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TERRORISM

Qualitative Analysis of Cognitive and Contextual Determinants of Canadians' Individual

Response to Terrorism

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Abstract

The objective of the present study was to explore different aspects of individual response to terrorism in Canada and develop a descriptive model of the processes involved. A qualitative analysis was performed on transcripts of individual and group interviews held across Canada (N=73) wherein concerns and decisions surrounding terrorism were discussed. This analysis revealed 16 emerging concepts, which were organized into six overarching themes (Threat, Uncertainty, Control, Context Issues, Psychological Response, and Behavioural Response). Psychological and behavioural responses appeared to be related, in that they shared a number of cognitive determinants. Results also pointed to the involvement of contextual factors such as timing relative to an event, type of terrorism scenario, and opinions regarding the regulation of terrorism. Behavioural responses to terrorism were discussed less frequently than psychological responses. These primarily entailed actions aimed at avoiding terrorist events, although more positive responses such as individual preparedness were also mentioned. Implications of findings for research on individual preparedness for terrorism are discussed.

Keywords: risk perception; terrorism; decision making; Canada; social cognition

About the Authors

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Louise Lemyre is Professor of Psychology and of Population Health at the University of Ottawa, Canada. She is an expert in psychological stress, subjective appraisal and risk perception. Her interdisciplinary projects involve the major determinants of population health and their interaction, especially as they relate to Sense of Mastery, Uncertainty and Threat.

Qualitative Analysis of Cognitive and Contextual Determinants of Canadians' Individual

Response to Terrorism

The face of terrorism has changed tremendously since the attacks of September 11, 2001

and subsequent Anthrax incidents. As Slovic (2002) appropriately noted, it is not that terrorism is

new, but rather changes in the form it has taken, with "the use of commercial airliners as weapons

of mass destruction, followed by the threat of chemical and biological assaults on our air, water

and bodies," that gives rise to what he deems a "new species of trouble" (p. 425). In particular,

the possibility of future attacks of this nature and their anticipated longer-term impacts on health

have raised the profile of terrorism as a risk to public health (Lemyre, Clément, Corneil, Craig,

Boutette, Tyshenko, et al., 2005; Hyams, Murphy, & Wessely, 2002; Public Safety and

Emergency Preparedness Canada, 2005). Since research suggests that indirect psychological and

behavioural consequences of terrorism may pose even more challenges to public health than the

direct impacts of attacks, these need to be understood and accounted for in risk management

frameworks (Boscarino, Figley, & Adams, 2003; Hyams, Murphy, & Wessely, 2002; Kunreuther,

2002; Lemyre et al., 2005; Lerner, Gonzalez, Small, & Fischhoff, 2003; Rogers, Amlôt, Rubin,

Wessely, & Krieger, 2007; Stein, Tanielian, Eisenman, Keyser, Burnam, & Pincus, 2004).

However, it is not only important to understand individuals' reactions to terrorism as a past event,

but also how they perceive and respond to terrorism as a pending global threat to public health.

Recognizing that research of this nature could inform policy aimed at improving individual

preparedness for potential future events, the objective of the present study was to develop a

descriptive model of cognitive and contextual determinants of individual response to terrorism, as

a risk to health in Canada.

In recent years, the demographic factors predicting psychological reactions to terrorism

have been the focus of a number of studies on responses to specific events, such as the attacks of

September 11, 2007 or London transit bombings of 2005 (Boscarino et al., 2003; Rubin, Brewin, Greenberg, Simpson, & Wessely, 2005; Schuster, Stein, Jaycox, Collins, Marshall, Elliot, et al., 2001). In addition to demographic factors, it is important to understand beliefs and perceptions that give rise to particular responses, as these represent factors that can be changed through public education (Lindell & Whitney, 2000). Indeed, an abundant literature on health risk and health behaviour documents cognitive influences on the way people feel and behave in response to different health hazards (Rimal & Real, 2003; Slovic, 1987; Weinstein, 1993; Witte, 1998). For example, perceptions of the level of threat posed by particular hazard (i.e., the extent to which it is likely to occur and would have serious consequences) can play a central role in shaping one's adoption of preventive behaviour (Loewenstein, Weber, Hsee, & Welch, 2001; Rogers, 1975; 1983; Rosenstock, 1974; Weinstein, 1993; Witte, 1992; 1994; 1998).

Although more limited in number, some studies have examined perceptions of the level of threat or likelihood of attacks as additional predictors of individual response to terrorism (e.g., Eisenman, Wold, Fielding, Long, Setodji, Hickey et al., 2006; Lerner et al., 2003; Rubin et al., 2005). In a nation-wide survey, Lerner and her colleagues found that Americans perceived their chance of being personally hurt in a terrorist attack to be 20.5% on average, and that heightened perceptions of terrorism threat subsequently predicted increased anxiety and preventive responses (Lerner et al., 2003). Lerner et al. (2003) also added that fears surrounding terrorism may both elicit and arise from perceptions of control and uncertainty (Lerner et al., 2003). In accordance with this view, a perceived inability to control terrorism and uncertainty about what an event would entail have emerged as important sources of concern about terrorism in focus group interviews held across the United States (Becker, 2004; Glik, Harrison, Davoudi, & Riopelle, 2004; Henderson, Henderson, Raskob, & Boatright, 2004; Wray & Jupka, 2004).

