintry landscapes through the window, which meant it was impossible to go out. They mentioned also that sometimes the weather was so cold that if they went out, they could not do anything because they were too cold. In addition, they mentioned that if they got wet in winter, they felt even colder, and it was possible to get sick. The participating children pointed out that dressing themselves properly was part of the winter routine, but wearing a lot of clothes was uncomfortable, and getting dressed took a lot of time, and it was easy to get hot when waiting indoors for others to get fully dressed or when they were inside shops. Another negative aspect of winter they mentioned was the inability to use bicycles or playgrounds if they were covered in snow (2 photos). Some issues noted by the children related to everyday life and surviving in winter, such as the importance of storing adequate firewood (one picture of a woodshed) and using fire in the fireplace to warm their homes.

### Discussion

The aim of this qualitative study was to describe children's experiences of winter living in Northern Finland and to increase our understanding of how winter will influence children's well-being using the photo elicitation method. The study revealed three aspects of winter that can have an influence on children's well-being. The children who participated in this research were culturally oriented to a northern environment and had an understanding of families' essential wintertime tasks and seasonal celebrations, which they manifested in their emphasis on winter activities and pleasure in spending time outdoors and in the natural environment during the winter.

Both boys and girls in northern Finland enjoyed outdoor activities despite the cold winter weather. According to the children, there are many ways to spend time outdoors during winter and a lot of things to do. Emphasizing the positive aspects of winter, the children indicated that their key winter experiences related to winter activities and the natural environment created by the cold climate. In light of the known mental and physical health benefits associated with outdoor activities, it can be assumed that winter might even promote well-being. Physical activity outdoors and in nature can promote children's well-being by lifting their mood and increasing self-esteem and decreasing criminal, aggressive, and violent behavior (36, 37). It can improve attention (37–39); children's cognitive, emotional, and social skills (37); and their motor deve-

lopment (40). On the other hand, previous studies have shown that sometimes in winter children are kept inside because of harsh weather conditions (41). In this research, only one group of the children reported partaking in indoor activities.

Spending time outdoors in winter also entails risks that can have a negative impact on children's well-being. Although the children in this research experienced several cold-related symptoms, they had not suffered cold injuries and stated that the cold climate was not an obstacle to wearing appropriate clothes. The children equated their experiences of cold exposure to tickling and pinching in their fingers, toes, and face, and they also reported unpleasant cold sensations all over the body. These are common cold-related complaints and signals of body cooling (42). Cold-injuries or symptoms associated with spending too much time outdoors (without adequate clothing) in childhood can have severe long-term effects, such as growth retardation of extremities injured by frostbite (43, 44).

Safety and protection are important considerations when encouraging children to spend time outdoors in wintertime (9). In this study, we found that 7- and 8-year-old children in northern Finland could recognize some risks and effects of exposure to the cold. Although none of the children reported any cold injuries, it is important to note that children at this age may not be able to recognize and evaluate all the potential risks associated with cold exposure because of their developmental level. Due to that, it is essential to support children to select appropriate and adequate clothing in cold weather. It would be important that parents or other adults at home and teachers and other adults in the school environment should pay attention to children's clothing. Schools should also provide space for children to change clothing and dry clothes that have got wet.

The children raised some cultural issues and wintertime habits as part of the discussion. In previous studies, a link between individual behavior and the cultural context in which the behavior occurs has been found (45), and cultural environment has been found to have a pervasive influence over people's everyday experience (46). Culture and heritage can also have a significant and socially and economically meaningful effect on the well-being of individuals (3, 47). A sense of belonging to a cultural background and a culture of daily life influence individuals' well-being by reinforcing membership in informal groups (families and friends). Wintertime with its rituals and shared mood within a group create symbols of group membership and solidarity and give individuals and groups a feeling of self-confidence, warmth, and enthusiasm related to social interaction (48). More research on culture's influence on well-being is needed (47, 49).

The photo elicitation and group interview method proved to be suitable for studying children's experiences of winter. Photographs elicit communication with children, and the children interacted with and stimulated each other to develop their descriptions during the interviews (22, 23). The photographs inspired discussion and extended the data, enriching the descriptions of the children's experiences of winter in northern Finland. In addition, some aspects were not photographed, and during the interviews, these aspects were evoked through other photographs and were heavily discussed, such as cold-related symptoms (23, 25–27). Photographs also helped to redirect the children's attention back to the focal topics when they were not able to maintain concentration during the interviews. The children also reported that they liked taking the photographs.

### Limitations

Some limitations should be considered when interpreting the results of this study. First, guiding the children to use the cameras properly was challenging, and some of the pictures taken could not be used in the analysis, mainly due to underexposure. Second, the participants were all Finns and a rather homogenous group. The research was conducted in northern Finland, where children are accustomed and have adapted to the harsh climatic conditions and long winter, and their experiences may be different from children living in areas with warmer climates. Lastly, it would have been beneficial to interview the children separately in one interview, which lasted under 10 minutes due to the group dynamics, and the participants were unable to concentrate on the interview topic. Despite this, similar items began to repeat during the interviews and the photographs taken by the groups provided important additional information about the research topic. The photographs taken by this group produced good information on the research topic.

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### Conclusion

The novelty of this research is that it increases the understanding of how winter can influence children's well-being. Children's natural enthusiasm for moving and playing outdoors should be taken into account and supported also in wintertime. Parents and educators must be able to recognize the risks associated with cold weather and the need for appropriate protection in cold environments when promoting children's outdoor recreation during winter. In addition, given that non-native children engage in less outdoor activities in winter compared with native children, it is important to support outdoor activities and offer information about the influences of winter and cold weather on well-being among families and children from different environmental and cultural backgrounds. Particular attention should be paid to supporting immigrant and non-native children and their parents in learning skills to cope with cold. This is particularly current also due to the increased amount of asylum seekers in Finland and worldwide.

Thus, long-term follow-up studies on the effects of winter on children's well-being, cold-related health issues, and cold injuries among children are needed worldwide. Such research data will help schools and relevant administrators to effectively communicate and promote safe, healthy outdoor winter activities among children.

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### Statement of Conflict of Interest

The authors state no conflict of interest.

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