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How do avalanche victims describe group dynamics that led up to the accident?

A qualitative analysis

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Preface

The thesis is part of a larger research project on learning from avalanche accidents in collaboration with the Center for Avalanche Research and Education. CARE is an interdisciplinary research center that focuses on decision-making under uncertainty. Previous research in the avalanche field has focused on the physical aspects of avalanches, while research concerning human factors has traditionally received little attention (Zweifel & Haegeli, 2014). We find group dynamics and their influence on decision-making especially interesting. Our research question for this thesis is, "How do avalanche victims describe group dynamics that led up to the avalanche accident?".

We want to thank our supervisor, Audun Hetland, for sharing his exceptional knowledge in the field of avalanche research and for helping us with all aspects of our thesis. Thank you to Gerit Pfuhl for reading several drafts and Andrea Mannberg for helping us rehearse the interview. Thank you to all the CARE researchers who developed the interview guide for our study and shared valuable inputs. Thank you to Geir Lorem for helping us with the data analysis. Finally, we want to thank all the participants who shared their unique reflections and experiences. It is their openness and willingness to share that have allowed us to gain significant insight into how group dynamics affected them.

Pernille and Rikke contributed equally to the practical tasks of the thesis. This included contacting and interviewing the participants, searching for relevant literature, and coding the interviews. We also worked together on all parts of writing the thesis. We contributed equally to the introduction. Pernille had an overall greater overview of the results and conclusion, while Rikke had a greater overview of the method and discussion.

Abstract

In countries with alpine and backcountry skiing opportunities, approximately 250 people die in avalanches yearly. The terrain where avalanches occur is ambiguous and hard to navigate, making decision-making essential for getting home safely. Most skiers tour as a member of a group. Research has shown that being in a group influence how we think and act due to group dynamics. Errors in judgment have long been identified as a key factor in backcountry avalanche accidents, and group dynamics have been shown to have a crucial influence on avalanche safety. We interviewed 24 participants with firsthand experience with avalanche accidents for a qualitative study. Our results show that group dynamics impact decision-making, where excessive trust in group members leads to a lack of critical thinking and decreased participation in decision-making. We found that the person who takes leadership is of importance and that it is crucial that the leader facilitates group discussions. Lastly, skiers are out to have fun, and we found that arousal affects decisions to ski. Our findings suggest that it is important to consider and be aware of how group dynamics affect decision-making when touring in avalanche terrain.

Introduction

Over the last decades, backcountry skiing has become an increasingly popular leisure activity, attracting new enthusiasts yearly (Zweifel et al., 2006; Nordahl & Sande, 2016). More and more people want to experience the pleasures of climbing mountain tops during wintertime. There is an array of reasons why so many enjoy backcountry skiing. The activity offers an unique nature experience, an arena for exercising and socializing, and the fun of skiing soft powder snow. However, the downside is the exposure to avalanche terrain and the risk of being caught in an avalanche. People die yearly because of avalanches; most do so when backcountry skiing (Furman et al., 2010; Nordahl & Sande., 2016; Stephensen, 2021). According to Schweizer and Lütschg (2001), over 90% of fatal avalanche accidents occur during recreational skiing in uncontrolled avalanche terrain.

An avalanche is a mass of snow that moves quickly down a mountainside or slope (Nordahl & Sande, 2016). To trigger an avalanche, three factors must be present. These three are layered snowpack, steep terrain of 30 degrees or steeper, and a triggering factor (Nordahl & Sande, 2016; Landrø et al., 2019). Avalanches can be triggered by natural conditions and by an additional load suddenly added to the snow cover, such as a backcountry skier. A person's weight with skis, a backpack, and other equipment can be enough to trigger an avalanche (Nordahl & Sande, 2016). Avalanches are mainly divided into two types, slab avalanches and loose snow avalanches. If an avalanche is triggered above you, large masses of snow can hit you and drag you up to several hundred meters and potentially into a precipice, cliff, forest, or other terrains. In the worst case, this can lead to significant damage or death due to physical injuries.

Four critical factors of survival when caught in an avalanche are the grade of burial, the duration of the burial, the presence of an air pocket/free airways, and the severity of the trauma (Brugger et al., 2011). The overall mortality rate of buried avalanche victims is 23%. However,

this depends on the burial grade. Brugger et al. (2011) found that the mortality rate for avalanche victims being completely buried (head beneath the snow) was 52.4%. For partly buried victims (head is free), the mortality rate was 4.2%. The chance of survival for completely buried avalanche victims drops to 30% within the first 35 minutes (Brugger et al., 2011). After that, survival is impossible without an air pocket (Falk et al., 1994). Thus, fully buried victims depend on their peers for quick retrieval to survive.

Traveling safely in avalanche terrain requires much information, skills, and knowledge about the terrain's risk factors and warning signs. Assessing avalanche risk is difficult because avalanche terrain is an ambiguous and wicked learning environment (Hogarth et al., 2015; Stephensen et al., 2021; Silverton et al., 2022; Johnson et al., 2020). Many important factors, such as weather, snowpack, and avalanche formation, are highly complex and variable (Zweifel, 2015). Skiers often do not get feedback from the terrain on whether they made the right or wrong decisions until it's too late, and an avalanche is already triggered (Landrø et al., 2019; Greene et al., 2022).

Studies show that 90% of avalanches are victim-triggered, and this statistic implies that backcountry skiers mistakenly deem dangerous terrain safe to travel in (Stephensen, 2021). It also underlines why human factors are of great importance in this field of research. We intended to go further in this direction by exploring how group dynamics affected skiers caught in an avalanche. Most skiers who tour in avalanche terrain travel in groups (Bright, 2010; Zweifel et al., 2012). Bright (2010) states that as much as 60% of backcountry recreationists travel in groups. Zweifel & Haegeli (2014) emphasize that most accidents in avalanche terrain involve groups, not individuals. Thus, it is important to understand how a group can affect decision-making. Groups might be better off than individuals when it comes to decision-making. However, this is not always the case.

When a group works well, it easily outperforms individuals. Still, a group can also lead its members to make fateful, even catastrophic, decisions that no group members would have made individually. This led to our research question: "How do avalanche victims describe group dynamics that led up to the avalanche accident?". We did a qualitative interview and focused on how avalanche victims described group dynamics leading up to the accident. In these cases, we knew the outcome. We did not aim to draw any firm causal conclusions but rather explore the group dynamics in these groups in depth.

We start by clarifying some of the fundamental dynamics in groups.

Group dynamics

Group dynamics are "the influential actions, processes, and changes that occur within and between groups" (Horn, 2008). Group dynamics influence and shape individuals' thoughts, actions, and feelings. However, for there to be a group in the first place, the group needs to be cohesive or bound together in some sort of way (Forsyth, 2014).