To determine whether similar cognitive dimensions might underlie Canadians' response to terrorism, a previous study examined the extent to which perceived threat, control, and uncertainty predicted worry about terrorism in a nationally representative sample of Canadians (Lee, Lemyre, & Krewski, 2007). As expected, it was found that respondents who perceived terrorism as a greater personal threat and as more uncertain were more worried about terrorism. However, those who perceived themselves as having greater personal control over terrorism were more, rather than less, worried about it. Previous work has revealed similar findings (Klar, Zakay, & Sharvit, 2002). However, this observation is not in line with the widespread view of control-related perceptions as giving rise to more adaptive responses. Moreover, other work provides evidence that control-related perceptions help to mitigate psychological reactions to terrorism (Benight, Freyaldenhoven, Hughes, Ruiz, Zoschke, & Lovallo, 2000).

Mixed findings, such as those regarding the relationship of perceived control with worry about terrorism, suggest a need to identify some of the contextual factors on which the adaptiveness of control-related beliefs might be contingent. While a greater sense of control is regarded as beneficial in most contexts (Bonetti, Johnston, Rodiguez-Marin, Pastor, Martin-Aragon, Doherty, & Sheehan, 2001; Bruchon-Schweiter, 2002; Skinner, 1996; Walker, 2001;), it may in fact be more realistic and adaptive for individuals to have lower perceived control over terrorism, since considerable uncertainty about the likelihood and potential consequences of terrorism renders this threat difficult to control (Hyams et al., 2002; Kunreuther, 2002; Viscusi & Zeckhauser, 2003). Research methods that are more sensitive to contextual or environmental contingencies could help determine whether this is the case.

Also, perceived threat, uncertainty, and control are but a subset of factors that might be involved in psychological and behavioural responses to terrorism. Given the highly politicized nature of terrorism (Gibson, Lemyre, Clément, Markon, & Lee, 2007; Huddy, Feldman, Taber, &

Lahev, 2005), social contextual factors could also be involved in psychological and behavioural responses. For this reason, the unique character of terrorism in the Canadian social context needs to be considered. One the one hand, there is continued acknowledgement by the Canadian Security Intelligence Service (CSIS, 2007) of Canada as a potential target. On the other, no recent wide-scale attack has taken place that would undeniably have rendered this threat of great salience to the Canadian collective. As a result, relationships of predictors with individual response to terrorism, as well as the predictors themselves, may inherently differ in the Canadian social context from observations made in contexts following a specific attack (e.g., Eisenman et al., 2006; Lerner et al., 2003).

Acknowledging the limits of quantitative research in the study of socio-cultural dimensions in the perception of risk issues, Brenot and his colleagues (Brenot, Bonnefous, & Marris, 1998) argued for the application of qualitative methods, as these can provide deeper insight into contextual factors that shape the meaning individuals assign to risk issues (Tulloch & Lupton, 2003). They may also be used to elaborate or reconceptualise elements of theoretical import so that these are more reflective of the context in which they are embedded. This approach was taken in the present study in order to i) determine whether threat, uncertainty, and control are indeed salient dimensions of terrorism health risk perceptions, ii) identify additional contextual factors shaping individual response to the health risks of terrorism, and iii) examine the nature of individual response to the health risks of terrorism. The following analysis draws on transcripts of interviews held across Canada to gather information about individuals' perceptions of health risks. In particular, interviews focused closely on individual concerns and decisions regarding the health risks of six hazards, among which terrorism was included (Dallaire, Krewski, Lemyre, Brand, & Mercier, 2005). Preliminary analyses of these transcripts have revealed interesting findings, as they confirm that there is no clear consensus with regards to the health risks of

terrorism: While some Canadians worry about terrorism, others are not concerned about the

impact of terrorist attacks for their own health (Dallaire et al., 2005). However, more detailed

analyses of the interviews would certainly be useful to further uncover some of the factors

determining individuals' concerns and decisions related to the health risks of terrorism. Therefore

the current paper is limited to results of analyses carried out on sections of the interviews that

focused on concerns and decisions regarding the health risks of terrorism.

<div align="center">Method</div>

Participants

A total of 37 men and 36 women, between 30 and 65 years old, participated in 10 group

interviews and 11 individual interviews conducted in the following provinces: Nova Scotia

(22%), Quebec (21%), Ontario (18%), Alberta (22%), and British Columbia (18%). Two group

interviews and two individual interviews were conducted in each of the regions (with an

additional individual interview in Vancouver, British Columbia) between September and

October, 2003. Sixty-seven percent of them were interviewed in English and 33% were

interviewed in French. Modal categories of educational attainment and household income were

the completion or achievement of some university education at the undergraduate level (48%)

and an annual household income between $40,000 and $59,999 before taxes (28%).

Procedure

The study materials and procedure were reviewed and deemed ethical by the Research

Ethics Board of the University of Ottawa. Participants were recruited through newspaper

advertisements and community organizations from urban and rural areas in each region. An

experienced qualitative interviewer led the discussions following a consistent list of questions

and prompts. The ten respondent-centered content-oriented group interviews were conducted to

gain an understanding of behaviours and attitudes of lay people towards health risks. In addition,

the eleven individual interviews performed using the group interview scheme ensured a systematic and comprehensive investigation, and allowed a further probe of the manner in which respondents give meaning to, and deal with risks. The group discussions lasted approximately two hours while the shorter individual interviews lasted about 45 minutes.

