Tourists and severe weather -

An exploration of the role of ‘Locus of Responsibility’
in protective behaviour decisions

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Abstract

Severe weather events can impact negatively on tourism and put tourists at risk. To reduce vulnerability, tourists should be aware of and be prepared for possible severe weather. Seeking risk information, a type of protective action behaviour, is an important way to reduce vulnerability. This paper presents the results of a study that investigated the role of Locus of Responsibility for protection behaviour for severe weather, by linking it with Information Seeking and related intra-personal antecedents. Responsibility attribution has previously been found to impact protective action decisions, however has not been studied in the context of severe weather and tourism. Our survey research among tourists in New Zealand provided evidence for three Loci of Responsibility; “Internal”, “Shared” and “External”. Significant differences between these groups were found for Information Seeking antecedents, though not for Information Seeking. Next, significant differences were found for weather information preferences, both source and content. Findings and implications for tourism and safety management in New Zealand are discussed.

Keywords

Locus of Responsibility, Information Seeking, Social Psychology, Risk information, Severe Weather, Protective Action, Safety Management

1. Introduction

Weather is an essential component of tourism and it strongly influences destination choice (Førland et al., 2012; Rosselló-Nadal, Riera-Font, & Cárdenas, 2011) and preferences, tourist behaviour (Becken, Wilson & Reisinger, 2010; Moreno, Amelung & Santamarta, 2008; Wilson & Becken, 2011), safety (Peattie, Clarke & Peattie, 2005) and satisfaction (Coghlan & Prideaux, 2009). Unfavourable weather can impact negatively on tourism, for example due to severe weather events, which is “any type of weather that can pose a risk to personal safety or property, including thunderstorms, tornadoes, freezing rain, heavy rain, wind, dust storms, blizzards, heavy snowfalls, frost, fog and wind chill” (Silver & Conrad, 2010, p.174). While tourists are able to protect themselves from severe weather, for instance by obtaining relevant information (Scott & Lemieux, 2010), preparing adequately (de Freitas, 2003), and understanding how to behave in certain environmental conditions, little is known about the factors that influence tourist precautionary efforts that protect them from inclement weather.

The extent to which tourists are at risk from the weather depends on the type of holiday they undertake and the climatic conditions of the destination. Not all tourist destinations are equally exposed to severe weather and tourists’ vulnerability differs across destinations (Becken & Hay, 2012). In New Zealand, which is the focus of this paper, tourists spend significant amounts of time experiencing “the outdoors”, whether it is through active means such as hiking, or passively through travelling in a vehicle (Simmons & Becken, 2004; Bentley, Meyer, Page & Chalmers, 2001; Page, Bentley & Walker, 2005). In 2011, 2.6 million international tourists visited New Zealand. For the top five markets, which make up 2.4 million visitors, 75 percent went walking or trekking, 53 percent visited some natural attractions, 28 percent went to see the volcanic and geothermal attractions, and 25 percent undertook a boat trip. Over three quarters (78%) drove their own rental car or campervan. In addition, there were 16.6 million overnight domestic tourists, generating over 49 million guest

nights in 2011 and spending considerable time in the outdoors (Ministry of Economic Development, 2012).

Tourists in New Zealand often travel in remote areas with limited infrastructure and communication networks (Becken, 2005; Becken & Wilson, 2007). The country is known for its wild and beautiful nature, but exactly these characteristics and environmental dynamics result in a potent 'hazardscape' that can pose a risk to tourists. Most recently, these have headlined news media around the world, after the Christchurch earthquakes and the more recent volcanic activity in the Tongariro National Park. Similarly, New Zealand's climate is highly dynamic as it is characterised by high natural variability, with potential weather hazards existing all year round (NIWA, 2010). Typical weather hazards include storms, heavy rain, snow and frost, fog, and indirect consequences of this weather such as landslides and flooding (Becken et al., 2010).

Considering New Zealand's changeable climate characteristics, there is a realistic possibility that tourists are negatively inconvenienced by the weather (Becken & Wilson, 2013) or even at risk (Wilson & Becken, 2011) of substantial damage (e.g. to equipment), personal harm, and last but not least, ruined holidays. Indeed, 2008/09 data from the New Zealand Police (2009) show that 1,991 people required assistance from Land Search and Rescue. Of these, 245 (12%) were tourists (the report does not specify how a tourist is defined). Yet, there is little knowledge beyond mere descriptive accounts of tourism misery due to inclement weather, leaving a considerable knowledge gap concerning the behavioural and intrapersonal factors that might underlie why tourists find themselves in a position that they experience negative consequences of weather circumstances.

As pointed out in a study on the risk of sun burn during holiday time (Peattie et al., 2005), little research has taken risk behaviour into the domain of tourism. Yet, in order for emergency management and tourism agencies in host countries to be able to deal with tourism

specific risks, there is a need to better understand protective action decision making behaviour of their visitors. Clearly, tourism safety depends not only on top-down measures of the tourism industry or local governments, but also on pro-active behaviour of tourists themselves. One important protection measure is to obtain information about possible risks and useful protective actions (Griffin, Dunwoody & Neuwirth, 1999; Griffin, Neuwirth, Dunwoody & Giese, 2004; Kahlor, 2007; Kahlor, Dunwoody, Griffin & Neuwirth, 2006; Lindell & Perry, 2004; ter Huurne, 2008; ter Huurne & Gutteling, 2009; Terpstra, 2010; Trumbo, 2002; Wilson, 1999, 2000). In that sense, safety information and knowledge about current local weather circumstances is thus an essential pre-requisite for tourist's decision making in hazardous situations. The question however is to what extent tourists in New Zealand engage in such protective behaviour, and whether they feel personally responsible for it.