Group cohesion refers to the degree to which the members of a group work together as a whole and are connected or united. Cohesion creates a feeling of "we" in the group (Myers, 2013), and it is both necessary and essential for attaining a well-functioning group (Forsyth, 2014). Group cohesion is a measure of how strongly the members of a group are bonded and how well they cooperate and support one another. High group cohesion is associated with several positive outcomes, including better team performance, increased morale, and higher levels of satisfaction among group members (Forsyth, 2014).

Several factors can contribute to group cohesion, including shared goals and values, positive interpersonal relationships, effective communication, and a sense of belonging. Generally, groups with high cohesion tend to be more successful and effective than those with low cohesion. This is because cohesive groups are more likely to work together effectively,

share resources and knowledge, and support one another in achieving their goals. The more cohesive a group is, the more it will influence its members (Douglas, 1983; Myers, 2013). However, group cohesion also limits individuals and urges them to conform to group norms or not raise their concerns when they should (Myers, 2013).

Conformity is a form of social influence and can be defined as the convergence of individuals' thoughts, feelings, or behavior toward a social norm (Smith & Mackie, 2000; Kassin et al., 2020). People often change their perceptions, thoughts, and behavior to match a perceived social norm. Conformity occurs because people believe the group is right and want to be accepted and approved by the group, or because group members think others have information they do not, especially in new situations. Therefore, following the norms and doing "what everyone else does" seems like a functional and reasonable strategy (Piercy, 2019). Often people adopt group norms as their own, believing they are correct and appropriate. But it can lead people to follow others' maladaptive behavior just because other people in the group are doing it (Kassin et al., 2020). Sometimes, people even publicly conform to norms that they do not accept privately (Smith & Mackie, 2000). Conformity may also be driven by a lack of motivation to participate. Social loafing can be seen when group members do not invest the same effort in the group as they would have to do when alone (Kassin et al., 2020).

Decision-making is a central activity of groups (Levi, 2011), and using groups to make decisions creates both advantages and disadvantages. Depending on the situation, group decisions may or may not be superior to individual decisions (Levi, 2011). Trust is central to well-functioning groups, which promotes cooperation between group members (Kassin et al., 2020).

One of the benefits of being in a group is the ability to bring together multiple perspectives on decision-making, raising the quality of decisions (Levi, 2011). A group brings more resources to a problem than what is available for individuals alone. One variable that

predicts if a group scores high on collective intelligence is that all the group members are allowed and encouraged to participate in discussions rather than having a few dominant group members decide (Kassin et al., 2020). Separate people may consider and assess things differently, which enriches decision-making if shared out loud with the group members. Indeed, Fujisaki et al. (2018) found that group variety could improve group performance in "wicked" environments where feedback is scarce or misleading. Thus, the group's decisions may outperform individual decisions (Fujisaki et al., 2018).

Groups that communicate well are also more likely to identify and reject wrongful judgments and decisions (Levi, 2011). This collective intelligence or wisdom of the crowds could amplify the group's expertise and knowledge and thus lead to better group decisions (Ebert & Morreau, 2022). In a theoretical paper, Ebert and Morreau use the example of when a group must decide which of two routes they should ski. If discussed in plenary sessions, a majority vote may increase the chance of choosing the best and safest option (Ebert & Morreau, 2022). The group members should share their observations and evidence with the group members so that all the members can consider the different perspectives. This could lead to a broader understanding of the terrain and gives the opportunity for a more extensive group discussion (Ebert & Morreau, 2022). For a group to perform at its optimal level, the process needs to be facilitated, most often by a leader.

In backcountry skiing, some ski groups might be formed "ad hoc" for a specific purpose or due to convenience. These groups might not yet have explicit norms or shared ideas about how they should function as a group. They are, in one sense of the word, a group, but with little to no group dynamics at play; Can we call this a group, or is it a collection of individuals walking around with other individuals?

Leadership

Leadership can be referred to as the guidance of others in their pursuits. It can include unifying, directing, motivating, and supporting the group members (Forsyth, 2014). Groups are more likely to recognize leadership potential in people that are experienced rather than inexperienced (Forsyth, 2014). A review of 52 studies found that task-relevant skills were mentioned as characteristics typically ascribed to leaders in 35% of the studies (Forsyth, 2014). This implies that people are more accepting of leaders who previously have demonstrated relevant task ability. Further, people are more willing to follow directions a task-competent person gives (Forsyth, 2014). In avalanche research, expertise is important for making the best possible risk assessments in avalanche terrain (Hallandvik et al., 2017).

However, sometimes the least knowledgeable or experienced group members take on the leadership role. Why does this occur? A widely replicated phenomenon in social psychology is that individuals' perceptions of their skills are only moderately correlated with their actual skill performance (Alicke, 1985; Krizan & Suls, 2008). This is known as the "above average effect", which is the tendency of the average person to consider themself as above average (Alicke, 1985). Kruger & Dunning (1999) took this theory a bit further by showing that in addition to overestimating their abilities, the unskilled people are also unaware that they are unskilled. This is known as the Dunning-Kruger effect (Kruger & Dunning, 1999).

Another study found that the most important predictor of groups selection of a leader was the participation rate, also called the "babble effect" (Levi, 2011). Group members are more likely to select the person who talks the most as the leader (Mullen et al., 1989). This implies that the quantity of communication is more important than the quality regarding leadership selection (Levi, 2011).

McCammon (2004) described the process of more or less blindly following a leader as "The expert halo heuristic". This heuristic occurs when a positive impression of a person in the group makes the rest of the group ascribe this person with more skills than any other group

member. This person may or may not have these skills but will still be perceived as the decision-maker based on the positive impression of others. The positive impression of the leader may be due to experience, skills, knowledge, or age. The leader might also be seen as a better skier or social leader (McCammon, 2004; Zweifel, 2015).

The complexity of the environment, with its inherent lack of feedback, may prevent unskilled leaders from comprehending the challenge they face or holding an overly favorable view of themselves and their skills. Indeed, Gigerenzer (2008) found that in most cases, it was not the well-informed majority but rather the most ignorant and least informed member of the group that directed the group's decision.

Heat of the moment

The reason for skiers to be in the mountains in the first place is to do what they love to do – ski, which can evoke a feeling of arousal. Physiological arousal has been proven to enhance the tendency to copy what the majority is doing (Coker, 2020). This implies that a ski group's ability to make sound decisions may be clouded by the members' level of arousal. According to the deindividuation theory, arousal can weaken self-control and increase the likelihood of adopting the crowd's behavior (Harkins et al., 2014). Deindividuation is a phenomenon that can occur when being involved in a group and can cause a perceived loss of individuality and personal responsibility. Research on the effects of arousal on crowd-joining behavior focuses on the idea that arousing situations can evoke tendencies to join in and adopt to the behaviors of others (Diener et al., 1976; Coker, 2020).

