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'I can choose': the reflected prominence of personal control in representations of health risk in Canada

Jennifer E.C. Lee^a, Christine Dallaire^b, Marie-Pierre L. Markon^a, Louise Lemyre^c, Daniel Krewski^{de} & Michelle C. Turner^e

^a GAP-Santé Research Unit, University of Ottawa, Ottawa, ON, Canada

^b School of Human Kinetics, University of Ottawa, Ottawa, ON, Canada

^c School of Psychology, University of Ottawa, Ottawa, ON, Canada

^d Department of Epidemiology and Community Medicine, University of Ottawa, Ottawa, ON, Canada

^e McLaughlin Centre for Population Health Risk Assessment, University of Ottawa, Ottawa, ON, Canada

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'I can choose': the reflected prominence of personal control in representations of health risk in Canada

Jennifer E.C. Lee^{a*}, Christine Dallaire^b, Marie-Pierre L. Markon^a, Louise Lemyre^c, Daniel Krewski^{d,e} and Michelle C. Turner^e

^aGAP-Santé Research Unit, University of Ottawa, Ottawa, ON, Canada; ^bSchool of Human Kinetics, University of Ottawa, Ottawa, ON, Canada; ^cSchool of Psychology, University of Ottawa, Ottawa, ON, Canada; ^dDepartment of Epidemiology and Community Medicine, University of Ottawa, Ottawa, ON, Canada; ^eMcLaughlin Centre for Population Health Risk Assessment, University of Ottawa, Ottawa, ON, Canada

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Multidisciplinary research has contributed to a better understanding of the personal and societal correlates of risk perception. However, representations of 'health risk' remain to be characterised more fully. Drawing on a Canadian study conducted in 2004, an analysis was conducted to develop better characterisations of individual representations of health risk. The study involved a national telephone survey ($N = 1503$) and face-to-face semi-structured interviews with individuals across Canada ($N = 73$) in which participants' representations of health, risk and health risk were elicited using a word association technique. In the telephone survey, it was found that representations of health risk were most frequently negative, with many participants referring to disease and illness. The concept of health risk was also associated with lifestyle, individual control and personal agency, suggesting that individual health behaviour and personal responsibility for health were prominent features of public discourse on health risk in Canada. However, subtle variations in representations of health risk were observed in analyses of semi-structured interviews, pointing to important differences according to age and gender in this specific discourse. There was agreement among participants that health risks were associated with individual vulnerability and menace to life or health, and that such vulnerability increased with age. However, women were less likely to focus on the idea of actively making choices to control health risks and less frequently made references to the positive aspects of health risks.

Keywords: risk; health risk; risk perception; population health; word association; mixed methods

Introduction

There has been a dramatic increase in research on public perception of risk over the past three decades, much of which has focused on perceptions of risk associated with topical health issues (Hawkes and Rowe 2008, Hawkes *et al.* 2009). By contrast, little is known about individuals' representations of health risk as a general concept. Yet, these very representations may guide the processes through which they assign meaning to specific health risks encountered in their daily lives. In this article, we present results of an analysis that was conducted to develop a better understanding of individual representations of health risk. Following a review of existing literature in this area, we provide details of the study from which data were derived, as well as results of analyses that we

*Corresponding author. Email: jeclee@alumni.uottawa.ca

carried out to explore differences and similarities in the way that Canadians represented health, risk and health risks.

Risk perception and the representation of risk: review of the literature

An increasing body of research has helped identify some of the factors that characterise perceptions of health risk (Slovic 2000). Much of this can be attributed to the popularisation of the psychometric approach pioneered by Fischhoff *et al.* (1978) and Slovic (1987). Through individuals' ratings of various hazards on a number of dimensions (including the degree to which associated risks are novel, known to science, controllable or dreaded; the degree to which exposure to the hazard is known and voluntary; and the degree to which health effects are immediate, catastrophic or severe), this approach has helped to establish that perceptions of risk are multidimensional, encompassing elements of both dread and the unknown (Sjöberg 2000). However, this approach has provided limited insight into how members of the public conceptualise the broader concept of health risk. Clarification of the public's understanding of the concept of health risk is useful, as it may serve as a frame of reference for individual risk perception and policy preference (Krewski 1993). Furthermore, it is helpful to distinguish individuals' representations of health risk from those of both health and risk, as they each represent distinct elements of the broader public discourse on health and risk.

