

Investigating the Incident Profile of Vulnerable Climber Segments: Older Climbers in the North Japan Alps

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Introduction

Recreational mountain climbing in Japan has some of the highest-participation rates in the world, but there has been a recent increase in climbing-related incidents and fatalities (OSC, 2016). From 2004 to 2013 the number of incidents across the country increased by 64%, and fatalities by 20% (Kobayashi & Jones, 2015). 47% of all incidents involved climbers aged over 60 years, with many due to falls confirming the heightened risk faced by older (non-climber) citizens (Curl et al, 2016). This paper aims to investigate these trends, and offer implications for improving risk management, by using prefectural police incident reports to examine climbers' profile in the North Japan Alps.

Methodology

Case study site

The Chubu Sangaku National Park, colloquially known as the North Japan Alps, is a range of mountains covering 1,743 km² that divides East and West Japan. The range includes several peaks over 3000m and some of the steepest V-shaped valleys in the country. It is known as the birthplace of modern mountain climbing in Japan, and trends here have national relevance (Murakoshi, 2010). For example, there was a three-fold increase in the number of climbing incidents in Nagano Prefecture from 1998-2013, when it accounted for over a third of all incidents in Japan.

Research method and sources

The national park spans the four prefectures of Gifu, Toyama, Nagano and Niigata, but the latter covers a small area so was excluded. Prefectural police incident records from 2004-2009 were utilized. Hard copies of the annual report were transcribed and a database created which pooled the following 7 variables: date; prefecture; area; gender; age; cause; extent of injury. Incidents involving other motives such as picking herbs or vegetables were excluded. Although subject to certain limitations, including slight variations in record-keeping procedures, the multi-year police data enabled identification of the overall trends in climber incidents. Findings were triangulated via follow-up interviews with the relevant police departments, NGOs and research organizations.

Findings

Overview

The total number of incidents increased 49% from 2004 (n=137) to the peak in 2008 (n=204), before a slight decline in 2009 (n=183). Although the climber population is also estimated to have grown, trends suggest it has been surpassed by the increase in incidents: for example, from 1995-2014, the increase in incidents (254%) outstripped that of climber numbers (177%) (OSC, 2016).

Nagano and Toyama Prefectures accounted for a combined 86% of all incidents, with Toyama's share increasing from 42% in 2004 to 49% in 2009. Incidents recorded in Gifu accounted for a median of 14%. 67% of all incidents involved climbers aged 50 or over. Also, the number of incidents involving climbers aged 70 or over increased from 7% (2004) to 13% (2009). These findings are in keeping with a long-term trend toward ageing: the proportion of incidents that involved climbers aged >50 was 30% in 1995 but by 2015 had increased to over half (OSC, 2016).

Incident causative factors

The most frequent causative factor was trips, accounting for 29% of all incidents. However, the interviews suggested some ambiguity over the definition of trips, slips and slides, so the categories were merged into “underfoot events” (Bentley & Page, 2008) whose combined share accounted for 57% of all incidents. Underfoot events accounted for 62% of all incidents in climbers aged >50. At the older and younger extremes, illness was more frequent (57% aged <30; 30% aged >70).

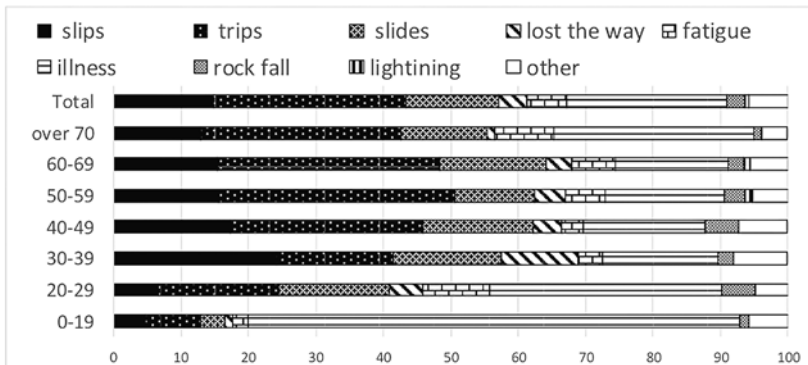


Figure 1. Comparison of incident cause factor by age group

Incident severity

13% of all incidents involved a fatality, with an additional 1% missing (presumed dead). Amongst the non-fatal accidents, 32% were classified as “severe” injuries wherein recovery was expected to take a month or more. 33% were classified as “non-severe” injuries with an expected recovery time of less than one month, but the share declined from 43% (2004) to 24% (2009). Conversely the proportion of climbers “rescued” in-

creased from 13% (2004) to 28% (2009). Climbers aged >50 displayed more fatalities (15%) while those aged 50-69 had more severe injuries (37%).

Discussion

This paper investigated a recent increase in climbing-related incidents in Japan via the case study of the North Japan Alps. Results provide insight into incidents involving older climbers, who were found to account for a larger but not statistically significant share of the total. Results have risk management implications for improved information and targeted search and rescue operations.

Toward improved risk management and targeted management responses

In 2015, Nagano Prefecture introduced a new by-law making it compulsory for all climbers to pre-register their route information with local authorities, which could facilitate search and rescue operations. The same prefecture has also pioneered a map showing visitors graded trails to facilitate matching their physical ability (1-10 scale) and technical difficulty (A-D scale) of trail; elevation difference; distance etc. By using this combination of 'sticks' and 'carrots', it may be possible to cope with vulnerable climber segments, building the capacity for more targeted management responses such as risk management strategies for particular visitor segments.



- Bentley, T. A., & Page, S. J., (2008). A decade of injury monitoring in the New Zealand adventure tourism sector: A summary risk analysis. *Tourism Management* 29(5), 857–869. DOI:10.1016/j.tourman.2007.10.003
- Curl, A. Thompson, C.W., Aspinall, P. & Ormerod, M. (2016). Developing an audit checklist to assess outdoor falls risk. Proceedings of the Institution of Civil Engineers-Urban Design & Planning. <http://dx.doi.org/10.1680/udap.14.00056>
- Kobayashi, A. (2011) A study on visitor risk management of outdoor recreation from managerial view in protected area *Landscape Research Japan* 74(5), 537-542 (in Japanese).
- Kobayashi, A. & Jones, T.E. (2015). Climber Profile and Perspective on Risk Communication in the Japan Alps: A Case Study of the Yari-Hodaka Range. Paper presented at the Adventure Tourism Research Association (ATRA) International Adventure Conference 9-11 SEP 2015.
- Murakoshi, S. (2010). Mountaineering incidents in the central Honshu area in 2007. *Japan Journal of Physical Education Health and Sport Sciences*, 55: 177-191 (in Japanese).
- Omachi Sangaku Centre (OSC) (2016). The state of mountain climbing accidents (1995-2015) (in Japanese).