Earlier research on natural hazard preparedness and response shows that protective behaviour (e.g., seeking risk information) is influenced by attributions of responsibility for protection in combination with perceptions of coping resources (Lalwani & Duval, 2000; Mulilis & Duval, 1997). Likewise, responsibility issues are of great importance in the dynamics of public-authority interaction to the extent that people are informed and inform themselves about possible environmental hazards and how this information is perceived (Stevens, 2009; Terpstra, 2010; Terpstra & Gutteling, 2008). In the tourism context, discrepancies in responsibility perceptions between tourists and tourism related organisations can have far reaching (negative) consequences, when tourists are unaware of risks, or expect to be protected by authorities in situations where they are initially responsible for their own protection. Also, the availability and accuracy of weather risk information is essential for tourists to engage in successfully preparing for and adapting to local weather conditions. This paper is therefore concerned with perceived Loci of Responsibility for protection against the

adverse consequences of severe weather among tourists in New Zealand. More specifically, it explores the links between protection responsibility attributions and Information Seeking, its intrapersonal antecedents and information preferences, by addressing the following research questions:

- 1. To what extent do responsibility perceptions for protection from adverse consequences of severe weather events vary among tourists?*
- 2. How do perceptions of responsibility relate to predictors of information seeking behaviour and to Information Seeking itself?*
- 3. How do perceptions of responsibility affect hazard information preferences of tourists?*

While the first two questions are more theoretically oriented, the last question will generate tangible knowledge on how and where tourists seek and expect to find information in their attempts to prepare for and protect themselves from adverse consequences of severe weather risks during their holiday.

2. Theoretical background

This section conceptualises responsibility attributions (2.1) and how these have been found to affect protective behaviour. Being interested in Information Seeking behaviour as a specific type of protective behaviour, responsibility attributions are then linked with risk communication models (Risk Information Seeking and Processing model and Framework for Risk Information Seeking), that provide a theoretical basis for the research approach (2.2 & 2.3). Such a multi-theory approach provides opportunities to explore the possible connections between overlapping theories, to test links and relationships between concepts and form hypotheses about such interconnections (Kasperson, Kasperson, Pidgeon & Slovic, 2003). Finally, in the fourth subsection it is argued that research on Information Seeking contributes

to the field of tourism (and to other risk management areas) only, when the content of such behaviour is taken into account, for example in terms of type and sources of information.

2.1 Responsibility perceptions

Perceptions of who is responsible for protecting people can be divided into “Internal” (self) and “External” (e.g. government or tourism organisations) or a “Shared” responsibility (Lalwani & Duval, 2000; Terpstra, 2010). Research on responsibility attributions is rooted in the Person-relative-to-Event (PrE) model (Duval & Mulilis, 1999; Mulilis & Duval, 1997; Mulilis, Duval & Rombach, 2001). Importantly, varying attributions of responsibility were found to affect protective behaviour and ability to cope with hazardous events (Lalwani & Duval, 2000; Lindell & Perry, 2004). When responsibility is attributed to self, i.e. representing an “Internal” Locus of Responsibility (LoR), the engagement in coping strategies specific to a particular risk is higher, but only when the person considers that the resources they have available to deal with the risk are sufficient. Also, people who worry more about a particular risk are more likely to attribute responsibility to an external source (Lalwani & Duval, 2000; Mulilis & Duval, 1997). Thus, there appears to be a link between responsibility attribution and intrapersonal factors that, in turn, affect protective behaviour.

The attribution of responsibility to self or others becomes relevant to tourism and safety managers when tourists have (incorrect) expectations that someone other than themselves shall protect them (Johnston et al., 2007). Moreover, risk management is often complex with a mix of organisations being involved in safety issues in tourism (Walker & Page, 2004), and responsibility attributions are of high concern for the tourism industry, and especially for New Zealand, given the potentially hazardous environmental circumstances. Therefore, insight in responsibility attributions of tourists can help concerned organisations in their risk communication efforts and can prevent unnecessary harm, legal issues and rescue operations.

2.2 Information Seeking as protective behaviour

A related approach to protective action measures comes from the field of risk communication. Risk communication is “the flow of information and risk evaluations back and forth between academic experts, regulatory practitioners, interest groups, and the general public” (Leiss, 1996, p.86). The traditional one-way approach of communicating risk from the authorities to the public has now evolved into an end-user focused approach where risk communication is part of a social process, which includes active participation of end-users (e.g., tourists) (ter Huurne, 2008). According to ter Huurne (2008), Information Seeking behaviour contains the “totality of behaviours or actions motivated by the recognition of missing knowledge” (p.15). Within this broad definition, people not only receive information, but also actively seek for information, for example to be prepared for possible risks (Stevens, 2009; ter Huurne, 2008).

However, Information Seeking is not only guided by a perceived lack of knowledge (Kellens, Zaalberg & De Maeyer, 2011). Several scholars have attempted to get more insight into the antecedents of Information Seeking, resulting in conceptual models, such as the Risk Information Seeking and Processing (RISP) model (Griffin et al., 1999; Kahlor et al., 2006), and the Framework for Risk Information Seeking (FRIS) (ter Huurne, 2008; ter Huurne, Griffin & Gutteling, 2009). According to these models, risk Information Seeking is predicted by (informational) subjective norms, information sufficiency, worry, protection efficacy and issue involvement (ter Huurne, 2008). While there is increasing evidence for the predictive value of these concepts for risk information seeking, to our knowledge they have not been related to responsibility attributions within one study. Given the importance of perceived Locus of Responsibility as put forward by the person-relative-to-event model, it is likely that variations in LoR are related to variations in Information Seeking and its antecedents. In the following, intra-personal concepts from the Framework for Risk Information Seeking, which will be tested in this research, are explained briefly.

2.3 Psychological concepts explored in this study

Informational subjective norms. Informational subjective norms are defined as perceptions of whether important others think one should (not) seek information about a certain topic (Griffin et al., 1999; ter Huurne, 2008). They are related to the concept of ‘subjective norms’ from the Theory of Planned Behaviour (Ajzen, 1991), and have been found to directly influence behavioural intent in a number of contexts. Kahlor et al. (2006) established that when there is no immediate danger at a certain moment, it is likely to be the informational subjective norms that influence whether people anticipate possible future risks and seek information about these risks. This may be particularly relevant for severe weather risks that are often not immediately present.