Five topics were covered in the same order in all interviews: conceptualizations of health risks, conceptualizations of health risk acceptability, health risk of greatest concern to respondents and related decisions, perceptions and decisions regarding the health risks of six hazards (motor vehicles, climate change, cellular phones, recreational physical activity, terrorism and carcinogens), and government control of health risks. However, questions about the six hazards were presented in a random order. All interviews were audio-recorded and transcribed.

Analytical Strategy

A list of specific questions on terrorism that were asked by the interviewer is presented in Table 1. All questions were formulated in terms of the "health risks" of terrorism, as opposed to the general "risks" of terrorism. This was first related to the fact that the conversations on terrorism were part of a larger study on the risks respondents were most concerned about for their health (and, of course, mortality), including their assessment of the health risks of the six hazards described above. Second, the concept of "health risk" was used to limit the discussion to issues of health, injuries and mortality as opposed to other forms of social or political risks and/or consequences such as those related to restrictions on freedom (i.e. increased airport security; no fly list). With the exception of the question on the level of acceptability of the health risks of terrorism, questions were specifically asked in each interview unless the interviewer felt that respondents had already discussed relevant issues. The interviewer asked respondents about their perceived level of acceptability of the health risks of terrorism in only a very small number of interviews, when there was a sufficient amount of time to do so.

For the purposes of the current study, transcripts of group as well as individual interviews pertaining to the health risks of terrorism were analyzed concurrently. While a separate analysis of individual interviews might have enabled a more detailed investigation of the cognitive processes involved, it was decided to include all interviews so that results of the analysis might reflect as many different views and opinions as possible. For the most part, the interviewer ensured that all respondents of group interviews provided responses to the questions. Consequently, observations made in this study are likely to reflect the views and opinions of the vast majority of respondents, resulting in a much more rich analysis.

The first step of the analysis involved identifying sections of transcripts that related to terrorism. Then, these sections were screened and separated, using Nvivo software, into meaningful units of information (that is, an element of the text that contains a sufficient amount of information to convey an idea or thought on its own). Units of information were analyzed for expected and emerging concepts, which served as a basis for the development of a coding matrix used to assess all interviews. Statements within the general discussions about the health risks of terrorism that were not relevant because the respondent misunderstood the question, asked for clarification or discussed tangential issues were coded as not applicable. To determine the appropriateness of distinguishing units of information according to emerging concepts, a second individual coded three randomly selected interviews (a sub-sample of at least 10% of the transcripts) using the established coding matrix. Inter-rater agreement was assessed by computing the Kappa coefficient, and was found to be adequate (i.e., Kappa inter-rater reliability coefficient of .79).

Results

From the examination of all units of information identified in the interview transcripts emerged a total of 16 concepts (Likelihood, Consequences, Vulnerable others, Unpredictability,

Suspicious scenarios, No control, Terrorism as a form of control, Timing relative to an event, Type of terrorism, Regulation, Concern, Sadness, No decision, Avoiding terrorist events, Individual preparedness and planning, and Emotion-controlling behaviour).

Concepts were subsequently organized into six overarching themes based on the purposes of the study (Threat, Uncertainty, Control, Context issues, Psychological response, Behavioural response). In general, themes distinguished among concepts according to the various elements they might represent in a model of individual response to terrorism (e.g., contextual determinants, types of outcomes). All themes and their constituent concepts are presented in Table 2. In order to shed some light on the relative importance of concepts, the proportion of meaningful units of information coded under each emerging concept as well as the proportion of interviews in which each concept was discussed are also presented in Table 2.

In line with the purpose of the current study, results are presented in three separate sections: Results pertaining to cognitive factors of hypothesized importance to individual response to terrorism are first outlined, followed by results of the analysis wherein contextual determinants of individual response to terrorism were explored, and results of the analysis in which the nature of individual response to terrorism was explored.

Cognitive Determinants

Threat. The theme of *Threat* was particularly apparent in respondents' discussions regarding their level of concern with the health risks of terrorism. This theme comprised three concepts, each describing how respondents framed their perceived threat of terrorism. First, the concept of *Likelihood* emerged most frequently in respondents' discussions. Some respondents briefly mentioned the probability of occurrence of terrorism, stating "that could happen" or "we have better chances of winning the lotto". Others referred to aspects of terrorism that can influence the possibility of an attack. These included the ease, willingness, or ability with which

an act of terror can be committed and the pervasiveness of terrorism threats. One respondent felt

"it would not be difficult, for example, to create catastrophes," while another noted that:

> They [the terrorists] are extremely strong. They can come here tomorrow when
>
> they want and then they bomb the hotel, they do what they want with the metro,
>
> when they want. I believe them to be strong enough to do it. They are very
>
> intelligent.[1]

In addition, some respondents alluded to the insidiousness of terrorism, mentioning that it is here

to stay, just beginning, always in the back of their minds, or that terrorists are "out there." Several

respondents discussed the likelihood of terrorism as a function of geography. Those in rural areas

felt their hometowns were too remote to be potential targets, while others felt terrorists would

have little interest in attacking Canada compared to the United States, countries in the Middle

East, and those involved in political conflicts.

> Really especially in Canada I think that we as Canadians think that the risk is so
>
> small. Maybe if we lived in the States, certainly on the Eastern Seaboard, Boston,
>
> New York, something like that, maybe, probably the risk would be higher and
>
> we'd think about it more

Other respondents did not feel that their area of residence would be a target, but believed they

would likely be affected by an attack occurring elsewhere, as expressed by one respondent: "...the

probability that we will be the target population is low, but the target population could be close to

us, which means that indirectly, it will influence us. In that context, yes."