Drawing from cognitive psychology, representations of health, risk and health risk could be regarded as knowledge structures for representing generic concepts of objects, situations or events, generally referred to as 'schemas'. Rumelhart and Ortony (1977) have argued that schemas contain the network of interrelationships that characterise the components of a given concept, thus serving as a lens through which people interpret, organise or process information. Hence, understanding distinctions in representations of health, risk and health risk may provide additional information on why certain objects or activities come to symbolise health, risk or disease. As McVee and colleagues have noted, schemas are important as they are 'situated in the transaction between [the] world and [the] individual; and these transactions are mediated by culturally and socially enacted practices' (McVee *et al.* 2005, p. 556). Research on representations of the general concepts of health, risk and health risk may not only identify important factors influencing the way information is processed about specific health issues; such research may also point to important sociocultural influences on representations of health risk. Furthermore, individuals' perceptions are not created in isolation; they are shaped by time and place, reflecting the vast sociocultural landscape in which individuals are embedded (Lupton 1999, Tulloch and Lupton 2003, Jardine *et al.* 2009). Such perceptions of risk are 'embedded within a matrix of everyday associations, preferred ways of life, trust relations, economic constraints and emotional commitments' (Horlick-Jones and Prades 2009, p. 414).

As various researchers have noted (Frewer *et al.* 1998, Joffe 2003, Zwick 2005), both qualitative and quantitative methodological approaches are needed to facilitate the investigation of individuals' representations or perceptions of health risk. For example, Hawkes and Rowe (2008) note that inadequate qualitative research may result in biased observations, through either a failure to examine factors of interest or the consideration of irrelevant ones. To date, qualitative research has been widely used to examine representations of health (e.g. Flick 2000, Murray *et al.* 2003, Hughner and Kleine 2004, 2008). A seminal study by Herzlich (1973) investigated social representations of both health and illness through interviews with French men and women. They found that health was

conceptualised in terms of a vacuum, as a reserve, or in terms of balance and equilibrium. Expanding on these findings, other researchers (Flick 2000, Murray *et al.* 2003) have included the conceptualisation of health as lifestyle. In particular, Murray *et al.* (2003) found that notions of lifestyle and personal responsibility dominated discussions surrounding health and illness among Canadians born in the decade after the Second World War.

Hughner and Kleine (2004) reviewed qualitative research on lay representations of health and developed a typology of health based on 18 themes, which they grouped within four dimensions:

- definitions of health (such as absence of illness, ability to carry out functions, equilibrium, freedom and capacity, constraint);
- explanations for health (including meditation or prayer, mental attitude, working, religious and supernatural explanations, rituals, relationships with others and moral responsibility, internal monitoring, poor health as one's own fault);
- external or uncontrollable factors affecting health (such as policies and institutions, the environment, genetics); and
- the place occupied by health in the everyday lives of people (including priority placed on health, contradictory nature of lay health beliefs).

Qualitative researchers have also investigated understandings of risk (see, e.g., Slovic *et al.* 1993, Krewski *et al.* 1995a, 1995b, Lupton *et al.* 2002a, 2002b, Zwick 2005). In an earlier national survey of health risk perception among Canadians, researchers used the word association technique to examine salient representations of the word 'risk' (Slovic *et al.* 1993, Krewski *et al.* 1995a, 1995b). They found that the majority of associations were with accidents, danger or illness, thus underlining the negative dimension of 'risk'. However, they also observed some more positive associations, such as associations with adventure, challenge or sport. Zwick's (2005) study of risk in Germany also made use of the word association technique. Once again, associations were most frequently made with threats to person in terms of traffic/mobility hazards, job and material security and health (Zwick 2005), as opposed to opportunities, such as sport and leisure time.

In a structured review of qualitative studies of risk perception, Hawkes and Rowe (2008) noted that the majority of studies focused on a single type of hazard and were concerned with health-related hazards. For example, qualitative researchers have explored how people make sense of specific health risks they encounter in their daily lives and how they make decisions or adopt behaviours in response to those risks (Langford *et al.* 2000, Malone *et al.* 2001, Heinßen *et al.* 2002, Brown and Ping 2003, Raithatha *et al.* 2003, Tulloch and Lupton 2003, Hawkes and Rowe 2008). However, there is little research to date that examines general representations of health risk. It thus remains unclear how these relate to representations of risk and health and how such representations vary between individuals. In this article, the aim is to fill this gap by providing an overall perspective on representations of health risk in Canada and by exploring some of the sociocultural factors that may mediate such representations.