Information sufficiency. Information sufficiency (or information *insufficiency*) is derived from assumptions of the Heuristic-Systematic Model (Eagly & Chaiken, 1993). The *sufficiency threshold* (people’s needed level of knowledge to confidently give judgments about a certain (risky) situation (Griffin et al., 2004)), is compared with the actual knowledge, resulting in an ‘information gap’, that triggers Information Seeking and processing. Information sufficiency (Griffin et al., 1999) appears to be often associated with intention to seek information (however, strength of the relationships vary across studies (Kellens et al., 2011), and is in its turn influenced by self-efficacy, affective responses, involvement and subjective norms.

Worry. Perceptions of the increased likelihood of a hazard can result in affective responses such as fear, dread and anxiety, or worry for less immediate hazards (Griffin et al., 2004). Worrying is a mental activity, which are perceived to help prevent negative outcomes, minimise effects of negative events, increase positive outcomes and enhance problem solving (Larsen, Brun & Øgaard, 2009). Based on the Risk as Feelings approach (Loewenstein,

Weber, Hsee & Welch, 2001; Slovic, Finucane, Peters & MacGregor, 2004), a number of studies provided evidence for the positive effect of worry on protective behaviour (Griffin et al., 2004; ter Huurne, 2008; Terpstra, 2010). Worry has also been recognized as an important factor in tourist behaviour such as destination choices. For example, Larsen, Brun and Øgaard (2009) measured several subjects of worry among tourists, including worries about health, terrorism and crime. They found that tourists worry most about petty crime and accidents; however, they seemed to worry less about natural hazards.

Protection efficacy. Self-efficacy, coping or perceived behavioural control, pertains to a personal judgement of the ability to successfully perform certain behaviour (Bandura, 1982, in Ajzen, 1991). Wiegman and Gutteling put self-efficacy in the risk context as ‘the cognitive subjective judgments of the person’s own possibilities of carrying out certain behaviours, given adequate skills and sufficient motivation’ (Wiegman & Gutteling, 1995 p.234-235, in Stevens, 2009). Efficacy beliefs have been found to influence information needs and affective responses (ter Huurne, 2008).

Issue involvement. Issue involvement is a relatively novel concept in respect of risk communication research. According to ter Huurne (2008), involvement pertains to a personal interest stemming from a perceived relevance of situational circumstances for one’s own life and well-being (Lindell & Perry, 2004). High levels of issue involvement resulted in stronger affective responses (worry) and lower levels of information sufficiency (ter Huurne, 2008). It is unclear though how issue involvement is related to perceptions of who is responsible for protection in hazardous circumstances.

In summary, this research builds on several existing frameworks and theories to explore possible relations between Locus of Responsibility, Information Seeking and its intra-personal predictors as proposed in the Framework for Risk Information Seeking. While the sections above provide a basis to study Information Seeking as an *activity*, knowledge about

such behaviour and its intrapersonal antecedents lacks practical utility without knowledge about the *content* of the behaviour, such as the preferences of where to direct this behaviour to in terms of source and content (Stevens, 2009; ter Huurne, 2008).

2.4 Preferences for severe weather information

If tourists prepare for possible severe weather and seek relevant information, it is important to understand what kind of information they find useful and where they would obtain it.

Knowledge about preferred sources and information type therefore gives insight into the ‘content’ of the seeking behaviour. Thus, the third aim of the study was to explore the relation between responsibility attributions and information preferences.

Studies on weather information preferences among tourists often focused on destination choices or the use of weather information by tourist organisations (Hamilton & Lau, 2004; Knez, Thorsson, Eliasson & Lindberg, 2009; Matzarakis, 2006; Scott & Lemieux, 2010). However, there also seems to be a need for weather information amongst tourists themselves (Scott & Lemieux, 2010) and while Becken et al.’s (2010) study provides interesting insights into tourists’ use of weather information in New Zealand, questions remain about where exactly tourists look for information and what is most relevant to them. Furthermore, the Becken et al.’s study showed that only 25 percent of the respondents looked regularly for weather information during their trip, implying that the majority of tourists were likely to be unaware of any emerging severe weather event during their stay in New Zealand. In sum, more in depth knowledge about information preferences of weather risk information among tourists is needed to improve the success of their Information Seeking attempts.

3. Methodology

3.1 Survey instrument

In line with previous social-psychological research discussed in the earlier section on Information Seeking behaviour, a quantitative approach was adopted. A survey was developed and distributed amongst tourists travelling in New Zealand. The survey was written in English and took about 15 minutes to complete. A pilot survey had been administered in The Netherlands, using a snowball sample. Consequently, some small adaptations were made to the item wording, number and order of items within some scales.

The questionnaire consisted of three parts. The first part sought to elicit tourists' perceptions of responsibility. Locus of Responsibility (LoR) was measured with two questions. First a single item question asked: *"In your opinion, how is responsibility distributed for protecting you as a tourist from the possible consequences of getting involved in severe weather?"* The scale ranged from 1 (*"I am totally responsible myself"*) to 7 (*"The New Zealand authorities are totally responsible"*). A 7-point scale was given to provide a large spectrum of answers. In addition to the single item question, and in line with the approach by Lalwani and Duval (2000), a second, more detailed, set of questions asked tourists to identify the degree of responsibility of a number of relevant agents (including themselves, to calibrate results from the first question). The second part of the questionnaire contained items to measure intrapersonal concepts (using Likert scales) related to Information Seeking and its intrapersonal antecedents. Items used to measure the concepts (Table 1) were adapted from previous studies to the context of this study. To check for internal consistency (Vaske, 2008), Cronbach's alpha's were calculated for scales with three or more items. For the two Informational Subjective Norms items Pearson correlations were calculated, with satisfactory outcomes (see Table 1).