A second, somewhat related concept which seemed to heighten respondents' perceived

threat of terrorism entailed the *Consequences* of an act of terrorism. Whereas most respondents

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[1] Quotes provided as examples in this analysis are drawn from both English and French language interviews. Those from discussions conducted in French have been translated by the authors.

alluded to the losses incurred by terrorism, one commented on his concern over the repercussions of terrorism rather than its likelihood:

> We're in Canada. It could happen, there, but it worries me in a global sense, the repercussions, international politics with the U.S.A. and other countries and the lifestyle change that it brings to us in North America. More on that end, from an international point of view.

References were also made to losses, including the number of deaths resulting from the attacks of September 11, 2001 or to the loss of valuable resources after possible scenarios. For example, two groups consisting of individuals residing in rural areas of Canada further elaborated on the destruction or disruption that might stem from such a loss. For example, in discussing a power outage, one group said:

> - We were without power for a week in the dead of winter. We have no heat and we have no water. So our house could probably be pretty much destroyed/…/
>
> - Our culture's really dependent on electricity.
>
> - We are dependent on [electricity], our food sources, everything.

One man alluded to problems he associated with collective fear resulting from terrorism, where many individuals become afraid, subsequently leading to broader societal consequences (e.g., when the American Homeland Security Council raised the national terrorist alert level to orange in February 2003, indicating a "high" risk of attack, and many residents bought duct tape and plastic sheeting to cover house windows and doors).

A third and final concept of *Threat* was that of *Vulnerable others*. Here, concern was expressed about individuals perceived as particularly vulnerable to terrorism rather than oneself. Examples primarily included references to the impact of terrorism on future generations or children, as noted by one respondent: "I am so glad that I am not a kid anymore and I feel so

badly for my grandsons that they have to grow up in a world that every time you turn around,

they're worried about something negative." Concern was also expressed over the level of poverty

among Afghani civilians and the level of risk imposed on some individuals due to the nature of

their work (e.g., airport or government employees, military personnel).

In sum, respondents spontaneously referred to the likelihood and consequences of

terrorism, as well as to those they conceive as vulnerable. These three concepts framed

respondents' perceptions of terrorism threat, which emerged as a primary rationale for their level

of concern regarding the health risks of terrorism.

Uncertainty. Emerging in only a few interviews, *Uncertainty* reflected an ambiguity

related to all aspects of terrorism, from the level of predictability of an event to particular

situations that could be linked to terrorism. A first concept, *Unpredictability,* focused on

uncertainty regarding the occurrence of a terrorist event. Here, respondents referred to the

apparent lack of rationality of terrorists, to the randomness of events or to the fact that events are

specifically orchestrated to appear as such. This sense of unpredictability was at times related to a

perceived inability to control terrorism, as demonstrated with the statements: "…It's random.

What can you do? Don't know where it will strike." The broader notion of control as it relates to

terrorism, which emerged as its own theme, is discussed later.

In other cases, *Uncertainty* was more closely expressed as a function of *Suspicious*

scenarios. Here, respondents referred to situations that temporarily made them wonder whether a

terrorist event was possible. For example, some respondents commented on their tendency to

consider certain individuals to fit the profile of a "terrorist" in particular circumstances, which

then rendered their thoughts about the possibility of an attack more salient:

The last time I went to England was probably about the January after September

11th. And, you know you shouldn't stereotype but, hey, there were two young

guys waiting at my gate to board and they might have been Lebanese or whatever,

but they were certainly of Arab appearance to me. And it did cross my mind. I

have to say it did cross my mind.

Embodying the aversive nature of uncertainty, this individual later expressed embarrassment and disappointment over having had these thoughts.

Other respondents gave examples of disturbing events thought to be linked to terrorism. The blackout of August 2003, which affected 50 million people in the northeastern United States and Ontario was provided as one case. While electricity service was restored within 24 hours in some areas, other consumers remained without electrical power for one and even two days longer (CBC, 2003). Referring to this power outage, one woman said:

…people were talking about it and then, some said don't believe them. It's really

terrorists. Another said no way, it's not terrorism. It's just a power outage.

Anyways, I paid for my gas, I left and then, I was somewhere else. Well, yet

again, people were sceptical. Was it an act of terrorism?

Along with those reflecting *Unpredictability*, such statements seemingly conveyed respondents' aversion to uncertainty; that is, not knowing if and when an attack may occur, what form it could take, and whether or not authorities would reveal that terrorism was the cause of disturbing events. As much as the randomness of a terrorist event generated concern or a sense of powerlessness, certain situations seemed to generate concern by stimulating uncertainty about the possibility of terrorism. Respondents' interpretations of such scenarios may have been aimed at reducing this uncertainty or rendering it more bearable.

Control. The theme of *Control* encompassed two concepts. Most frequently, respondents expressed the view that they had *No control* over terrorism while discussing their level of

concern about terrorism. Of note, only one respondent discussed being concerned about terrorism in relation to his perceived powerlessness over such threats, stating that: "Yes, yes. It's something that I fear. As an individual I am totally powerless. (Inaudible...) not even probably my opinion would count." The majority of other respondents were not concerned about terrorism precisely because they felt there was nothing they could do about it. One respondent nevertheless acknowledged the horrific character of terrorism, stating that "…I mean it's horrible when it happens. There's been some horrible things happen in the world. It's totally out of my control." This comment may reflect the important interplay between feelings of threat and feelings of control specified in some models of health behaviours (Witte, 1992; 1994; 1998).