Findings in a study by Sohn et al. (2005), indicate that impulsive decision-making behaviors can occur with high arousal and are characterized by decreased activities in the cognitive control regions of the brain. On average, individuals demonstrate more risk-taking, greater risk preference, and more risky decision-making when in a group of peers compared to

when they are alone (Gardner & Steinberg, 2005). However, the magnitude of the group's effect on risk-taking was greater among younger rather than older participants. Thus, relative to adults, adolescents are more susceptible to the influence of their peers in risky situations. Skiing in avalanche terrain can be seen as a risky situation where it is common to travel together with like-minded people.

Backcountry skiing is an activity that gives people an arena to challenge themselves, with opportunities to stretch toward the edge of their skills (Hetland et al., 2018). When mastering a difficult task, people experience positive emotions. However, experiencing strong emotions has also been shown to lead people to take more risks. For example, Ariely and Loewenstein (2006) found that high sexual arousal leads people to take higher risks and break public norms.

People also tend to look for cues that support their beliefs rather than cues that contradict them. This is a well-known social psychological phenomenon called confirmation bias (Svartdal, 2014). If strong emotions affect people to take more risks, it is conceivable to assume that strong emotions also affect how people assess dangerous environments, like avalanche terrain.

In an experiment on backcountry skiers, Stephensen and his colleagues (2021) found that attraction led people to downplay the risk. The skiers were shown photos of potential ski runs and asked to rate how risky they found the runs and how much they liked them. It turns out that the more skiers liked the ski run, the less risky they found it.

However, a series of studies by Mannberg et al. (2021) found that watching a ski movie and engaging in skiing affected the rider's emotional state or what they called "Powder fever". They did not, however, find strong evidence that powder fever increases willingness to take risks.

Aim of the study

The study's overarching aim is to get an in-depth understanding of whether group dynamics and/or other factors contributed to an avalanche accident. To do so, we interviewed people that experienced an avalanche accident.

Method

Design

To better understand how avalanche accidents occurred, we chose a qualitative method. We conducted 24 interviews. The interviews were semi-structured, individual, and thorough. We were interested in exploring what the participants thought and felt. Also we wanted to explore how they behaved, both outside of and in avalanche terrain. This related to their accident. We wanted to determine whether group processes played a role in the accident.

Participants

All but one participant were backcountry skiers. The exception was one snowmobiler. There was one female participant while all others were men. Most of our participants were young or middle-aged men between 20 and 60 years old. All participants had experience with avalanches. They had either been caught in an avalanche themselves, been close to being caught in an avalanche, or witnessed someone else being caught. We included everyone that wanted to participate, even though some had experiences that dated back to almost three decades ago. This is because being involved in an avalanche accident is a rare occurrence that few people have experienced.

To recruit participants, we searched within our network to check if we knew anyone who had been in an avalanche accident. Some were contacted directly, while others contacted us. The social media platform Facebook was used to contact participants. In a Facebook post,

we published information about the study and its purpose, with a description of who we were interested in interviewing. This post was also shared with a Facebook group for local skiers in the Tromsø area (Toppturfolk på Kvaløya).

Our supervisor had access to contact information for several backcountry skiers that previously had reported being on a ski trip where an avalanche was triggered. They were contacted through email, and those who replied were scheduled for a time to do the interview.

Measures

CARE researchers developed the interview guide, which consisted of eight open main questions and several potentially relevant follow-up questions (Appendix A). The goal was to let the participants tell us about the accident, including the planning of the trip, the events that led up to the accident, and what happened after the avalanche was triggered. The questions were designed in a way as to not prime the participants with ideas on whether the accident was a result of bad luck or wrongful decisions.

Procedure

As many as twenty-one interviews were conducted via Teams, while the remaining three were conducted in person at UiT The Arctic University of Norway. Interviews were held via Teams when it was more convenient for the participant to do so. The length of the interviews varied from twenty minutes to almost two hours, although most lasted about one hour. Four students, divided into two different groups, conducted the interviews. One student was responsible for leading the interview, while the other student observed and asked follow-up questions if necessary. The students switched between every participant on who was the primary interviewer.

Before the interview started, all participants had to read and sign a consent form (Appendix B). The consent form had information about the interview and the project's purpose, as well as information about the participants' confidentiality and right to withdraw at any time. The interviewers also explicitly asked if the participants accepted that the interviews were recorded. All interviews were conducted in Norwegian. The time of each interview varied and depended partly on what was most convenient for the participants.

We started to ask the participants about the group they traveled with and how they experienced the group dynamics and communication in the group. We also explored participants' learning from the accident, their thoughts, emotions, and actions when skiing after the accident, and if they noticed a changed ability to travel safely in avalanche terrain. Finally, we asked our participants if they could give some concrete advice to other people who wish to travel in avalanche terrain in the future.

Data analysis

We used a phenomenological perspective in our thesis. Kvale & Brinkman (2018) describe the phenomenological approach as a way of understanding social aspects based on the participants' views and understanding of their own experiences (Kvale & Brinkman, 2018). In this thesis, we wanted to explore our participants' understanding and descriptions of their experiences with avalanche accidents. To do so, we let our participants openly describe the planning, the tour, and the avalanche experience. Our goal was to understand their perspectives on the accident. To get a broader understanding of the meaning of our data material, we used a thematic analysis with an abductive approach. We also used an exploratory design in which our path selection and the choices we made were created during the process and not before our study.

Step one. Going through the transcription. The audio recordings of the interviews were transcribed to text by a professional. After getting the transcribed interviews, we divided all material in half to look at the overall meaning more efficiently. The meaning condensation was a part-by-part summary of the transcribed interviews written in our own words.

Step two. Transforming meaning condensations to descriptive codes. To analyze the data material, we used a computer program called NVivo. After making meaning condensation of the data material in Word, we created an NVivo document where we inserted all the condensations. We then reviewed all the condensations to find common features with the different transcriptions. We made descriptive codes that we divided distinct parts of separate transcriptions into. The codes had to be wide enough to capture several statements from different transcriptions and narrow enough so that every statement did not fit under the same code. We also made subcodes under our main codes to narrow the statements even more. When we created subcodes, we ensured they were in sentences that described the statements and tried not to use keywords. That way, it was easier to narrow it down. These codes were important to determine if our material could enlighten our research question. We ended up with three main codes related to our research question.