The third part of the questionnaire explored tourists' preferences for information sources and type. Inclusion of source and type items was based on insights from the literature (Wilson & Becken, 2011), several relevant websites (e.g. Tourism New Zealand's site) and authors' expert assessment. Respondents were asked to indicate which sources they used for collecting weather information and to obtain information about possible severe weather risks. Four categories of sources were included: "social circle" (e.g., family and friends), "generic" (e.g., radio, television), "local experts" (e.g., Department of Conservation office) and "websites" (e.g., i-Site website). Respondents could tick each source they (would) use. Also, a list of types of potential weather and hazard information was provided, for which respondents were asked to value each information aspect on a Likert scale (1 = not important at all, 5 = very important). The items covered general meteorological information (e.g., precipitation type), hazard characteristics (e.g., time and place of severe weather) and behavioural advice items (e.g., where to go to get help in case of an emergency).

[Table 1 about here]

3.2 Data collection

The survey was administered between November and December 2010 at three different tourist locations in New Zealand (Figure 1), which were selected for a number of reasons. First, locations had to be popular tourist destinations; second, visitation by independent travellers was important; third, different climate characteristics had to be represented. The locations were:

- Passenger terminals and ferry of the Interislander, maintaining services between Wellington and Picton (six days of surveying on the ferry).

- Car park at Department of Conservation (DoC) centre in Franz Josef and car park at the walking track to Franz Josef glacier (four days).
- Car park and lakeside around i-Site information centre in Wanaka (five days surveying).

The weather conditions during the survey period were warm and stable without any periods of rain, storm or other types of severe weather which do occur regularly in these locations (Becken et al., 2010).

[Figure 1 about here]

The sample of tourists travelling independently in New Zealand was obtained by convenience sampling. In tourist and leisure studies, convenience sampling is a common practice as result of logistical constraints in terms of limited options to reach the research population in the field and characteristics of the fieldwork locations (Young, 1999). Based on a convenience sampling approach, people that were present at the survey locations were asked if they were currently traveling in New Zealand. The UNWTO definition of a tourist was used (UNWTO, 1995), which included international and domestic tourists, but also people travelling to visit friends or relatives and those on business trips.

Tourists were informed about the purpose of the survey and were asked to fill out a questionnaire. A total of 424 people were approached, of whom ten refused or were not eligible. Thus, 414 surveys were handed out, but only 402 usable surveys were returned. Twelve respondents had left with the questionnaire or returned it incomplete. The response rate thus was 94.8 percent. While 402 usable surveys were returned, the findings presented here are based on 391 respondents who provided an answer on the LoR item. In order to take

fullest advantage of the sample, we employed listwise deletions in the statistical analyses, resulting in a slightly varying sample size per measured concept.

Most of the tourists (96.5%) were from overseas, with the largest proportion coming from the United Kingdom (21.6%), Germany (20.4%), other Europe (16.2%), and North America (10.4%). Respondents' age ranged between 16 and 70 years ($M=33.28$, $SD=13.99$). The majority of the sample was 40 years old or younger (76.4%). The gender distribution was 48.9 percent female and 51.1 percent male tourists. Respondents travelled mostly by car (43%) or campervan (31%). Most respondents (57%) reported using a hotel or hostel as accommodation, but a large group (32%) also used their campervan (or car) to spend the night. The average length of stay was nine weeks ($SD=13.21$). The sample is not representative of all travellers in New Zealand but reflects a sub-group of (largely international) tourists who tend to stay relatively long and travel independently. Therefore they are likely to encounter a wide range of weather conditions for which they have to rely on their own knowledge and coping resources. Information Seeking would be an important way to assess travel conditions and decide if protective measures are necessary.

Data were analysed using SPSS 17.0. Differences between groups were tested by using Chi-Square and Analysis of Variance (ANOVA), and post hoc tests were carried out to identify further between-group differences. Least Significant Difference (LSD) Post Hoc comparison was deemed appropriate when comparing multiple pairs of categories with equal variances assumed but with relatively small sample group sizes, and Tamhane's T2 was used when variances of compared categories are unequal (Vaske, 2008).

4. Results

4.1 Responsibility perceptions

In order to answer the first research question, respondents were divided into three groups, based on their score on the perceived responsibility scale (Figure 2). Respondents with a score between 1 and 3 were categorized as having an internal locus of responsibility (“Internal” LoR). Those with a responsibility score of 4 were in the “Shared” LoR group, and those tourists who scored 5 to 7 were classified as having an “External” locus of responsibility. The majority of respondents had a “Shared” LoR, and only 57 tourists (14.6%) tended to believe that someone else is responsible for their safety (“External” LoR).

The distribution of male and female respondents varied across the groups ($\chi^2(2)=11,905, p=.003$). Female tourists were predominantly represented in the “Shared” LoR (61.1%) and “External” LoR (54.4%) groups, but they were significantly less prominent in the “Internal” LoR group (41.7%). This means that women tend to consider New Zealand authorities relatively more responsible for protecting them, compared with men. The majority of tourists within the “Internal” and “Shared” groups came from Germany and the United Kingdom (over 40%). However, country of origin was more spread across other countries in the “External” LoR group; here, Germany and UK tourists accounted for only 34 percent. None of the tourists originating from New Zealand ($n=14$) were found in the “External” LoR group, possibly reflecting their better understanding of personal responsibility in the New Zealand environment. None of the nationality differences between the LoR groups were significant. Similarly, other demographic and trip-characteristic variables, including age, length of stay, mode of transport, and preferred accommodation did not deliver significant results either.