The second concept related to the idea of *Terrorism as a form of control*. Here, respondents referred to the idea that people should not let terrorism control their everyday lives, often using it as a rationale for the fact that they had not made any particular decisions regarding the health risks of terrorism. Upon being asked if he had made any such decisions, one respondent answered "No, because your hands are tied. Your hands are tied. You live at the mercy of terrorism. This is what they want, and this is now what they're getting." Another insisted that terrorism did "…not prevent [him] from living because [he] would no longer go out, [he] would no longer do anything." Hence, it seemed that these respondents deliberately refrained from changing their habits in an effort to take back control over their lives. Rather, they equated behavioural response to terrorism with powerlessness and with a certain success conceded to terrorists for instilling fear and forcing lifestyle changes.

Contextual Determinants

In their discussions, respondents also mentioned three concepts reflecting a number of different *Context issues* that were a source of concern. This theme distinguished itself from the previous three in that the focus was not on individual processes associated with concern over the

health risks of terrorism, but rather on environmental contingencies of these individual processes.

First, *Timing relative to event* included references touching upon the idea that concern about

terrorism was dependent on the occurrence of an event. For example, one woman stated:

> No. No it's only around September 11th, when my husband was travelling I
>
> worried a lot about things happening. He went away right about two weeks after
>
> the terrorist attack; he went to Europe and every time I heard something I
>
> thought… I was very concerned. But after that, I kind of got over it.

A similarity was noted with this sub-theme and the concept of risk signals espoused by

Kasperson and his colleagues (Kasperson, Renn, Slovic, Brown, Emel, Goble, et al., 1988),

which are defined as events that lead the public to believe that a new risk has emerged or that an

existing risk is more serious than previously assumed. Some respondents even seemingly

referred to the phenomenon of risk signal by way of a metaphor, as noted in this discussion:

> Until it happens here, there'll be no one that will pay attention to it. It's like…
>
> -Yes, there is like a comfortable distance with what has already happened.
>
> -…the kerb in I don't know what city, they decided to remove the kerb from the
>
> road and make it straight because there had been a fatal accident involving a bus.
>
> The bus missed the kerb and…the kerb of death. Now they made a straight line.
>
> People started to be fearful as soon as the accident took place. They woke up.
>
> Until there is something wrong, people don't move. They don't talk about
>
> terrorism until it happens here.

Three respondents reported only being concerned when they heard information about terrorism.

One man even jokingly noted that he had not been worried about terrorism until he participated in

the interview.

A second concept entailed the different *Types of terrorism* that generate concern. Respondents primarily expressed concern about bioterrorism, but chemical terrorism and attacks on power stations were also mentioned. Some identified these scenarios as a source of concern because they perceived them as most likely (e.g., "To me what I'm more afraid of is chemical warfare. I really don't think it's going to be a bomb. I think it's going to be a chemical or a biological…"), whereas others seemed more concerned about the consequences of specific scenarios to health (e.g., "Well, I'm certainly afraid of bio-terrorism. Yes, absolutely. I wouldn't want to be bombarded with some disease that there's no vaccine for or something.").

A last concept was that of *Regulation*. Statements falling within this category primarily referred to actions that had been or should be taken by authorities to deal with terrorism. Specifically, respondents called for the need to improve security or emergency management. While most respondents indicated that they felt that security measures should be increased, two respondents believed that security should be relaxed because they felt that existing measures were overly conservative. For example, one woman noted:

> But when we travel abroad, it's an additional stress because the airports are very
>
> hard, the metros, like the metro in Paris, at some point, it's hard. Surveillance is
>
> hard. The (inaudible) decide to check everyone. So that then, you are stuck in that
>
> mess. You need to take out your identity card. You need to go through the pocket
>
> to get your passport that's under…/…/. Me, I don't have it in my wallet. I find that
>
> a bit unbearable.

Others were either satisfied with current security measures or were not particularly impressed with the way terrorism-related issues were being managed. In general, importance was placed on regulation by authorities, whereas personal control over terrorism was discounted, as demonstrated by one comment:

…So although it's horrible and you know, I have no problem with the security

checks at borders or airlines or that kind of thing, that's totally fine. You know, I

don't mind the extra time spent with security checks because it's improving the

safety for all of us, but I can't do anything about terrorism, so I don't worry about

it.

Similarly, another respondent noted: "The only situation I think that I might be in danger is

airplanes. And unfortunately, I place my trust in the people that are letting us get on the airplanes

that they have done their job." Statements as these emphasize how individuals expect and rely on

authorities to manage the risks of terrorism, since they personally feel helpless to prevent harm.

Individual Response to Terrorism.

Psychological response. Since respondents were asked about their level of concern over

the health risks of terrorism, it is no surprise that *Psychological response* to terrorism emerged as

a theme. In statements falling within the first concept, respondents simply stated their *Level of*

concern about the health risks of terrorism. In most cases, they discussed their level of concern or

worry without immediately elaborating on the reasons behind their feelings. The vast majority,

but not all, indicated that they were not troubled by terrorism. In statements falling within the

second concept, respondents discussed the *Sadness* they had personally experienced because of

terrorism. Occurring in only two interviews, these statements were distinguished from those of

respondents who discussed emotional reactions as problematic *Consequences* of terrorism in that

sadness was described as a personal experience rather than a general phenomenon of concern. For

example, one respondent said "I've looked at 9/11 again the other night when it was on TV and I

tell you, the tears are just… every time I think about it".