Step three. Post coding through memos. When finishing the coding condensations in NVivo, we started post-coding them through memos. Post-coding is a specific focusing technique. Memos is a working place in NVivo. We placed all the codes separately in Memos, where we described each code and subcode. We also copied quotes to all the codes to emphasize the overall meaning of the codes in Memos. The purpose of post-coding was to clean out excessive information in condensations.

Step four. Connecting our findings to existing theories. At last, we tried to connect our findings to existing theories in social psychology and the avalanche research field to find similarities and differences. Since research on human factors in avalanche terrain is a new

research field, it was decided to focus more heavily on finding support from social psychology theories and then connecting them with findings from avalanche literature.

Ethical issues

The study was approved in accordance with the guidelines of Norsk Senter for Forskningsdata (NSD-733888). In this study, we interviewed participants with rare and unpleasant experiences. They were asked to share personal experiences and thoughts. Being caught in an avalanche or watching a group member being caught can be a traumatic experience and can cause both emotional and physical damage. One ethical issue we must consider is how our interview impacts the participants during and after the interview. It was important for us to support and validate our participants feelings and experiences as much as possible during the interviews.

In a qualitative interview, we interact with our participants in a more directly and personal way than we typically do in quantitative research. In an interview, there is a conversation about a specific topic where one person asks the questions, and the other person answers them. There are both advantages and disadvantages to interviews as a method. One ethical issue with interviews is that the interviewer must be observant to how the participant and the interviewer interact with each other during the interview. The interviewer also must be aware of how the participant and the interviewer mutually affects one another in their interaction (Kvale & Brinkman, 2018).

Avalanche accidents may be a touchy subject for people who have experienced an avalanche. Some participants may have lost someone in the accident, and others got severely injured. The interviewer must be attentive to body language and contradictory statements when asking about accidents. There might be several reasons for contradictory statements. It can be due to communication issues or an expression of ambivalence in the participants (Kvale &

Brinkman, 2018). Ambivalence can be related to the fact that the participant is uncomfortable, which can provoke discomfort and anxiety. This discomfort can lead participants to unconsciously use defense mechanisms in the interview to protect themselves. One defense mechanism can be to answer questions in a certain way which might influence how the interviewer asks the questions as well (Kvale & Brinkman, 2018).

Findings

Four main themes emerged from the analysis of the transcribed interviews with avalanche victims; 1) Cohesion and trust, 2) Leadership, 3) Heat of the moment, and 4) Shit happens. The interviews have been transcribed in Norwegian, but the quotes in this section have been translated into English.

Table 1.

Overview of themes and findings.

Themes	Subcategories
Cohesion and trust	The good
	The bad
	The ugly
Leadership	The expert halo
	The experienced leader
	The inexperienced leader
	No leadership
Heat of the moment	Powder fever
Shit happens	

Cohesion and trust

Most backcountry skiers travel in groups and for good reasons. If a skier gets caught and buried in an avalanche, the only realistic chance of survival is speedy retrieval from the ones that hopefully remain on the surface, or rescue buddies from other nearby skiers. Skiers needs to trust rescuers with their life. However, the group could potentially be the reason the skier ended up buried in the first place. We refer to this as the good, the bad, and the potentially ugly side of group decision-making in avalanche terrain.

The good. Being in a group can be a good thing. Several participants described a feeling of coordination and trust in group members. It enabled them to discuss and disagree on risk assessments and route selection, like in the following examples: *"No, it is all good. We are open to talk about everything, bring things up or disagree or argue and all that stuff. Here I think the group dynamic is good… there are good preconditions to do things right in a way"* (Participant 7).

> *"It's kind of a continuous risk assessment, you constantly look and assess them individually... We are very coordinated and very much in agreement about where the risk lies, what is dangerous, what is not dangerous. And that was also the case when we went on this backcountry trip together."* (Participant 21).

Feelings of trust, responsibility, and involvement were described to be of significance. *"None of them would pressure me to do something So in that sense it was a very open group to discuss. We were all involved in the planning of the trip."* (Participant 2).

The bad. Not all groups took responsibility for their members. In some groups, the participants said that they were only responsible for themselves. This was typical for ad hoc groups, where the group was formed only because of that specific skiing trip. That could lead to a diffusion of responsibility where everyone made their own decisions, and there was no discussion about important decisions in the group.

"I believe that each of us has responsibility for ourselves. As I said, there was no one in charge and there was also no one who wasn't… experienced in such trips. So, it was... we decided for ourselves to go up and so we accepted the risk we take and have(...) if one decides that it is not safe now then he can go down" (Participant 18).

Participant 18 was in a group, but all members made their own decisions. Without any sense of cohesion or trust in a group, is there a group? Or is there a bunch of individuals just walking around with other individuals?

"We were just on a trip. Almost no one went ahead and decided anything, we just went on a trip together really, just knew that we were going up in a certain area and then we were just going to check out what the snow was like. We didn't have a specific goal or anything. We were just going to see if we found good snow" (Participant 4).

"It can quickly become a bit ad hoc where maybe one or two takes some responsibility for the safety assessments and try to stop. But then it's a bit more like that... There isn't necessarily a plan for the day." (Participant 3).

Other participants explained that they didn't have a specific goal or plan for the day. They just went on a trip together, without considering anything special.

The ugly. Assessing avalanche danger is challenging. It requires an ability to consider and track an extended range of factors. A second pair of eyes and a different opinion can therefore be essential. But this demands the right attitude and attention from the group. Most participants described having group challenges, like in the following example.

"No, it is difficult to say what was the main reason, but.. maybe too big of a group. Often that is not good. Maybe too much 'being with the boys' attitude. Maybe different levels of skills both in terms of skiing and avalanche assessments. Then it is difficult to maintain a good dialog" (Participant 13)

Skiers head into the mountain to do what they like and long for. The strong motivation often reinforced within the group may cause them to overlook or even ignore obvious signs of danger. This is an ugly side of group cohesion and conformity; it can lead group members not to raise their concerns when they should.

"I thought about it a lot afterward, that what we did was completely crazy, but because of the group dynamics, it happened anyway. There were many signs that we should never have been there. But then we were anyway" (Participant 5).

The participant explained how the group's urge to go skiing led them to ignore important signs in the terrain. Their group dynamics led to a dangerous situation. Although there exist some ugly sides of being in groups in avalanche terrain, some can be reversed by a

good leader that explicitly includes the group and encourages discussions. *"He is very keen that we talk to him. As he says, suddenly there is a day when you see, experience, or make an assessment that I don't do, see or register, and where that changes the situation"* (Participant 3).

Participant 3 emphasized that if more group members were included in the decision-making, it was more likely that important cues from the environment and cues, in general, would be noticed and discussed. It was important for the leader that the other members talked to him about observations and assessments because they might have registered things that he had missed. If the leader is concerned that several members gathered information and that this information was discussed in the group. Then, the group dynamics could reinforce better decisions. However, not all leaders should be trusted.