Method

An analysis was conducted on data that were collected as part of a Canadian study that involved a national telephone survey and a series of face-to-face semi-structured interviews in which a word association technique was used to access participants'

representations of health, risk and health risk (Krewski *et al.* 2005). In large-scale surveys with a highly structured format, it is difficult to explore how and why associations are made. By contrast, more intensive methods of data collection, such as in-depth or semi-structured interviews, provide a means to obtain additional insight into how and why individuals make specific associations. Thus, it was possible to derive and analyse data from two complementary sources: data collected in the national telephone survey were analysed to provide an overall view of representations of health risk across Canada, while data collected in the semi-structured interviews were analysed to develop a more contextualised understanding of individuals' representations of health risk and the socio-cultural factors that mediate them.

Sampling and participants

National telephone survey

For the national telephone survey, a stratified random sampling procedure was used to recruit a representative sample of the Canadian population in terms of geographic region (Atlantic, Quebec, Ontario, Prairies and British Columbia), age group (18–29, 30–34, 35–44, 45–54 and 55+ years of age) and gender based on 2001 Census data (Krewski *et al.* 2006). A total sample of 1503 adult Canadians (48% men and 52% women) participated in the national telephone survey. Seventy-eight per cent of the questionnaires were verbally administered in English, and 22% in French.

Semi-structured interviews

Participants in semi-structured interviews were recruited through advertisements, which were placed in the local newspapers of a selection of towns and cities in four large regions across Canada: West Coast (British Columbia), Prairies (Alberta), Central (Ontario and Quebec) and Atlantic (Nova Scotia) regions. In areas where it proved difficult to recruit enough participants, recruitment was also carried out in collaboration with local health agencies (including rural health associations and a women's health centre) or community organisations (such as a safe community coalition and a community centre serving marginalised urban populations). Seventy-three adults (51% men and 49% women) between 30 and 65 years of age from each of these regions took part in the interviews. They represented varying characteristics across language (67% of the interviews were conducted in English and 33% in French), ethnocultural background (including Canadian, French, English, German, Irish, Scottish, Polish, Chinese and others) and urbanisation (62% of the interviews were conducted in urban areas and 38% in rural areas). Many participants had completed an undergraduate university degree (approximately 50% of men and 43% of women), reflecting a relatively high level of education compared to the general Canadian population (Statistics Canada 2011). The participants either took part in 1 of 10 group interviews ($N = 62$) or were interviewed individually ($N = 11$).

Measures

Both the national telephone survey and semi-structured interviews captured data on a broad range of risk perceptions and factors influencing risk acceptability (Krewski *et al.* 2005). In this article, only a subset of data that related to representations of health, risk and health risk was analysed.

National telephone survey

At the beginning of the survey, the telephone interviewer elicited word associations for the terms 'health', 'risk' and 'health risk' (in that order) using the following instructions: 'Think about "health" ["risk", "health risk"] for a moment. When you hear the word/phrase "health" [or "risk", or "health risk"], what is the first word or image that comes to mind?'

Semi-structured interviews

Interviewers used the same approach in both the group and individual interviews. Participants were invited to identify the first words or images they thought of when hearing the words 'risk', 'health' and 'health risk' (in that order). While the order of presentation of these concepts differed from that in the national survey, order had minimal impact on the frequency of first words or images identified by participants in the interviews. Responses varied: While some participants stated one word only, such as 'happiness', others provided a few images (e.g. 'diet, family doctor') or even more detailed comments, such as 'lack of problems with physical and mental health'. After they reported the first words or images they associated with each term, participants were invited to define the concept of 'health risk'.

Procedure

The University of Ottawa Research Ethics Board approved the measures and procedures used during the national telephone survey and semi-structured interviews. To respect the anonymity of participants, all names used in this article are pseudonyms.

National telephone survey

Word associations reported by participants were recorded as part of the computer-assisted telephone interview. Telephone interviews took place between February and March of 2004 and took approximately 30 min to complete. A thematic analysis was conducted on the word associations. The initial stage of the analysis was the grouping of associations according to semantic meaning (e.g. medical doctors were grouped with physicians). The researchers then reviewed and organised semantically grouped word associations into broader concepts, from which coding matrices were developed.¹ Word associations that did not clearly fit into any broader concept or that were difficult to interpret were categorised as 'other'. A second researcher then independently coded the word associations to assess the validity of the coding matrices. The level of agreement between the two coders was 84.7% for word associations with 'health', 85.3% for word associations with 'risk' and 90% for word associations with 'health risk'. The two coders discussed and resolved all discrepancies.