Behavioural response. Having also been asked about decisions they might have taken

because of the health risks of terrorism, respondents gave examples of their *Behavioural response*

to terrorism. This theme comprised five concepts, each reflecting a different type of decision or action taken in response to the health risks of terrorism. Statements could relate to respondents' own response to terrorism or to other forms of general reactions. While respondents sometimes spontaneously mentioned such behaviours, in most cases, these statements were answers to prompts from the interviewer. In other words, respondents did not naturally discuss actions they might or might not have taken to prevent being the victim of terrorism. This finding alone may have related to the fact that terrorism was not a major concern that might lead to behaviour changes. It may also have related to the idea that respondents felt there was not much they could do to control terrorism, or that the government was expected to take on the responsibility of protecting citizens from terrorism.

Avoiding terrorist events emerged most frequently. Statement included references made to the avoidance (or deliberate non-avoidance) of certain activities, places, or people out of fear of experiencing an attack. Most frequently, respondents indicated that they decided not to travel to particular locations they felt might be targeted. (However, it should be noted that they were prompted to discuss altered travel plans in a number of interviews.) This further underlined the pervasive view that terrorism is something that happens "elsewhere", not in Canada. Some emphasized that they did not avoid travelling altogether, but were rather more selective in their choice of destinations or airlines, as noted by one respondent:

…To go to other countries where I know things aren't going well, no. But

preventing myself from going to a country that will be okay because there may be

trouble, no. That, no. But when things aren't going well, they aren't going well,

there, I am not looking for trouble…

Despite this, a few respondents reported that they insisted on not changing their travel plans because of this threat.

No decision was also common. Here, respondents simply stated that they had not made any decisions because of the health risks of terrorism. One respondent indicated that he was simply not concerned enough about terrorism to make any changes, while another stated that she did not feel it was a big enough threat. Hence, *Behavioural response* was sometimes framed in relation to individuals' psychological responses, while at other times framed in relation to cognitive factors.

Accordingly, *Emotion-controlling behaviour* encompassed references to behaviours respondents had adopted in order to improve their psychological responses to terrorism. This concept encompassed statements about efforts aimed at achieving more positive affect, as exemplified by one comment:

> …Basically, we start looking at life in a different perspective. So it's not about
>
> changing my… I'm not living in New York or the US, basically. But I try to
>
> enjoy a little bit more my little life since my family nucleus is basically my wife
>
> and my daughter. So we try to be together longer, and that's it.

It also covered statements about efforts seemingly aimed at avoiding negative affect, with two respondents stating that they avoided terrorism news coverage and one respondent stating that she actively tried not to think about terrorism.

Last, few respondents approached the health risks of terrorism as something for which they could personally prepare. Indeed, references to *Individual preparedness and planning* emerged in only four interviews. One woman discussed her engagement in household preparedness, although more so in relation to the millennium computer bug rather than a terrorist threat: "Well I put away more jars. But that Y2K thing, I canned chickens, which I had not canned for maybe five, six years. And I thought this is a good little treat and I was prepared in case." In two interviews, respondents discussed seeking information about terrorism threat. For

example, one man indicated: "…generally, if I am going to a country, I will get information on what is going on first. That's for sure. I won't go there without getting information."

Increased involvement in political affairs was also discussed in two interviews. One woman stated that she encouraged people to write letters to government authorities responsible for defence issues. This last statement underscores involvement as a potential strategy to deal with the aforementioned tendency of individuals to perceive themselves as powerless in relation to terrorism. One respondent noted:

> …But perhaps that's because they feel powerless, that perhaps we have to have
>
> more civics classes where we teach kids to get involved. Hardly any kids between
>
> 18 and 24 vote. And I mean that's the only way that you're going to change
>
> things is to get out there and exercise your democratic right…

A perceived powerlessness over terrorism could also partly explain why a fair number of respondents had not made any decisions in relation to the health risks of terrorism. Again, this sense of powerlessness could be dealt with by emphasizing those aspects of terrorism threat over which individuals exert a tangible amount of control. In one interview, one respondent noted:

> And I tell myself I don't have to go out of my way for what could happen, that I
>
> prepare myself in terms of, you know, educating myself or something like that,
>
> what I can do, things like that. But in terms of saying that I stop living or I won't
>
> go south or I won't go there, I will not go out of my way for that.

This last statement emphasizes at once the different types of control individuals could exert over terrorism; namely, efforts could either be aimed at controlling one's chances of experiencing an event or at controlling the level of knowledge about terrorism, what to expect, and how to prepare for it. It also expresses the idea that some forms of control are easier to

achieve, perhaps underscoring the need to redirect individuals' notions of control in the context

of terrorism to reflect elements about the threat that can be more readily controlled.