Leadership

In leadership we looked at whom the participants described as the leader and the ones who made decisions on behalf of the group. In this thesis, we have merged the ones who took decisions in the group with the leader. This is because the person who made most decisions indirectly took a leading role in the group, even if this was not communicated. This is our interpretation of the data material.

Who should take leadership in an environment where making correct assessments and decisions is paramount? And who does take leadership? Sometimes the answers to the two questions do not align. It is natural to think that the most experienced, most knowledgeable person would be appointed leader. It seems like the best and safest option. Nevertheless, having such a single, clearly defined leader in the group could lead to an unfortunate expert halo effect on the remaining members, making them passive followers or social loafers.

For a few groups, less experienced group members emerged as the leader. Falling victim to the above-average and Dunning-Kruger effect, they might not understand how risky their decisions are. Thinking they are better than the average skier at making good decisions, they become the group's driving force, knowingly or unknowingly pushing the others forward.

Taking on the leadership role in avalanche terrain is both demanding and scary, leaving some groups without a leader at all. It could lead group members to either step up and ask questions, or it could make them keep their questions and concerns to themselves.

The experienced leader. In groups with an experienced leader, multiple participants described reasons for a particular person being appointed or viewed as the leader. The reasons were primarily based on age, knowledge, skills, and familiarity with the area. *"I definitely have the most knowledge and was recognized as the one who should sort of find out and be the one who made decisions"* (Participant 16).

Participant 16 was appointed the leader because he had the most knowledge in the group. Based on his knowledge, he was chosen to make decisions in the group. Some participants described a few unfortunate consequences of having an experienced leader. The group could have had less discussion because one person took the lead.

> *"I think there are some who might relax a bit more when they have a guide than others. And it is perhaps a bit natural because a leader is somehow so clearly defined, in contrast to when you go perhaps without such a clear leader, then there is perhaps a bit more discussion around it"* (Participant 3).

Above, participant 3 pointed out that there might be more discussions around the trip if they had not had such a clear leader. Having a clear leader may have limited the others' feeling of responsibility on the trip.

The expert halo. Some participants described trusting others' abilities, making them follow the leader blindly without asking questions about the decisions made. Participants trusted that some group members would make good and safe choices. They trusted others despite having an intuition or bad gut feeling that indicated that they were in danger. One explanation for trusting group members' abilities could be that they had more experience. This led to a passive attitude toward discussions and decisions. We can describe this through the expert halo heuristic.

Participant 6 described how trusting others made him forget to think critically.

"I was on a trip with two British climbers who had... were good in the mountains and... were going to be guides and it was like... I kind of just joined then. So I had sort of just left my own critical thinking at home and sort of trusted them completely. It was they who were in a sense the leaders of the group" (Participant 6).

Other participants explained that members with specific qualities, like being a good skier, made the others consider them as a leader it was safe to follow without asking questions during the trip. Participant 7 described this as the biggest mistake on the trip: *"I would say that the biggest mistake I made was trusting that the one who had been in the mountains a lot and done many backcountry tours was going to make all the assessments alone"* (Participant 7).

An experienced leader could prevent problems with conformity if the leader is aware of their role and possible influence on the group.

"I'm not going to decide what they should do, but I try to get them to understand that they've made the choices and that they're just as much involved and that they've made the decisions themselves, that they agree" (Participant 16).

"We went up the trail, and I withdrew to let them control a little bit themselves and just... they shouldn't go and hang like a flock of sheep on my ass. They must be allowed to make their own assessments" (Participant 16).

Participant 16 emphasized how important it was for him that others should make decisions on their own rather than just following the leader. They had to be aware of their responsibilities on the trip and everyone were just as involved in the decision-making process as the leader. Participant 16 was an appointed leader and wanted to ensure everyone agreed on the decisions. He also took a more passive role so that the others could control some things and not just follow him around like sheep.

The inexperienced leader. Sometimes the leader in the group was the least experienced group member. A few participants described that one group member took a dominant role in decision-making because they talked over the others to get their way. They were not necessarily the ones with the most knowledge or experience.

"Both him and the others I felt had relatively good knowledge. But then there was the third one who I at least felt was not very... had very little knowledge really. He was more like go happy. And he drove the group forward in a way" (Participant 15).

Participant 15 described that it was a group member with less knowledge than other members who drove the group forward, even though others had more knowledge. Previous

relationships may also have influenced who took leadership or a more dominant role: *"Because I got the impression that the other two probably had more experience, but then they maybe let him manage a bit, I think. And they are childhood friends, it could be that it had always been like that"* (Participant 15).

    No leadership. In some groups, there was no leader. In groups with no leader, the members made all or no decisions together. Participant 5 described a negative consequence of no one taking leadership in the group and considered it the main reason they ended up in the avalanche accident: *"And then one can ask why this happened. And there is something about group dynamics, no one wanted to take the lead in the group, no one wanted to put their foot down, and no one asked the questions"* (Participant 5)

    In some groups, there might not be anyone that wants or dares to take leadership. Participant 12 described how asking critical questions can be scary. *"A typical problem is that it's scary to bring it up, to mention that on that trip this is… it's stupid. You might be a little reluctant to do so"* (Participant 12).

    Some groups did not consider it necessary to have a leader at all. They described the group dynamics as better without a leader. They talked about the group being open to discussion during the trip and that no one took the dominant role in the group. Participants in a group where members were open to having a discussion often planned the trip together and regularly discussed route selection and other decisions. They described a good atmosphere in the group and that there was no conflict. This was more common in well-established groups where everyone already knew each other and had roughly equal knowledge and skills.

"Very good group dynamics and open discussion and good atmosphere and no friction in the planning... Everyone was in a way kind of intent on going up there and seeing if it was possible to ski what we intended to ski" (Participant 2).

"We discuss route selection; we discuss back and forth. And we talk together about risk all the time, what is wise and what is not wise. And we have turned back as a group several times. So many proud moments with them" (Participant 3).

Participant 3 described an open, continuous, and careful discussion about risk and route choice in the group. The group had the ability to be flexible so that if it were considered too risky to continue, they could turn around and go back, and he emphasized how this was a group dynamic he was proud of. Not having a leader could be positive if it contributed to open dialogue and discussion in the group.

Heat of the moment

Mannberg et al. (2021) did not find that strong emotions affected the willingness to take risks or break norms in backcountry skiing. In this study, however, several participants describe this effect in detail. Some participants described that their desire to ski in good powder snow could have trumped their rational thinking during the trip. This led some of them to ignore the warning signs that might have been there. Participants explained that their desire to ski in good conditions or reach the summit influenced their decision-making. Sometimes available information was ignored in favor of skiing. This could be explained through a confirmation bias. People often seek cues or information that support their beliefs and assumptions (Svartdal, 2014).