Semi-structured interviews

Sixty-two of the 73 participants were interviewed in groups. The group interaction created a dynamic exchange in which statements made by one participant often generated responses from others, leading to a discussion that stressed pivotal elements of their opinions (Gubrium and Holstein 2002). The remaining 11 participants were interviewed

individually in order to provide a more detailed assessment of individual perceptions and attitudes towards health risks. A trained qualitative researcher conducted the interviews to gain a better understanding of perceptions of and attitudes towards health risks. Before the start of the interviews, all participants were asked to provide their sociodemographic information. Group interviews were approximately 2 h in length, and individual interviews lasted approximately 45 min in length. Each interview was transcribed. Transcripts were then thematically analysed to identify emerging themes.

Findings

Word associations with health

National telephone survey

The majority of associations to health involved health care (21.3%), images reflecting a good state (or level) of health (15.9%) and lifestyle (13%) (see Table 1). Overall, the majority of word associations were positive in nature. For example, several word associations referred to good health or fitness, while others reflected desirable attributes, such as well-being (11.6%), functioning (2.9%), quality of life (1.4%) and the notion of health as life itself (2.5%) or as something that is valued (1.1%). The majority of references to mental states were to pleasant emotions, such as joy or happiness (2.9%). Some word associations were favourable in a broader sense by reflecting a general positive image (0.7%), such as being at the beach, harmony or purity. In contrast, fewer word associations were negative.

Table 1. Words associated to the word 'health' in a national telephone survey in Canada.

Concept	Frequency	Per cent	Examples
Health care	320	21.3	Hospital, doctors, health care
State of health	239	15.9	Healthy, fitness, good
Lifestyle	196	13.0	Eating healthy, exercising, active
Well-being	175	11.6	Well-being, wellness, feeling good
Absence of health	122	8.1	Sickness, cancer, illness
Health care system	66	4.4	Doctors, health care, hospital
Functioning	44	2.9	Energy, disability, capable
Body, body part	43	2.9	Heart, human body, kidney
Mental states	43	2.9	Happy, enjoyment, mental health
Life	38	2.5	Life, being alive, longevity
Prevention/awareness	36	2.4	Prevention, self-care, responsibility
Illness free	25	1.7	Not sick, no pain, disease free
Quality of life	21	1.4	Comfort, good living, enjoying life
Cost	20	1.3	Expensive, the cost, wealth
Valued	17	1.1	Important, fortunate, priority in life
Environmental	15	1.0	Pure air, environment, outdoors
Family/community	14	0.9	Daughter, family, my children
General positive image	10	0.7	Harmony, purity, peace
Work	8	0.5	Job, employees, work
Emergency	7	0.5	Accident, bomb, emergencies
Age	4	0.3	Elderly, old age, old person
Other	11	0.7	Solely, six-letter word, India
Don't know/no answer	29	1.9	
Total	1503	100	

Note: Word associations categorised as 'other' did not clearly fit into any broader concept or were difficult to interpret.

The more limited number of examples includes the absence of health (8.1%) and emergencies (0.5%), further emphasising the value of health and its maintenance.

Many associations reflecting individual control or action emerged, such as references to lifestyle (13%) and prevention/awareness (2.4%), suggesting that some participants considered health to be a personal responsibility. The global nature of health was also evident, although to a lesser degree. Environmental word associations included references to the health of the environment or to the global environment in general (1%), while family/community word associations appeared to link health to the family, others or the wider community (0.9%). Other word associations included the anatomy or the human body (2.9%).

Semi-structured interviews

As in the telephone survey, many participants referred to health care (a variety of ideas associated to a biomedical perspective of health and health services or health professionals) and lifestyle (individual behaviours related to diet, fitness) in relation to 'health'. Participants also discussed notions of well-being, being illness-free, quality of life, length of life and functionality (that is being physically and mentally capable to independently accomplish usual daily activities). For instance, Amy noted that the word 'energy' first came to mind in relation to health, as she thought about a woman she had once known who was very energetic.

Interestingly, several of the themes within the interviews were framed in terms of ageing. Dan commented on his realisation of the importance of health and functionality, stating:

When I was younger, I had my head in the sand, expecting to be Superman forever. As the years have ... particularly in the last 10 years, I guess, I have come to realise just how important good health and bodily functions are.

The positive images held by the majority of participants demonstrated the perceived importance and value of health. As Mike explained:

Yes, that's the first thing I thought of. Just the word health, I was thinking of it in a positive way about being healthy. I didn't really associate it right away with bad health.

Chris, who was in the same group, similarly noted:

When you mention the idea of health, the thing that comes to mind immediately is good health, not bad health. And this is one of the best, also one of the most precious, maybe, things that somebody can treasure.

However, other participants associated health with positive and negative images at the same time. Andy, for instance, initially thought about how beautiful and healthy his daughter was, but compared this with how bad a job he felt he was doing regarding his own health when he looked in the mirror.