Discussion

The purpose of the present study was to i) determine whether threat, uncertainty, and

control are indeed salient dimensions of terrorism health risk perceptions, ii) identify additional

contextual factors shaping individual response to the health risks of terrorism, and iii) examine

the nature of individual response to the health risks of terrorism. Overall, results support the

hypothesized importance of perceptions of threat, uncertainty, and control as cognitive

determinants of individual response to terrorism. Results also helped to shed light onto some

important contextual determinants of individual response to terrorism, such as timing relative to

the occurrence of an event, the type of scenario in question, and the manner in which the health

risks of terrorism are regulated. Finally, the multifaceted nature of individual response to

terrorism in Canada was emphasized through the observation of the wide-ranging responses

adopted by individuals to this global pending threat. In the end, a total of 16 concepts organized

into six overarching themes emerged from respondents' discussions about the health risks of

terrorism. Concepts and themes, organized into a model of individual response to terrorism are

summarized in Figure 1. In line with the purpose of the current study, the model outlines the

cognitive and contextual determinants of individual response to terrorism, and lists the specific

types of responses to terrorism reported by interview participants.

Proposed Model of Individual Response to Terrorism.

Cognitive determinants. As shown in Figure 1, results helped to clarify some more

specific aspects of cognitive determinants of individual response to terrorism in addition to

further documenting their importance. More specifically, it was found that *Threat* encompassed

elements regarding both the likelihood and potential consequences of an event. Hence, this theme shared many similarities with the concept of personal threat espoused in models of health behaviour (Loewenstein, Weber, Hsee, & Welch, 2001; Rogers, 1975; 1983; Rosenstock, 1974; Weinstein, 1993; Witte, 1992; 1994; 1998).

In their discussions surrounding *Threat*, respondents also expressed a sense that they felt others were at greater risk of being harmed by terrorism than themselves. In fact, the very emergence of *Vulnerable others* as a sub-theme directly conveyed this tendency. This finding is consistent with those of Canadian national surveys (Lemyre, Turner, Lee, & Krewski, 2006; Krewski, Lemyre, Turner, Lee, Bouchard, Dallaire, et al., 2005) as well as those of previous interviews with members of the Canadian public (Gibson, Lemyre, Clément, Markon & Lee, 2007). Similarly, a previous study comparing Canadian and American university students' perceptions of terrorism threat confirmed that Canadians do not believe that terrorism is as serious a threat as do Americans (Feigenson, Bailis, Klein, 2004). One factor that can readily explain this observation is the fact that there has been no large scale terrorist violence in the country since the 1985 bombing of an Air India flight from Toronto (CSIS, 2007). Rather, Canadians associate terrorism with the tragic consequences that victimize people in other countries.

Concepts falling under the theme of *Control* seemed to convey respondents' sense of powerlessness over terrorism. While some respondents reported their perceived lack of control over the health risks of terrorism as a source of concern, others noted that they did not worry about terrorism because there was nothing they could do about it. However, perceived lack of control was invariably reported as a reason for not having made any decisions in relation to the health risks of terrorism. Of particular note, respondents primarily seemed to interpret control as

the ability to avoid or prevent terrorism, rather than the ability to manage or cope with a potential event.

Last, some elements of *Uncertainty* overlapped with elements of other cognitive determinants of individual response to terrorism: While at times related to the likelihood of an attack, statements falling within the concept of *Unpredictability* sometimes touched upon the idea of lack of control. Similarly, in the context of research on illness, McCormick (2002) noted the tendency for uncertainty to be equated with loss of personal control. However, he argued that the two concepts should remain distinct. Perhaps additional work on the concept of uncertainty would help determine whether this concept more strongly relates to the likelihood of terrorism or to one's control over this threat.

Contextual determinants. In addition to cognitive factors, contextual determinants of individual response to terrorism were explored. More specifically, *Context issues* represented situational factors that might influence individual response to terrorism. In particular, discussions about the *Timing relative to an event* as well as *Type of terrorism* emphasize the importance of considering timing and more specific scenarios in research on terrorism. Another important observation was the apparent tendency for respondents to rely on authorities for terrorism risk management, as illustrated by some comments included in *Regulation*. Accordingly, previous analyses of other sections of these interviews revealed that respondents believed that government should play a role in the regulation of health risks over which individuals have no control (Dallaire et al., 2005). Unfortunately, one potential implication of these findings is that individuals may be less likely to take personal initiatives in the risk management process.

Individual response to terrorism. As depicted in Figure 1, concepts and themes reflecting cognitive and contextual factors helped to frame respondents' concerns and decisions

surrounding the health risks of terrorism, and were in fact described by respondents to qualify or

explain their responses. A next step entailed exploring the nature of individual response to

terrorism. As might be expected, psychological responses primarily centered on concern or worry

about the health risks of terrorism, although one respondent discussed sadness. Fewer in number,

behavioural responses to the health risks of terrorism most frequently involved *Avoiding terrorist*

events or simply having made *No decision*. By contrast, a small number of respondents reported

Individual preparedness and planning behaviours or *Emotion-controlling behaviours*. In addition

to framing their *Behavioural response* with cognitive and contextual factors, respondents also

frequently provided their concern about the health risks of terrorism (or lack thereof) as a

rationale for their *Behavioural response.* For this reason, a final element of Figure 1 to specify is

the relationship between *Psychological* and *Behavioural response.*

Study Implications

Together, findings have important implications for practice and future research. For

instance, there was an obvious tendency for respondents to interpret control over terrorism as

their ability to control the occurrence of an attack. Not surprisingly, respondents most frequently

reported making decisions or changes that were aimed at avoiding terrorism altogether. A

significant problem with these types of responses entails the costs to not only the quality of life of

individuals, but also to the economy. Indeed, disruption following the events of September 11,

2001 is estimated to have cost the Canadian airline industry $150,000,000 (Fiorino, 2001). While

airport restrictions partly contributed to these figures, data suggest that consumer behaviours may

also have played a role, with a significant and ongoing drop in demand for international travel

observed among Canadians at that time (Harumi & Lee, 2005).