[Figure 2 about here]

Tourists were further asked about the extent to which they attributed responsibility for protecting tourists to self and to several New Zealand based organisations. The results show that the assessment of responsibility differs significantly between the three groups, across all organisations (Table 2). The first item (*“I am responsible myself”*) confirms the segmentation into groups, with the “Internal” group feeling more personally responsible than the two other groups. However, it is noteworthy, that even those tourists, who, in the earlier question attributed greater responsibility to New Zealand authorities, now also assumed a relatively large degree of responsibility to themselves. However, this is still considerably lower compared with the other two groups, and also lower compared with these tourists’ assumed responsibility for the Government and i-Sites.

When comparing the two opposite groups, namely those with an “Internal” and “External” LoR, it becomes apparent that some organisations are perceived as being more responsible for protection than others (Table 2). Tourists with a high “Internal” LoR tend to attribute responsibility to the Mountain Safety Council, MetService, and DoC. All of these are, indeed, involved to some extent in providing protective information or action for tourists, thus potentially reflecting these tourists’ knowledge of the organisations’ respective roles. In turn, respondents from the “External” group indicated that i-Sites (i.e. information centres) and the Government of New Zealand are mostly responsible, possibly indicating their lack of knowledge about who might assist in protection.

[Table 2 about here]

4.2 Information Seeking and intra-personal concepts

To examine whether Information Seeking behaviour and the intra-personal concepts employed in the RISP and FRIS models differ between the three LoR groups, average scores (i.e. calculating means for all items within each scale) were derived for each group and compared using ANOVAs (Table 3). Surprisingly, the intention to seek information on extreme weather events did not seem to differ between the groups, with all of them indicating a relatively high intention to look for information that might help to protect them from severe weather. However, there was a significant difference in how tourists perceived their level of ‘informedness’, or Information Sufficiency. “External” tourists were significantly less satisfied with their actual level of severe weather information, compared with “Shared” and “Internal” tourists. Further, while all three groups worried relatively little about possible severe weather, the “External” LoR group worried significantly more than the “Internal” LoR group (Table 3). The importance of subjective norms, issue involvement, and protection efficacy did not differ significantly between the LoR groups.

[Table 3 about here]

4.3 Information preferences

In order to answer the third research question, tourists were asked where they preferred to seek information about severe weather and possible risks that might come from it (Table 4). The most important sources of information were locals (49.9% of respondents), i-Sites (49.4%), and television (47.4%). Amongst the websites, the MetService website was the most preferred (32.6%), whereas other specialised websites were relatively less important (e.g. Mountain Safety Council with only 5.0%). There are some noteworthy differences between

the three LoR groups. “External” tourists preferred weather information from official authorities, such as the Police ($\chi^2(2), p=.01$), and also reported a high preference for information placed on i-Site websites ($\chi^2(2), p=.04$). This is interesting, as at present these websites are largely designed to provide information on products and not on the weather or associated risks. In turn, tourists who perceived that they were largely responsible for their own safety (“Internal”) were greater users of specialised information, especially from the Department of Conservation visitor centres ($\chi^2(2), p=.01$). Similarly, a non-significant tendency can be discerned for “Internals” use of websites of DoC, the MetService, the Mountain Safety Council and Land Transport New Zealand (Table 4). This might reflect these tourists’ greater knowledge of where to obtain adequate information.

[Table 4 about here]

It was deemed important to investigate what type of information tourists would consider useful to be able to protect themselves (Table 5). Importantly, pure meteorological information was perceived as less important than enhanced information that interprets meteorological events for tourism purposes. The two most important pieces of information across all three groups were the consequences of weather for road conditions, and who tourists should contact in the case of an emergency. Within the meteorological parameters, traditional measures such as precipitation and temperature were considered more important than less commonly used ones such as air pressure.

The three LoR groups did not differ in terms of the types of weather information, except for a significantly higher need for specific survival advice amongst tourists with an “External” LoR, compared with tourists who attribute responsibility for protection mainly to themselves (Table 5). Information on how to be prepared and who to contact was also

perceived as relatively more important by “External” tourists compared with “Internal” ones, confirming the greater dependency on external agencies.

[Table 5 about here]

5. Discussion

This research examined responsibility attributions for protecting tourists from adverse consequences of severe weather and explored relations of such attributions with Information Seeking behaviour, its intrapersonal antecedents and preferences for the information source and type. The results of this study complement the increasing body of literature in the field of risk communication, for the particular context of tourism and one of the important risks in the field of tourism, severe weather. The link between responsibility perceptions and Information Seeking antecedents, as well as Information Seeking directly, is novel and deserves further elaborations in risk research and in the field of tourism in particular.

5.1 Locus of Responsibility

The first research question was concerned with perceived Locus of Responsibility to protect against adverse consequences of severe weather. Attributions of responsibility vary among tourists. A small group of tourists with “External” LoR exists, that may cause concerns to authorities due to a relatively high perceived reliance on external safety measurements. Also, those who perceive a “Shared” responsibility, which is the majority of the sample, deserve considerable attention, since this perception implies a complex agreement of sharing responsibilities for protection between individuals and institutions (Stevens, 2009).

According to the person-relative-to-event (PrE) model, increased resource availability should enhance “Internal” LoR and thereby enhance pro-active information seeking. For the

development of safety management programmes, it is useful to identify target groups “that lack a sense of personal responsibility for protection or self-efficacy ...[and]... should be targeted for special attention during the implementation of the risk communication program” (Lindell & Perry, 2004, p.193). Since responsibility perceptions in the context of protective action appear to influence if and what individuals do in hazardous situations (Lalwani & Duval, 2000), tourism and safety management in New Zealand may consider developing targeted hazard information for tourists, assuming that tourists actually demand this information. This is even more important considering that, based on the PrE literature, even attributions of responsibility to self are not necessarily sufficient for implementing protective behaviour. A sufficient level of coping resources, including weather risk information, needs to be available for effective protection. This information might also contain advice on which authorities share some responsibility for safety (e.g. the Police) and which ones do not (at least formally such as i-Sites). But most importantly, risk communication should emphasise that tourists are, indeed, mostly responsible themselves.