"I guess our group process was more like we wanted to ride powder... we didn't let the information that we got... We didn't make a decision based on that, we decided based on the fact that we wanted to ski. So, it was a really bad group process" (Participant 1).

"I went against the groups and my own intuition and knowledge of the area we were skiing in and the snow conditions. Because we knew it was dangerous there, and we knew it was a place with wind-deposited snow and far too steep, with good opportunities for remote triggering from below. But I got too excited skiing the line that I saw in front of me. By then, I had forgotten everything I was thinking about when I was standing in the gondola. So that's, in a way, the mistake" (Participant 20).

The desire also made individual group members more willing to take more significant risks. Participants in a group where one or more members had this mindset said it affected the atmosphere. It made it hard for them to speak up. One participant described it this way: *"But the problem is that it's very typical for such action people, so it's that they're not that worried, and they talk very loudly, and they're really good at... they try everything they can to push through their things"* (Participant 23).

The heat of the moment describes how positive feelings and feelings of arousal at a specific moment can influence the decision-making process. This can affect how people assess danger and risk, which makes it possible for the group to enter something potentially dangerous blindly. Affection can control the assessment of risk. According to Kahneman's affect heuristic, our feelings will influence how we assess and think about separate things. If people dislike something, they will describe it as riskier. They will also describe the benefits as more insignificant (Kahneman, 2011).

Shit happens

It is important to note that we only interviewed people caught in an avalanche or saw another person get caught. This will affect the participants' answers and our interpretation of the data material. Several participants described functional and positive group dynamics and attributed the accident to other factors unrelated to group dynamics. Even though participants described a well-functioning group, they were still caught in an avalanche. This showed that even though some groups have well-functioning group dynamics, shit still happened. Avalanche assessment is a complicated task and the likelihood of triggering an avalanche is low even though the conditions are challenging. A skier can be lucky and get away with poor decision quality, others might end up getting avalanched on their first trip.

This brings us to our final finding in this thesis: shit happens. One can never predict avalanches with certainty. Some people get caught despite good group dynamics and communication. Participant 2 describes it like this:

"You can make as many correct assessments as you like, but if you're in avalanche terrain, you're in avalanche terrain. We could perhaps have made other decisions on the way there, but if you spend enough time in avalanche terrain, there is probably a fairly big chance that, at one point, you will make a misjudgment in such a way that you end up in such a situation. Or that there are things that happen that you cannot keep track of. There is always such a residual risk. I don't believe that you can eliminate all risks. You're not God when you're on a ski trip, so you don't control the weather, wind, and snow, and not all factors can be managed or noticed on a trip, I don't believe so" (Participant 2).

Participant 9 reflected on how randomness was a factor. Everyone could end up in an avalanche accident because it is impossible to eliminate all risks in avalanche terrain. If enough time is spent in this terrain, a misjudgment will, eventually, be inevitable. *"In my mind, the accident could have happened to anyone. It's x times y times z, so it's like... it's just which components you put into the calculation."* (Participant 9).

Discussion

This study explored how group dynamics affected decision-making in avalanche terrain. Avalanche terrain is a notoriously difficult learning environment with absent or even misleading feedback, where skiers may be rewarded with nice skiing after unknowingly making a hazardous decision to ski a line that just barely ended up not avalanching. Most skiers will never know how lucky they were. In this study, we turned to the other group. The group that knows and has had time to reflect on their decision – the avalanche victims. Most studies in this field of research have a quantitative research design (Zweifel, 2015). A qualitative design was chosen for this study because it is a suitable method to explore human behavior in depth. The interviews were thematically analyzed, and the themes were cohesion and trust, leadership, the heat of the moment, and shit happens. We will discuss them in turn.

Cohesion and trust

Cohesion contributes to the feeling of being together in a community with shared goals, values, and adaptability. It is about how strongly the group members are bonded and supportive of each other. When being in a cohesive group, people tend to communicate more effectively and are more likely to work together and cooperate with other group members (Douglas, 1983; Myers, 2013).

Our participants described cohesion and trust as important parts of being in a group. They experienced a feeling of unity when skiing with a group they trusted. They could

make decisions together and everyone participated. In these groups, the wisdom of the crowds was exploited and put to good use. The wisdom of crowds explains how a group can improve the quality of decision-making (Levi, 2011; Ebert & Morreau, 2022). However, we also found examples of groups with excessive trust in individual group members where participants followed along even if they were in serious doubt. Zweifel (2015), created the SOCIAL checklist which summarizes important group factors: Skills of group members, Organization, Communication, Identification, Anomalies to "healthy" group behavior, and Leadership. He argues that groups should have a deliberate relation to how it is set up with skills and how it is organized. The SOCIAL checklist can help recreationists traveling in avalanche terrain to structure group-related processes and decisions and therefore to be less susceptible to unwanted group effects (Zweifel, 2015).

Leadership

Leader emergence is a topic of interest in social psychology. Backcountry skiers must navigate uncertain and complex environments where decision-making requires high levels of skills and effort. This is a demanding task for the group and its potential leader. Some groups had a leader that they described as the group's expert. When the experienced leader invited the other group members to participate and discuss, that contributed to increased communication and participation from all the group members. A leader that did not include the rest of the group in the decision-making process could cause people not to speak up even when they had concerns. The more people participate and discuss their observations, the more likely it is that they will discover important cues from the environment. In other groups, skiers more or less blindly trusted the expert group member to make decisions on behalf of the group without participating in the decision-making process themselves. This could be explained through "The expert halo effect". In the expert halo effect, people attribute more skills to others based on a

positive impression of them. This can be problematic because people might not have these skills (Zweifel & Haegeli, 2014; McCammon, 2004).

In a few groups, an inexperienced person made the decisions on the trip. Tremper (2018) emphasizes that we often go along with the group rather than speaking up, even if we have concerns. This could be related to a desire to be accepted by other group members. The babble effect can describe how people who speak more and louder than others might be considered leaders, even people with the least experience in avalanche terrain. Some group members may take an active leadership role. People tend to overestimate their abilities the less knowledge they have, according to the Dunning-Kruger effect (Kruger & Dunning, 1999). This might be the case when inexperienced people become leaders of groups.

In other groups, there was no leader at all. Everyone made their own decisions and walked together as individuals. This could be positive or negative. It could lower the threshold of speaking up and make the discussion better because no one took the dominant role, and everyone felt that they could participate at the same rate. If no one dared to take leadership, it could also cause group members to be passive and not share cues and assessments from the environment that they should have discussed.