Arguably, individuals could exert control over terrorism in other, potentially more adaptive ways. For example, *Individual preparedness and planning* or *Emotion-controlling behaviours* could help a person better cope with an event if one were to take place (Eisenman et al., 2006; Finnis, 2004; Paton, 2003; Paton, & Johnston, 2001; Paton, Smith, & Johnston, 2005; Rubin et al., 2005). In fact, there is evidence suggesting that individual preparedness might even help discourage avoidance behaviour following an attack: A survey following the 2005 London transit bombings revealed that those who consulted a government leaflet on emergency preparedness had less intention to avoid travelling to central London despite the attack (Rubin et al., 2005). Unfortunately, findings of the present study suggest that such responses are infrequent relative to avoidant-type responses.

Based on these findings, there is a clear need to develop terrorism risk management strategies that encourage individuals' participation in the preparedness process. This may prove to be particularly important, as the present study, as well as previous research on individual preparedness for other types of emergencies underscores its infrequency (Duval and Mulilis, 1999; Lindell & Whitney, 2000; Mulilis & Duval, 1995; 1997, Paton, 2003). Identifying the determinants of these behaviours is an important step of this process. The model proposed in the current study suggests that the behaviours individuals adopt in response to terrorism are a function of cognitive and contextual factors, in addition to their psychological reactions to this threat. Similarly, Feigenson, Bailis and Klein (2004) found that individuals' emotional responses to the risk of terrorism were more strongly associated with their willingness to take personal action to deal with this risk. Hence, cognitive, contextual, and psychological or affective factors may underlie individual preparedness and planning behaviour. Future research involving a more representative sample of Canadians is needed to confirm the core cognitive and contextual

predictors of individual preparedness behaviours and outline which individual beliefs and gaps in resources need to be addressed in order to improve response and preparedness for terrorism.

Conclusion

To conclude, the present findings provide additional support for the importance of perceived threat, uncertainty, and control as cognitive determinants of individual response to terrorism, also pointing to contextual factors that might be of research interest. However, a few limitations are noted. First is the fact that discussions about terrorism occurred near the end of the interviews (which could last up to two hours) such that respondents were not necessarily as loquacious. On the other hand, respondents generally had relatively more to say about some of the other hazards discussed in the interviews (i.e. motor vehicles, carcinogens), suggesting that terrorism is simply not an issue about which they had thought much. The relatively small size of the study sample should also be acknowledged, as it limits the potential to generalize findings to the Canadian public at large. The potential to generalize findings to the Canadian pubic is further compromised by the fact that the recruitment strategy did not allow for random sampling. Nevertheless, respondents were from across Canada and represented a fairly wide range of demographic backgrounds, providing a rich overview of how terrorism may be perceived in the Canadian context. Therefore, results are useful to understand respondents' conceptualizations of terrorism by documenting some factors related to their concerns and decisions regarding the health risks of terrorism. They also provide guidance for future research. More specifically, studies using quantitative analytical strategies of data from larger, more representative samples could help confirm whether cognitive and contextual factors can predict psychological and behavioural responses to terrorism, as suggested here.

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Acknowledgments

Table 1

Question
Are the health risks of terrorism of concern to you?
Why are the health risks of terrorism of concern (or of no concern) to you?
Have you made specific decisions or choices because of this health risk?
Can you give me an example (of decisions or choices you made because of this health risk)?
What were the important factors that influenced your decision?
Is this an acceptable or unacceptable risk?[a]

Note. [a]This question was only asked if there was sufficient time.

Table 2

Proportion of Total Passages and Interviews Represented by Emerging Concepts and

Overarching Themes

Theme	Emerging concept	% of all passages	% of all interviews
Threat	Likelihood	19.7	81.0
	Consequences	5.4	28.6
	Vulnerable others	6.4	28.6
Uncertainty	Unpredictability	2.5	23.8
	Suspicious scenarios	2.0	19.0
Control	No control	4.9	33.3
	Terrorism as a form of control	3.4	28.6
Context issues	Timing relative to event	5.9	33.3
	Type of terrorism	4.9	28.6
	Regulation	7.4	47.6
Psychological response	Concern	10.8	61.9
	Sadness	1.0	9.5
Behavioural response	No decision	4.9	42.9
	Avoiding terrorist events	9.4	42.9
	Individual preparedness and planning	3.4	19.0
	Emotion-controlling behaviour	2.5	14.3
Not applicable	Not applicable	5.4	28.6

Figure Caption

Figure 1. Model describing results of qualitative analysis.

Cognitive factors
- Perceived threat
  - Likelihood
  - Consequences
  - Vulnerable others
- Perceived uncertainty
  - Unpredictability
  - Suspicious scenarios
- Perceived control
  - No control
  - Terrorism as a form of control

Contextual factors
- Timing relative to event
- Type of terrorism
- Regulation

Psychological response
- Concern/Worry
- Sadness

Individual response to terrorism

Behavioural response
- No decisions
- Avoiding terrorist events
- Individual preparedness and planning
- Emotion-controlling behaviours