5.2 Information seeking

The second research question pertained to variations between LoR groups in their intention to seek information and in levels of intrapersonal antecedents of seeking behaviour. Overall, and in contrast to research on Information Seeking behaviour in relation to volcanic hazards (Bird, Gisladdottir & Dominey-Howes, 2010), tourists showed above-medium intentions to seek for information about severe weather. However, there were no differences in seeking intent between the three LoR groups (Table 3). Thus, based on the data used in this study, there does not seem to be a direct relationship between LoR and Information Seeking.

This finding is somewhat surprising, considering that a link between LoR and some intrapersonal concepts was established. For example, “External” LoR tourists felt insufficiently

informed and displayed a heightened level of worry, as well as lower levels of protection efficacy (although the latter was not statistically significant). The literature confirms that high information needs and low self-efficacy result in attributing responsibility to an external source (Lalwani & Duval, 2000), as also found in this study. However, the literature also indicates that low self-efficacy stimulates more Information Seeking (Griffin et al., 1999; Kahlor et al., 2006; ter Huurne, 2008). On the other hand, research of Terpstra (2010) shows similar results in the context of flood risks, where perceived Internal LoR was not correlated with intentions to undertake preventive measures for flood protection.

Next, the underlying reasons for why “External” LoR tourists chose not to address their information deficit more fully require attention in future research. Maybe, the acceptance of ill-preparedness (expressed through a low intention to engage in information search behaviour) stems from an interpretation of natural hazards as ‘Acts of God’, that are neither controllable nor socially attributable (Eitzinger & Wiedemann, 2007; (Lalwani & Duval, 2000). Addressing these gaps is important, as insufficient knowledge combined with indifferent attitudes can lead to unnecessary risky behaviour of by tourists (Johnston et al., 2005).

Our findings are similar to those by Kellens et al. (2011) and Kahlor et al. (2010) who provided evidence that perceived information *insufficiency* is not necessarily related to seeking behaviour, despite earlier literature proposing such a relationship (Griffin et al., 1999; ter Huurne, 2008). Kellens et al. (2011) suggested that there might be a moderating role of responsibility perceptions affecting this relationship, thus highlighting the importance of LoR as also discussed in this research. In sum, more research is needed to examine how perceived LoR could be integrated into causal Information Seeking models (e.g., the Risk Information Seeking and Processing Model and the Framework for Risk Information Seeking, see: Griffin et al., 2004; Kahlor, 2010; ter Huurne, 2008).

5.3 Information preferences

Thirdly, the research investigated weather information preferences of tourists and possible variations between tourists with varying LoR scores. To the knowledge of the authors, this is the first study to take into account weather and risk information preferences among tourists on such a detailed scale. The results pose a complex task to tourist and safety management organisations of tailoring information management to specific groups.

Tourists differ in their preferences for information sources, but also in terms of type of weather related information. Moreover, discrepancies appear between the channels used by authorities to inform the public and the information sources used by tourists. For example, only one-third of the respondents used the website of MetService as an information source (Table 4), even though this website provides the most direct, up-to-date and official weather information for New Zealand. Along with the little used, but important – and often highly practical – information channels from the Department of Conservation, Automobile Association and the website of Land Transport New Zealand, there is clear room for increasing awareness of these sources amongst tourists.

Also, the frequent use of information centres such as i-Sites by tourists with an External responsibility attribution deserves further attention. These centres are typically charged with providing tourism products advice (and bookings) rather than discussing severe weather information (although most display the weather forecast). However, they are popular as information sources and herein lies an opportunity. Greater training or direct links between i-Sites and both protective agencies might enhance tourist safety in relation to extreme weather events. One suggestion would be to integrate DoC centres with i-Sites. Tourists with an “External” LoR were less likely to prefer specific or technical sources, such as the DoC or Mountain Radio Service. However, not all tourists require specific services for the mountain environment.

Overall, tourists preferred practical information, for example how to protect themselves, to information on detailed meteorological parameters (Table 5). These preferences may reflect tourists' limited ability and knowledge to process detailed meteorological information, especially in the context of unfamiliar environments. Thus, our results provide tangible knowledge about what information might be useful and how it could be disseminated. The website Adventure Smart, created to help prepare people for the New Zealand environment (New Zealand Mountain Safety Council, 2011) is a good example of an attempt to communicate weather information and warnings to those tourists who visit the outdoors. In addition to this initiative, supplying information on the website via information centres would ensure good uptake by tourists. Generally, such information and education campaigns should spread across many different types of sources (Sorensen, 2010), as this not only ensures that different users with different preferences can be reached, but it also enhances the credibility of the information conveyed (Paton, Smith, Daly, & Johnston, 2008). The extensive network of tourism organisations in New Zealand should be able to collectively commit to such attempts.

Increasing hazard awareness or knowledge has been recognised elsewhere as an important step towards protecting tourists from natural disasters (Bird et al., 2010), but information material needs to be designed carefully. Health campaigns, for example, often use extreme facts and visualisations of risk to plant fear and stimulate worry to enhance protective action (Baron, Hershey, & Kunreuther, 2000; Sjöberg, 1998; Slovic et al., 2004). However, the effectiveness of such fear appeals has been questioned, especially in the context of risks that are not immediately present (Ruiter, Abraham, & Kok, 2001) and specifically for tourism (Peattie et al., 2005). This study hopes to support the flow of weather risk information by bringing risk communication knowledge into the field of tourism.

5.4 Limitations

The study has some limitations that should be taken into account when interpreting the results. First of all, the survey was in English, possibly causing language bias amongst international tourists. This is particularly pertinent against the background of likely future growth in tourist arrivals from BRIC countries (Brasil, Russia, India and China). Future research would not only consider language barriers (Ringbeck & Pietsch, 2009), but also take into account potential cultural influences on LoR and protective behaviour.

