Swedish skiers knowledge, experience and attitudes towards off-piste skiing and avalanches

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ABSTRACT: The winter of 2012/2013 was the most accident-prone season in the Swedish avalanche history with a total of seven dead Swedes. In April 2013 the Swedish Mountain Safety Council initiated a web-based survey aimed towards Swedish skiers. The aim was to identify the target group's knowledge, experience and attitudes towards off-piste skiing and avalanches. Respondents were asked to answer a total of 28 questions. 1047 Swedish off-piste skiers answered, and we analysed them in more detail. The Swedish off-piste skier is apparently a seasoned skier who skis a lot every year. About 80 % ski at least two weeks per year and over 90 % have skied for at least 10 years. He or she is well trained and equipped for avalanche accidents. About 90 % possess avalanche equipment and about 60 % use it regularly. About 80 % believe they have good avalanche knowledge and 50 % have taken an avalanche course. About 35 % have themselves been caught in an avalanche, and 60 % knows someone who has. Although experience, education and the recent tragic deaths, offpiste and ski touring are increasing, approximately 80 % ski, as much or more, than three years ago. Approximately 50 % are unaffected by the recent accidents and about 75 % are still willing to take risks to go off-piste. The results show no indications of a more restrictive behaviour. The respondents seem often to overestimate their skills when skiing in avalanche terrain. Swedish avalanche education and communication is clearly missing an important piece.

KEYWORDS: Avalanche Education, Human Factors, Avalanche Accidents

1 INTRODUCTION

Previous winter 2012/2013 was the most accident-prone season in the Swedish avalanche history with a total of seven dead Swedes - five in the Alps, one in Norway and one in Sweden.

The winter of 2012/2013 is unfortunately following a trend, with an increasing number of Swedes who are killed in avalanches. Another trend is that the majority of Swedes are killed abroad; in a sense Sweden is exporting avalanche victims.

The situation is most alarming, a fact that has made the Swedish Environmental Protection Agency and their Mountain Safety Council to act.

Since 2010 a large project is conducted with an aim to reduce the number of Swedish deaths and injuries in avalanches.

The project operates in the three classic dimensions of avalanche safety; snowpack, terrain and people.

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For the snowpack an avalanche forecast program for the Swedish mountains are under development.

The avalanche terrain in the Swedish mountains is classified using the Canadian Avalanche Terrain Exposure Scale (ATES).

The last and most important part, people, is explored in a research project together with Lulea University of Technology, which this work is a part of.

According to preliminary statistics the Swedish skiers are overrepresented as nationality in avalanche accidents in the Alps. A Swedish skier is almost 40 times more likely to die in an avalanche in the Alps than at home in Sweden.

What lies behind this phenomenon? Are Swedes worse educated, less experienced, or they do not use enough safety equipment. Do the Swedes take greater risks than other nationalities?

In short, who are the people behind the tragic statistics? This article summarizes the first results of what we believe is the people behind Swedish avalanche fatalities.

2 METHOD

In April 2013 the Swedish Mountain Safety Council initiated a web-based survey aimed towards Swedish skiers. The aim was to identify the target group's knowledge, experience and

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attitudes towards off-piste skiing and avalanches.

The survey was conducted between 15 and 31 April 2013 at the largest Swedish website and forum for Swedish skiers - www.freeride.se. Freeride was founded in 1998 and is today, with its 300 000 unique visitors each month of the season, by far Sweden's largest ski site. Today Freeride is the natural meeting place on the web for Swedish skiers and snowboarders.

Respondents were asked to answer a total of 28 questions. The topics highlighted various aspects of off-piste skiing such as rider profile, experience of skiing, location of skiing, type and use of avalanche equipment, risk-taking, avalanche awareness, avalanche accidents and changes in behaviour.

A total of 1,127 respondents participated. The respondents were divided into four main groups: a) piste, b) park, c) lift assisted off-piste and d) ski touring.