The heat of the moment

A third theme that emerged in the interviews is the heat of the moment. Some of our participants described that the desire to reach the top or powder ski made them miss out on cues they should have considered. This can be explained by powder fever which involves decisions that are affected by a great desire to ski. Strong emotions can, in some cases, increase risk-taking (Ariely and Loewenstein, 2006).

The physiological arousal that skiers feel when doing what they love impairs self-control and enhances the tendency to join the crowd. On average, people will accept and take

more risks in groups than they would individually. However, this mostly applies to young adults
(Gardner & Steinberg, 2005).

Shit happens

The final theme that emerged was that some groups did everything by the book – but
still ended up in an avalanche. Skiing in avalanche terrain will never be risk-free and sometimes
shit just happens, even if people had positive group dynamics. On the other hand, people who
have poor group dynamics may not be caught in an avalanche. This tells us that group dynamics
alone is not the cause for avalanches (or their absence), or said differently, one can never be
completely safe in avalanche terrain. Coincidence and luck may also be of importance when
looking at the field of avalanche terrain.

Limitations

It is important to note that there are some limitations to the results of this study. First,
we only interviewed people with firsthand experiences of avalanche accidents who wanted to
share their experiences with us. This can affect the generalizability of our findings. Johnson et
al. (2020) describe the limitations of drawing generalizations about the whole population of
backcountry travelers by looking at data from accidents. They highlight that people exposed to
avalanche accidents are a narrow population with rare experiences. Simultaneously we can
assume that many accidents go unreported because the consequences were small or did not
result in fatalities or severe damage (Johnson et al., 2020). Further, we cannot exclusively state
that the group dynamics, risk judgments, or assessments were the main reason for the avalanche
being triggered, even though they may have been present. We cannot with certainty say that the
accident was caused by the factors we have focused on rather than coincidences or bad luck.

We did not, in this thesis, explore how gender differences affected group dynamics,
though it is highly possible that such factors had an impact on the group dynamics. We had

difficulty recruiting female participants and ended up interviewing only one female participant. There could be several explanations for lack of women compared to men. Perhaps the most active people in avalanche research groups are men, and therefore they are easier to reach for a study like this. Another explanation could be that men more often get caught in avalanches than women. According to Zweifel (2015), avalanche accidents most typically involve men, as much as in 90% of the cases. Regardless, this inevitably made it impossible to explore or compare how and whether groups with female members differed in group dynamics. Nor did we look at age differences among our participants. Most of our participants were young or middle-aged men.

A further limitation of the study is that most of the interviews were conducted in Norwegian and therefore our quotes had to be translated into English. This can impact the results because some parts of the meaning in the participants' descriptions may be altered during the translation process. Further, there were two student groups, with different styles of phrasing, that conducted the interviews. Even though we followed the same interview guide, this likely led to differences in what questions and themes were explored.

We did not set a time limit for how long ago the participants were caught in an avalanche. A few participants had difficulty remembering specific details because the accident happened many years ago. This also implies another difference because participants that were caught in an avalanche twenty years ago also had less information about avalanche safety compared to the amount of information that is available today.

Future research

It is interesting to study avalanche victims because they have a rare experience that the average skier does not. Avalanches are rare events, and the release probability of an avalanche even under extreme avalanche conditions is below 50%. Avalanche accidents may or may not

occur due to group factors. However, it is only by exploring these accidents that we can find out what caused them. Nevertheless, to fully understand whether avalanche accidents may be due to group dynamics or not, further research should examine the ones who got caught in the avalanche, and the ones who did not. However, an avalanche accident is a result of flaws in a range of layers. Group dynamics is only one of the layers. This means there are probably many groups with a failing group dynamic that got to walk away after an uneventful trip. In the pursuit of understanding the role of group dynamics in avalanche decision-making, future research should not be limited to accidents but also study near misses.

Conclusion

Skiers that have been involved in an avalanche accident describe good, bad, and ugly aspects of being in a group. Though trust is essential, there also must be room to ask questions. A leader that encourages communication and active participation from the group can be crucial to making safe decisions. No matter how experienced or knowledgeable a skier is, decisions of life and death significance should not rest with a single person. It can make the remaining group members passive followers when you need everyone on board. Skiers' great enthusiasm, motivation, and love for good runs create strong emotions and arousal that, in the heat of the moment, can cause them to underestimate the terrain or ignore cues telling them they should not be skiing there at all. Ultimately, avalanches are impossible to predict with certainty, resulting in the fact that shit happens.

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Appendix A

Interview guide for learning from avalanche accident study.

Hovedspørsmål	Potensielle oppfølgingsspørsmål	Kommentarer
Du har fortalt at du har vært involvert i en skredulykke, kan du fortelle hva som skjedde? (Du kan starte fra da du begynte å planlegge turen)		Hensikten er å få deltakeren til å fortelle historien om ulykken. Vi vil gjerne ha hele historien - alt fra planleggingsprosess til etter ulykken.
	Fortell meg om planleggingen av turen	
	Hva var motivasjonen for turen? Hadde du vært på lignende type turer tidligere?	Høy eller lave ambisjoner - tydelig mål? Hverdagstur eller et større prosjekt? Bestemt på å komme seg til toppen?
	Hvordan var været og snøforholdene denne dagen?	Det er ofte enklere å få folk til å snakke hvis de kan starte å snakke om noe konkret.
	Fortell fra dere startet på parkeringsplassen og gikk videre oppover.	

	Observerte du noe på veien?	
	Hva snakket dere om i gruppen? *(Vurderte dere sjansen snøskred?)	Vi vil gjerne forstå fokuset de hadde. Fokuserte de på snøskredfare - eller fokuserte de på andre ting?
	Hvordan vil du forklare stemningen/humøret i gruppen?	Glade? Nervøse? Stresset? Engasjert?
	Når forsto du at du var i fare?	
	Hva eller hvem utløste snøskredet?	
	Kan du beskrive din opplevelse av å bli tatt/se snøskredet? Hva skjedde og hva følte du?	
	Hva skjedde etter snøskredet hadde stoppet?	La de fortelle om redningen etter skredet så vi kan vurdere alvorlighetsgraden. Konsekvenser? • Behov for å bli gravd frem
Hva vil du si er hovedgrunnen til at du eller noen i gruppen endte opp i snøskredulykken?		(uflaks eller feilaktige vurderinger?) Ikke prime de med dette.

Har skredet endret tilnærmingsmåten du har til frikjøring eller topptur (på ski) på noen måte?		
	Går du fortsatt på ski i skredterreng? Like mye som før? (mer/mindre)	
	Har ulykken endret hvordan du (tenker før tur) planlegger turer? (hvordan du tenker før tur/ hva du mener er viktig å ta med i planleggingen)? På hvilken måte? (Om intervjuobjektet ikke nevner dette: Bruker du samme type informasjon i planleggingsfasen nå, eller har noe endret seg?) Har ulykken endret hvordan du tenker PÅ tur (hva du tenker er viktig å ta med i beslutningene)?	