This research focused on independently travelling tourists, and it did not consider those travelling in ‘packaged’ tour groups (Becken, 2004). Future research could investigate how package travellers perceive responsibility, in particular in relation to their tour operator and travel guide. In contrast to agencies that were presented to tourists in this research (e.g. DoC), tour operators actually do have some legal responsibility for the safety of their customers. Peattie et al. (2005), for example, report that within the UK’s Package Travel, Package Holidays and Packages Tours Regulations (SI1992/3288) the operator is contractually responsible for providing in writing information about health issues related to the transit and stay at the destination. Thus, while this legislation has a narrow focus on health and diseases, a principle of responsibility has been established that could be extended to environmental hazards such as severe weather. Such research seems highly appropriate considering that package tourists appear to display different tolerance to risk compared with individually travelling tourists (Williams & Balaz, 2012).

A further limitation is that responsibility is a topic that has a moral aspect. It is good to show you feel responsible. This morality might enhance some social or cultural desirability bias, and reported responsibility attributions might thus be more directed towards “Shared” or “Internal” LoR, even though some tourists might have really been more of the “External” type. Considering that all types of tourists would likely benefit from improved and more

available information this limitation is more academic in nature and bears less practical consequences.

Finally, this research only focused on extreme weather events and not on other hazards. However, the findings presented here should still be relevant for other risks and safety issues related to tourism. Future research on broader hazards could then also treat the different climatic hazards more distinctly, as it is possible that information preferences differ across types of severe weather. Similarly, future research should account for possible moderating effects of weather circumstances on tourist's hazardous weather perceptions. Ideally, such research would not only investigate information preferences (as in this present research), but also attempt to measure actual proficiency or knowledge held by tourists with respect of weather information and understanding.

6. Conclusion

This research analysed Locus of Responsibility and its links to information search behaviour in relation to severe weather events by tourists travelling independently in New Zealand. Since Locus of Responsibility has been found to impact protective action decisions in non-tourism contexts, a major focus of this study was on the extent to which tourists perceived protecting themselves from severe weather as their own responsibility. The results revealed significant differences between three different types of groups ("Internal", "Shared" and "External" LoR) on gender and a range of antecedents of Information Seeking and information preferences, but not on Information Seeking itself. Our research highlights the importance of considering LoR in the future development of risk communication models.

Given that ensuring tourist safety is critical for destinations to achieve high levels of satisfaction, avoid accidents and minimise negative publicity, the results of this study provide

an impetus for tourism and safety management organisations to (re)consider their risk information policies and keep track of the way ‘their’ tourists perceive protection responsibility and deal with hazard information. Continuous collaboration between scientists and stakeholders in the field is invaluable to make such attempts successful and sustainable.

The results presented here constitute a useful step in this respect. For example, tourism-specific campaigns should focus on providing hazard specific knowledge to increase protection efficacy amongst tourists, but they should also enhance tourists’ perceptions of responsibility for self-protection, including information on which organisations are responsible for particular aspects of safety. Importantly, information should be tailored to those tourist segments that are potentially more vulnerable, because they perceive that someone else is responsible for their safety (e.g. female tourists found in this study), when this may not be the case.

Future research should add depth to our understanding of different tourism segments, including tour group visitors and emerging markets, and also deliver insights about information preferences in the context of specific hazards and ‘weather sensitive’ activities. The need to balance awareness raising and risk preparedness with undesired effects of a ‘climate of fear’ should be proactively addressed in future research and destination management. Such a balance however demands also from tourists themselves that they take their responsibility to inform themselves about risks and protective actions that will keep them safe during their travels.

7. References

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Table 1 Scale reliabilities and items of information seeking and antecedents.

Concepts ¹
Information Seeking ($\alpha=.79$). 1=very unlikely, 5=very likely. Adapted from: ter Huurne, 2008. <i>In order to protect yourself against harm from severe weather, how likely would you...</i> <ol style="list-style-type: none">1. Search for information that helps you to be <u>prepared</u>2. Look for information about what you could do to <u>protect</u> yourself in case severe weather would occur3. Ask experts about potential threats that severe weather can cause4. Check if there are any severe weather warnings for the area you plan to be in
Worry ($\alpha=.79$). 1=strongly disagree, 5=strongly agree. Adapted from: Larsen et al., 2009. <i>When I am on vacation in New Zealand,</i> <ol style="list-style-type: none">1. I worry about a severe thunderstorm occurring2. I worry that I might suffer from severe wind3. I worry about being affected by heavy rainfall4. I worry that dense fog may limit my sight5. I worry about a tropical cyclone occurring when I am around6. I worry that I might be affected by heavy snowfall
Informational Subjective norms ($r=.42$). 1=strongly disagree, 5=strongly agree. Adapted from: Griffin et al., 2004; Ajzen, 1988. <ol style="list-style-type: none">1. People whose opinions I value think I should stay informed during my holiday about how to be safe from harm caused by severe weather2. It is expected of me that during my holiday I seek information about how to protect myself against possible severe weather risks
Information Sufficiency ($\alpha=.83$). 1=strongly disagree, 5=strongly agree. Adapted from: Eagly

and Chaiken, 1993; ter Huurne, 2008.

1. *I am satisfied with the amount of knowledge I have about how to protect myself when the weather turns bad*
2. *My current knowledge about protective actions in possible hazardous weather in New Zealand is sufficient*
3. *I need more information than I already have about how to protect myself when the weather turns bad (reversed)*

Issue Involvement ($\alpha=.80$). 1=not at all, 5=extremely. Adapted from: ter Huurne, 2008.

1. *Are you interested in the potential risks of severe weather in New Zealand?*
2. *Do you think it is important to be familiar with the risks that severe weather in New Zealand can bring?*
3. *Is having information about severe weather risks in New Zealand important to you?*

Protection Efficacy ($\alpha=.73$). 1=very difficult, 5=very easy. Adapted from: ter Huurne, 2008.

How easy or difficult is it to protect yourself from damage or harm caused by the following types of hazards?