Women tended to associate health with positive images, such as happiness, while negative associations were more common in interviews with men. Men were also more likely to associate health with the idea of actively making choices to control their health.

Alluding to the notion of personal agency, as well as individual control and prevention, Jim noted:

It's one of the few things that you really can control by virtue of your diet, by virtue of your lifestyle, your stress level, your exercise level – a whole compendium of things. But it is definitely something, the one thing in your life that I think most people have an option to control. And right now, my perception is that we're not doing a great job of it.

By contrast, associations between health and personal responsibility for health were only evident in one woman's interview. Contrary to the survey findings, which indicated that both men and women associated health with individual control or action, the interviews pointed to a notable gender difference in this area. Nonetheless, some men did associate health with external, less controllable factors, as demonstrated by their references to the environment and its potential to undermine health (e.g. air and water pollution).

Word associations with risk

National telephone survey

In the telephone surveys, the word 'risk' was commonly associated with negative items, such as illness and health conditions (21.8%), followed by danger and threats (11.4%) (see Table 2). This was evident in a number of associations, including references to accidents (9.4%), the undesirability of risk (1.6%), fear (1.5%) or potential losses (1.5%). Few of the word associations referred to positive aspects of risk (0.7%). Some participants even referred to the threat to future generations (0.7%). Furthermore, some of the associations expressed the pervasiveness of risk as part of life (1.5%).

Some associations were made between risk and money or chance, as illustrated by references to financial risk (5.6%) as well as gambling or gaming (2.5%). Other associations referred to decision-making and probability rather than to (negative) outcomes, such as those involving references to chance/probability (1.7%), evaluations of risk (1.6%), level of risk (1%) or the uncertainty of outcomes (0.9%).

There were also some associations with individual choice and personal control, responsibility or agency, as observed in references to individual lifestyle (9.6%), mitigation of risk (3.9%), transportation risk (e.g. the act of driving, at times, recklessly 3.3%), taking risks (3.1%), sport risk (2.6%) and lack of caution (1.1%). Other participants associated risk with external factors, such as health care (4.1%) or law and governance (0.6%).

Finally, some participants associated risk with specific types of hazards. This was observed in associations related to the environment (0.7%), which included references to environmental hazards or pollutants; associations related to social risk (0.5%), which included references to social adversity such as living alone, poverty or crime; and associations related to work risk (1.1%), which included references to workplace hazards or dangerous professions.

Semi-structured interviews

As in the telephone surveys, participants in the semi-structured interviews associated risk with danger or threat to one's health or life. One participant noted that, when he was asked about risk, he immediately thought of health risks. All except one female participant and most of the male participants made this association. There was a tendency for women to associate risk with hazard and danger, as illustrated by references to something that is life

Table 2. Words associated to the word 'risk' in a national telephone survey in Canada.

Concept	Frequency	Per cent	Examples
Illness or health condition	327	21.8	Cancer, heart attack, death
Danger and threats	171	11.4	Danger, dangerous, hazard
Lifestyle	144	9.6	Smoking, drugs, diet
Accidents	141	9.4	Accident, fire, falling
Financial risk	84	5.6	Financial, money, stocks
Health care	61	4.1	Doctors, ambulance, hospital
Mitigation of risk	59	3.9	Careful, avoidance, prevention
Transportation risk	50	3.3	Auto, driving, speeding
Taking risks	46	3.1	Take a chance, taker, out on a limb
Sport risk	39	2.6	Bungee, rock climbing, sports
Gambling/game	37	2.5	Casino, board game, gambling
Chance/probability	25	1.7	Chance, odds, probability
Evaluated worth of risk	24	1.6	Cost, acceptable, making choices
Undesirable	24	1.6	Not good, problem, set back
Fear	23	1.5	Fear, scary, panic
Potential losses	23	1.5	Loss, jeopardy, potential for illness
Risk is part of life	23	1.5	Everyday life, everything, living
Lack of caution	17	1.1	Careless, negligence, stupidity
Work	17	1.1	Dangerous job, my work, work
Level of risk	15	1.0	High risk, zero, no risk
Uncertainty of outcome	14	0.9	Thin ice, uncertainty, unpredictability
Environmental	11	0.7	Bad environment, pollution, air
Future generations	10	0.7	Baby, youth, kids
Positive aspects of risk	10	0.7	Adventure, challenge, opportunity
Law and governance	9	0.6	Government, lawsuit, liability risk
Social risk	7	0.5	Street crime, class, violence
Age	4	0.3	Age, elderly, old age
Other	18	1.1	Acre, similar, tardy
Don't know/no answer	70	4.7	
Total	1503	100	

Note: Word associations categorised as 'other' did not clearly fit into any broader concept or were difficult to interpret.

threatening, being frightened, the image of the skull and crossbones, and generally dangerous situations.