	- Hva legger du merke til? /Hvilken type informasjon ser du etter? - Hvor ofte innhenter du informasjonen? - Hvordan innhenter du informasjonen? (Hva/Når/Hvordan). Er det en forskjell fra før ulykken?	
	ATFERD Har skredulykken endret atferden din - eller hvordan du navigerer deg i skredterreng. Eksempler hvis nødvendig: - Mer konservative rutevalg - tryggere avstand - Stopper på trygge steder - Samler informasjon oftere - sjekke snøen osv.	
	EMOSJONER Har ulykken endret måten du har det på når du er på ski i skredterreng?	

	Føler du mer eller mindre frykt, glede, entusiasme, uro, årvåkenhet	
	RISIKO Har skredulykken endret din opplevelse av risiko? Eller hvor villig du er til å ta risiko i frikjøring?	
	EVNE Har skredulykken endret hvordan du opplever din egen evne til å ferdes trygt i skredterreng Har skredulykken endret din opplevelse av hvor utfordrende det er å vurdere snøskredfare	Er de trygge/sikre i sin skredvurdering?
Vil du si at denne ulykken har påvirket livet ditt forøvrig?	Hvis ja - På hvilken måte? Har ulykken endret villigheten din til å ta risiko på andre områder i livet?	Her vil vi gjerne vite om ulykken har endret verdier, holdninger på andre områder Det kan også reflektere alvorlighetsgraden av

		ulykken (mentale vs. fysiske arr)
Hvis det var en gruppe på tur: Kan vi gå tilbake til turen. • Kan du fortelle meg om gruppen/folka du var med?	BESKRIVELSE AV GRUPPEN Hvem var du med? Kan du beskrive dem for meg? Hvordan vil du beskrive skredkunnskapen i gruppen? Hvor godt kjente du dem? Hadde dere vært på toppturer sammen tidligere? KOMMUNIKASJON OG BESLUTNINGER Generelt, hvordan ville du beskrevet gruppedynamikken?	Vi vil forstå om de er en etablert gruppe og hvor godt gruppen jobber sammen.

	Generelt, hvordan fungerte kommunikasjonen i gruppa?	
	Hvordan ville du beskrevet kvaliteten på kommunikasjonen i gruppa?	
	Hvordan vil du beskrive skredkunnskapene om skredterreng i gruppen?	
	<u>Spør disse spørsmålene om de ikke allerede har svart på dem:</u>	
	Hvem tok avgjørelsene i gruppen?	
	Om ikke alle var involvert i beslutningene. Hvordan ble beslutningene delt eller kommuniserte til andre?	
	Hvor mye bidro du beslutningsprosessen?	

	I hvilken grad var du og de andre enige i beslutningen?	
	Hvordan tenker du rundt ditt eget ansvar for sikkerheten og de beslutninger som ble tatt?	
	Tror du at alle hadde den samme forståelsen av ansvaret for beslutningene og sikkerheten?	
	<u>om de ikke deltok i beslutninger og ikke hadde ansvar:</u> Opplevde du at du ble dratt med på noe du ikke var forberedt til?	
	Opplever du at gruppen havnet i en situasjon som var mer utfordrende enn dere hadde sett for dere?	
	Tror du alle i gruppen forsto risikoen?	

Har ulykken endret HVEM du drar på tur med?		Bestemte mennesker eller mennesker med spesifikke evner. Eller noen de føler seg komfortable/trygge med eller kommuniserer godt med.
Sett tilbake på tiden før ulykken, så du det komme?	Følte du at du pushet grensene? Har du noen gang tidligere vært i skredulykker eller nær en ulykke? Tenker du at du var spesielt utsatt? Altså var det mer sannsynlig at ulykken skjedde deg enn andre?	Vi vil vite deres tidligere erfaringer. Hvis de trodde det var sannsynlig at de ville oppleve en ulykke, eller om det bare var uflaks.
Etter din mening, er det noe andre skigåere kan lære fra din ulykke?	Du er blant få som har opplevd et snøskred - hvis du skulle avslutte med et råd til andre som planlegger tur i skredterreng - hva ville det være?	
Kan vi kontakte deg i fremtiden for å se om tiden kanskje endrer opplevelsen du har av ulykken? (Kanskje bare relevant for folka som ble intervjuet kort tid etter ulykken.)		

Appendix B

Informasjon til deltakere i intervju om skredulykker

Kompetansesenteret for snøskred (CARE) ved UiT Norges arktiske universitet ønsker å finne ut hvordan erfaringer av snøskred påvirker oss og hva vi lærer oss av erfaringen.

Du har blitt invitert å delta da du har erfaring av skredulykker.

Det er frivillig å delta og du kan avslutte intervjuet når du ønsker.

Intervjuet spilles inn og lagres i en lydfil som vil bli transkribert. Materialet er konfidensielt og vil kun være tilgjengelig for forskere direkte knyttet til dette prosjektet. Vi vil bare publisere anonymiserte data der det ikke er mulig å identifisere deg. Så lenge vi kan identifisere deg i datamaterialet kan du når som helst be oss om å slette, korrigere eller få utlevert informasjon om deg. Da tar du bare kontakt med oss.

Informasjonen du gir oss blir oppbevart i henhold til gjeldende reguleringer og føringer fra NSD. Og vi gir selvsagt ikke videre identifiserende informasjon til andre. Dataene vil bli lagret kryptert med to-faktor identifiseringstilgang frem til 2034. Etter dette vil dataene bli anonymisert.

Data fra undersøkelsene fra CARE vil kun bli brukt til vitenskapelig forskning. For å bidra til god vitenskapelig praksis vil vi gjøre de anonymiserte data vi bruker i våre undersøkelser tilgjengelig til andre forskere (for eksempel via UiT Open Research Data). Vi vil kun publisere anonymiserte data. Det vil aldri være mulig å identifisere enkelte personer.

Hvis du har noen spørsmål om denne undersøkelsen, eller om den forskning som bedrives på CARE generelt, får du gjerne kontakte enten Audun Hetland (audun.hetland@uit.no) eller Andrea Mannberg (andrea.mannberg@uit.no) Hvis du har spørsmål om dine rettigheter som deltaker eller synspunkter på hvordan vi samler inn og/eller håndterer data kan du kontakte NSD –Norsk senter for forskningsdata AS på epost: personverombudet@nsd.no eller telefon: 55 58 21 17.

Med vennlig hilsen,

Audun Hetland og Andrea Mannberg,

Forskningsledere, CARE