1. *Heavy rainfall*
2. *Fog*
3. *A tropical cyclone*
4. *A severe thunderstorm*
5. *Heavy snowfall*
6. *Severe wind*

1. Cronbach α and Pearson r (SN=two item scale) were used as measures for internal reliability.

Table 2 Differences in average scores on perceived responsibility for Internal, Shared and External Locus of Responsibility groups.

	<i>N</i>	Locus of Responsibility ¹			<i>F</i>	<i>p</i>
		Internal	Shared	External		
1. As a tourist, I am responsible myself	388	4.51 ^a	4.00 ^b	3.81 ^b	30.90	.001
2. The government of New Zealand	372	3.06 ^a	3.70 ^b	3.91 ^b	23.91	.001
3. My travel agent	343	2.52 ^a	2.79 ^{ab}	3.00 ^b	4.26	.02
4. i-Site	371	2.99 ^a	3.51 ^b	3.91 ^c	19.79	.001
5. Department of Conservation	365	3.11 ^a	3.66 ^b	3.75 ^b	13.24	.001
6. MetService	360	3.22 ^a	3.85 ^b	3.78 ^b	13.86	.001
7. Land Transport New Zealand	272	2.38 ^a	3.01 ^b	3.07 ^b	13.48	.001
8. New Zealand Mountain Safety Council	311	3.48 ^a	3.71 ^{ab}	3.92 ^b	4.08	.02

1. Means with different superscripts are significant at $p < .05$. Items measured on scales from 1-5, higher item scores indicate higher perceived responsibility.

Table 3 Differences in average score on intra-personal concepts for Internal, Shared and External LoR groups.

	<i>N</i>	<i>Locus of Responsibility¹</i>			<i>F</i>	<i>p</i>
		<i>Internal</i>	<i>Shared</i>	<i>External</i>		
Information Sufficiency	387	3.32 ^a	3.14 ^a	2.82 ^b	9.40	.001
Worry	388	2.38 ^a	2.52 ^{ab}	2.62 ^b	3.58	.03
Protection Efficacy	387	3.06 ^a	2.98 ^{ab}	2.82 ^b	2.74	n.s.
Intention to seek information	391	3.42	3.53	3.42	.62	n.s.
Informational subjective norms	383	3.35	3.38	3.25	.60	n.s.
Issue Involvement	391	3.24	3.30	3.30	.37	n.s.

1. Means with different superscripts are significant at $p < .05$. Items measured on scales from 1-5, higher item scores indicate higher perceived importance.

Table 4 Preferred information sources (percentage of tourists per LoR group that would use source).

<i>Locus of Responsibility</i>	<i>Internal</i>	<i>Shared</i>	<i>External</i>	<i>Total</i>	
<i>Source</i>	<i>%</i>	<i>%</i>	<i>%</i>	<i>%</i>	χ^2 (2, N=391)
<i>Social circle</i>					
Family and friends	11.6	13.8	19.3	13.5	n.s.
Other tourists	25.8	22.0	22.8	23.8	n.s.
<i>Generic</i>					
Television	42.2	54.1	50.9	47.4	n.s.
Radio	27.6	38.5	29.8	31.6	n.s.
Newspaper	23.1	30.3	36.8	27.6	n.s.
My tourist guidebook	35.1	36.7	35.1	35.6	n.s.
<i>Local experts</i>					
i-Site information centre	52.4	45.0	47.4	49.4	n.s.
Locals	49.3	46.8	59.6	49.9	n.s.
Department of Conservation centre	37.8	34.9	14.0	33.6	.01
Mountain Radio Service	4.4	2.8	1.8	3.5	n.s.
Police	0.4	4.6	7.0	2.5	.01
<i>Websites</i>					
MetService website	34.2	31.2	28.1	32.6	n.s.
i-Site information website	24.9	23.9	40.4	26.8	.04
Department of Conservation website	19.6	19.3	8.8	18.0	n.s.
Tourism New Zealand website	16.9	20.2	17.5	18.0	n.s.

NZ Mountain Safety Council website	6.2	1.8	5.3	5.0	n.s.
Automobile Association	1.3	3.7	5.3	2.5	n.s.
Land Transport New Zealand website	3.1	-	1.8	2.0	n.s.

Table 5 Average perceived importance scores for weather information types.

		Locus of Responsibility				
	N	Internal	Shared	External	F	p
Meteorological characteristics						
Amount of precipitation (rain, snow, hail)	388	3.35	3.32	3.56	1.40	n.s.
Forecasted lowest temperature	389	3.41	3.22	3.31	1.48	n.s.
Forecasted highest temperature	389	3.16	3.21	3.31	.52	n.s.
Wind speed	390	2.92	2.94	3.05	.44	n.s.
How temperature develops over time	389	2.90	2.87	2.98	.25	n.s.
Wind direction	390	2.19	2.42	2.30	2.01	n.s.
Air humidity	388	1.97 ^a	2.25 ^b	2.11 ^{sb}	3.49	.03
Air pressure	388	1.90	2.09	2.02	1.59	n.s.
Temporal and spatial information						
Where the severe weather is forecasted to occur	388	4.04	3.94	4.04	.51	n.s.
How long the severe weather continues	389	4.00	3.98	4.02	.04	n.s.
Impact information						
Consequences for travel/road conditions	389	4.12	4.12	4.18	.11	n.s.
Possible consequences (power cuts, floods)	390	3.81	3.93	4.00	1.30	n.s.
Behavioural advice						

Who I should contact if I am in urgent need of help	390	4.04 ^a	4.15 ^{ab}	4.38 ^b	3.02	.05
Advice about what I should do to be prepared	389	3.75	3.99	3.91	2.68	n.s.
Survival advice in case I get in a threatening situation	389	3.71 ^a	3.94 ^{ab}	4.11 ^b	5.06	.007

1= not important at all, 2= slightly important, 3= moderately important, 4= very important, 5= extremely important. Means with different superscripts are significant at $p<.05$.