Of the total 1,127 respondents, 1,047 (93 %) answered that they are essentially c) lift assisted off-piste or d) ski touring skiers. These 1047 we consolidated into one group, Swedish off-piste skiers, and we analysed them in more detail.

3 VALIDITY

A reasonable question is whether the survey describes what it basically intents to do, namely to describe the Swedish people who have been or will be killed in avalanches. We compared the statistical information for all dead Swedish avalanche victims between 2001 and 2013 with the corresponding data from the survey.

The correlation was strong; age, gender and location of skiing are all nearly identical (figures 1-3). We therefore believe that it is acceptable reasonable to assume that our results essentially describes the people behind the Swedish avalanche accidents, historically and in the future.



Figure 1: Age distribution - survey and fatalities 2001-2013



Figure 2: Gender distribution - survey and fatalities 2001-2013



Figure 3: Location of skiing - survey and fatalities 2001-2013

4 RESULTS

In order to profile the Swedish off-piste skier, we present below the answers to the key questions from the survey in the form of charts and comments.

4.1 Avalanche Safety Equipment

Remarkably many possess safety equipment (figure 4). As regards to the use 62 % said they always have it on, and another 25 % use it when it is snowing or when there is a higher avalanche danger. That is, 87 % of riders use their equipment regularly. 62 % practises every year or more often with their equipment. 28 % exercise less often and 11 % have never used their equipment.



Figure 4: Percentage of respondents who possess avalanche equipment

4.2 Avalanche Knowledge and Awareness

When respondents were asked about their own avalanche knowledge, a majority 81 % said that it is good. When asked to assess their friends' knowledge, they had almost as high confidence, 78 % of friends were judged to have a good knowledge.

More than half, 54 %, have passed a formal avalanche course, and 76 % have educated themselves or with others.

Since the questions were own estimates we controlled roughly the reliability of the responses. For example, 77 % could give an accurate description of the meaning of the level "Considerable" in the International Avalanche Danger Scale.

4.3 General Skiing and Mountain Experience

Here, a picture emerges of the Swedish offpiste skier as experienced and very active, as many as 76 % are skiing more than two weeks per year (figure 5). When asked how long they have skied the image of an experienced skier was further reinforced, as 92 % have been skiing for more than 10 years.



Figure 5: Number of skiing days per year

4.4 Accidents and Incidents

A large percentage has their own experience of avalanche accidents, as many as 36 % of the respondents have been caught in an avalanche (figure 6). When asked if they have any friends who have been captured, 62 % answered that it is the case.



Figure 6: Experience of avalanche accidents and incidents

4.5 Risk-taking and Behaviour

Off-piste and backcountry skiing seems to increase. Compared to three years ago, 83 % of the respondents answer that they ski, as much, or even more outside the ski areas' proximity (figure 7). Despite the recent increased number of avalanche accidents, 46 % answered that it did not affect them and they are thinking and doing in the same way as before. When asked if they were prepared to take risks for good offpiste skiing, a majority of 74 % responded that they were willing to do so.



Figure 7: Do you ski more or less backcountry/ski touring compared to three years ago?

5 CONCLUSIONS

The answer to our basic question of which the person behind the historic and future Swedish avalanche deaths reveals a very complex person. The results of the survey seem to be as consistent as they raise new questions.

The Swedish off-piste skier is apparently a seasoned skier who skis a lot every year. He or she is well trained and equipped for avalanche accidents.

Although experience and education and the recent tragic deaths, a growing number aims for more off-piste or ski touring.

Since many have been caught in an avalanche, or knows someone who has it is reasonable to assume that this should lead to a more restrictive behaviour.

But about half say they have not changed their behaviour and the majority that they are still willing to take risks to get to go off-piste and ski touring.

The respondents seem often to overestimate their skills when skiing in avalanche terrain. Swedish avalanche education and communication is clearly missing an important piece. New and important issues are addressed.

In many respects, our results confirm the growing research and experience concerning human factors in avalanche accidents.