However, in interviews with men, risk was sometimes associated with positive items, such as challenge, excitement or thrills. For example, Dan described risk as 'thrills, spills, excitement, action, adrenaline'. In a small number of interviews, participants juxtaposed positive and negative associations. Following references made by many women in the same group to threatening aspects of risk, such as danger or lack of control, one woman noted that she associated risk with 'taking a chance, yes'. However, this was an exceptional case, as women were more likely to associate risk with negative items.

In line with their associations with health, men's associations with risk emphasised their agency in terms of deliberately adopting practices or behaviours in an effort to exert some control over risks, for example, through evaluation, control, prediction and responsibility. Adam, on the other hand, had a more nuanced perspective, based on a consideration of both controllable and uncontrollable aspects of risk:

With regards to personal health, I always analyse whether a risk is modifiable and if there are chances that I can or someone is able to do something to prevent it. And is it a non-

modifiable risk despite it being important to have at least a notion? The largest focus is on what risks are modifiable and do I recognise them first, and if I recognise them, am choosing to do something? Am I the one taking responsibility or am I deciding that someone else will take responsibility to protect me?

In interviews with both men and women, participants associated risk with lifestyle or everyday activities, often referring to smoking, taking drugs, driving fast, risky sexual practices or extreme sports. However, a greater number of associations reported by men reflected positive aspects of risk or one's willingness to actively manage risk as opposed to remaining passive. Furthermore, only men explicitly referred to the potential benefits of risk, with one man even noting that he '[had] always taken risk and encouraged [his] children to do so as part of the learning, the process' following a discussion among several other men in his group on the role of choice with regards to taking risks.

Word associations with health risk

National telephone survey

In the telephone surveys, participants most frequently associated health risk with negative issues, such as bad outcomes (see Table 3). For example, they associated health risk with words that reflected illness or health conditions (28.3%), damaging/bad attributes (2.1%), danger and threats (3.3%), concern or fear (1.1%) and loss (0.7%). Participants also associated health risk with various determinants of health, such as lifestyle (27.9%), health care (11%), environmental risk (4.8%), socioeconomic conditions (1%) and genetic risk (0.2%). In addition to lifestyle, participants linked health risk to words indicating individual responsibility for health, such as prevention and awareness (3.3%), lack of caution (1%) and risk taking (0.9%). Thus, they tended to link health risks to factors over which individuals have control more so than factors that are less controllable but may nevertheless greatly influence health, such as material and social deprivation.

Semi-structured interviews

Interview participants associated health risk with a variety of issues. Group interviews created discussions that resembled a brainstorming exercise, with participants reacting to the answers of others by adding more associations. While participants found it easy to associate health risk with other words and images, they found defining health risk more challenging. They tended to provide examples of what they considered a health risk, such as pollution, various lifestyle factors or accidents, rather than define the term. The group facilitator had to ask probing questions to elicit participants' defining criteria of health risk.

In the interviews, there was agreement that health risk involved vulnerability and a threat to an individual's life or health. Participants viewed health risk as something negative, which might in turn be associated with factors such as lifestyle, the environment or accidents. For instance, Gilda initially reported thinking about things like smoking, junk food and watching television, and later defined health risk as '[choosing] to do something where you knew that the result might be negative/.../for your body or your mind... and health'.

Interview participants suggested that age influenced individual awareness of and vulnerability to health risk. A participant in one group interview with men noted,

Table 3. Words associated to the phrase 'health risk' in a national telephone survey in Canada.

Concept	Frequency	Per cent	Examples
Illness or health condition	425	28.3	Disease, cancer, heart problems
Lifestyle	419	27.9	Smoking issues, bad food, lifestyle
Health care	165	11.0	Hospital, doctors, health care
Environmental	72	4.8	Pollution, poison, clean air
Prevention/awareness	50	3.3	Warning, be conscious, informed
Danger and threats	50	3.3	Danger, hazard, menace
Damaging/bad	32	2.1	Damaging, destructing, trouble
Accidents	24	1.6	Accidents, fire, disaster
Things at stake	21	1.4	Life, well-being, joy
Concern or fear	17	1.1	Scary, fear, concern
Lack of caution	15	1.0	Imprudence, stupidity, negligence
Work	15	1.0	Work safety, work, work hazards
Socioeconomic conditions	15	1.0	Money, gangs, society in general
Risk taking	13	0.9	Jeopardising, taking chances
Exposition/contagion	13	0.9	Contagious, epidemics, exposure
Level of risk/probability	13	0.9	Figures, chances, low risk
Loss	11	0.7	Loss, loss of well-being
Government responsibility	9	0.6	Government inaction/cut-back
Everything is a risk	7	0.5	Inevitable, everything, reality
Age	6	0.4	Old age, senior, elderly
Future generations	6	0.4	Child, family, hindering future
Uncertainty	5	0.3	Unknown, taking unknown thing
Industry and legal issues	4	0.3	Industry, lawsuit, corporate agendas
Genetics	3	0.2	Heredity, mutations
Other	22	1.5	Don't question, systemic, red
Don't know/no answer	71	4.7	
Total	1503	100	

Note: Word associations categorised as 'other' did not clearly fit into any broader concept or were difficult to interpret.

You're talking to a group of people who are in their 50s and 60s. I think you'd probably get a very different reaction if you were talking to people in their teens and 20s.

Elsewhere, Tina discussed the ways in which getting older had increased her concerns about health risk, especially the threat of Alzheimer's disease and a lack of autonomy. Along the same lines, Kirsten noted in another interview:

I do think, though, that when you think of the life cycle, health risks as you perceive them become different at different age levels.

When compared to women, men were more likely to spontaneously associate health risk with notions of personal agency, such as conscious action or decision, control and prevention. This issue was discussed at length among men in one group interview. Regarding some of the health risks he had faced, Will noted:

The risks that I've taken with my health have been living in the Third World for about 14 years and going through hepatitis and malaria a number of times... Again, the willingness of taking that risk was always there. And it was thought about and then experienced, and you go on.

Following this, Phil added:

The term risk implies to me almost a quotient of manageability. I can choose to take a greater risk or a lesser risk.

Later, David referred to the 'self-inflicted' nature of exposure to some health risks, saying:

Well, I think it's mostly lifestyle and, in our culture, probably self-inflicted in terms of how healthy you want to be, how much exercise you want... How conscious you are about your diet, your food supply and... But I mean there's a risk in driving to work every day and, I guess we, I guess I imagine that these are what you say manageable risks or calculated risks, or they're behavioural in some way...

Thus, men, in particular, associated health risk with taking responsibility for one's health, even though such an association had not been evident in their associations with health in general.

When compared to men, women did not spontaneously associate health risk with personal agency or responsibility. However, they did refer to such issues when invited to define health risk. Like Gilda above, Jane defined health risk as:

When we are conscious that we abuse of something and we are aware that it is a risk for our health, for our body, our body speaks to us and we don't listen.

In a few cases, both men and women associated health risk with an absence of agency and control, using words such as uncontrollability, unavoidable, unpredictability or referring to uncontrollable environmental factors such as pollution, SARS, West Nile virus or mad cow disease. Eddie discussed health risk in terms of both factors that an individual can control and exposures to hazards that they cannot control in the following way:

Well, I suppose [health risk] is anything that is potentially injurious to your health. You could make... I could see making a distinction between health risks that are conscious or that you are aware of and health risks that you are not aware of. If there is lead in the paint in your house and you are unaware that there is lead in paint, that is still a health risk. But I suppose you could make the argument that it is a different kind of health risk than one like smoking or drinking too much or intravenous drug use or whatever...

For Adam, health risk was something that could coexist with health if it was controlled. He endorsed the view that representations of health risk varied with age, although he alluded to the interplay of perceptions of control, explaining that:

My concept has changed a little because [health is] larger than that. It's not only the absence of physical, emotional, social disease, but you can also have a medical condition and still have health. I can have diabetes that is very well controlled... As we get older we change our perspective as well.

Lastly, Victoria described the ways in which ageing and her grandparental responsibilities shaped her definition and management of health risks:

I was very adventurous on many fronts before getting married, having kids, but now, I tell myself it's taking a risk. Now, I am grandmother and sometimes, I place certain restrictions on myself. I tell myself, oh well no, my grandchildren need me... But, on the other hand, I am going back to the philosophy that I had before.

In general, the participants viewed health risk in negative terms, although they recognised the role of individuals in responding to such threats. On the other hand, subtle variations were observed according to the age and gender of participants. There was agreement that vulnerability to health risks increased with age. However, women were less likely to focus on the idea of actively making choices to control health risks and less frequently made references to the positive aspects of health risks compared to men.

Discussion

For this article, an analysis was conducted on data collected as part of a broader Canadian study in an effort to improve understanding of representations of health, risk and health risk. Specifically, the analysis focused on word associations that were elicited as part of a national telephone survey and during semi-structured interviews. It was found that the participants associated health risk with a threat to personal well-being, but that they emphasised the role of individuals in responding to such threats. At the same time, subtle variations were observed among participants in semi-structured interviews, which pointed to important differences in relation to age and gender. There was agreement that vulnerability to health risks increased with age. However, women were less likely to focus on the idea of actively making choices to control health risks and less frequently made references to the positive aspects of health risks.

Word associations with health, risk and health risk

Representations of health risk were different from those of health and risk, suggesting that Canadians view health risk as a construct distinct from the two component terms. Whereas representations of health were often positive in nature, representations of risk and, to an even greater degree, health risk were largely negative, with both terms being associated with a degree of personal threat or danger. Berry (2004) noted that the term risk was increasingly used in relation to negative or dangerous events in the second half of the twentieth century. In one study of Australians, Lupton and Tulloch (2002a) found that many participants defined risk in negative terms. Still, there were a few who acknowledged the positive aspects of risk, such as adventure, challenge or sport (Lupton *et al.* 2002b). Similar results were found in a study of youth residing in a low-income town in England (Green *et al.* 2000).

One possible explanation for the increasingly negative representations of risk may relate to the emphasis placed on health and safety in discourse on risk, with a high value being placed on health (Hughner and Kleine 2004). Accordingly, the review of research on individuals' representations of health by Hughner and Kleine (2004) emphasised both positive and negative views of health. Positive views highlighted the value that individuals place on health, while negative views focused on what an absence of health entails, such as illness and inability to carry out daily responsibilities (Hughner and Kleine 2004). With health at stake, the notion of being in danger may assume more prominence (Reventlow *et al.* 2001). From the overwhelming number of positive word associations and, more explicitly, the emergence of references to value in response to 'health' in the present study, it was clear that health was valued and desired. Both the telephone survey and semi-structured interviews indicated that participants associated health with health care and the healthcare system. This may reflect the centrality of the healthcare system in Canadian discourse on health, with increasing debate regarding wait lists, access to health care, the sustainability of the system in the

context of an ageing population and the overall need for a renewal of health care in Canada at the time of the study (Health Canada 2004, CBC News Online 2006, Dhalla 2007, Wister 2009).

Associated with health, risk and health risk were issues of controllability and personal agency, as reflected in the high proportion of word associations reflecting lifestyle or behavioural influences on risk. Word associations reflecting factors outside of individual control, such as social or material deprivation, were largely overshadowed by this theme. In terms of health, the importance of taking responsibility for one's health was evident in a previous study of laymen's understanding of health and well-being (Robertson 2006). Similarly, Murray *et al.* (2003) found that lifestyle was the most dominant discourse used to define health in interviews with Canadians. Regarding risk, the proportion of word associations that referred to lifestyle or social risk in the national survey was greater than the proportion of word associations that reflected these themes in a similar previous Canadian national survey by Slovic and colleagues (Slovic *et al.* 1993, Krewski *et al.* 1995a, 1995b). This finding may be indicative of the increased emphasis placed on lifestyle and the social environment as determinants of health (Krewski *et al.* 2006, 2007, Lee *et al.* 2008). Interestingly, results of a previous analysis of coverage on cancer risk and prevention in Canadian print media revealed a strong emphasis on individual choice and lifestyle change, as well as a minimised importance of social and environmental determinants of health. This was attributed to prevalent discourse in Canadian society on individual responsibility for the management of health risk (Musso and Wakefield 2009).

One interpretation of the prominence of lifestyle in representations of health, risk and health risk may relate to its widespread recognition as a health determinant among the public, as well as prominent discourse regarding the role of individual choice and agency in public health (Blaxter 1990, Wight 1999, Joyce 2001, Wikler 2002, Coxhead and Rhodes 2006, Lemire *et al.* 2008, Musso and Wakefield 2009, Dallaire *et al.* 2012). By contrast, the apparent underrepresentation of associations with environmental and socio-economic hazards may reflect Beck (1992) and Giddens' (1991) view that fate and the notion of environmental risk have been greatly reduced in modern conceptions of health risk. Rather, there has been increasing emphasis on manufactured or technological risk, which involves a high level of human agency in the production and mitigation of risk. Such findings tend to support Lupton's (1995) argument that contemporary public health is dominated by two competing explanatory frameworks: in one, risk to public health comes primarily from external hazards that individuals do not control and, in the other, risk is a product of individual action, such as 'lifestyle' choices, which individuals can and should control.

Mendelsohn (2002, p. 7) noted the 'gradual shift in Canadians' values towards preferring greater personal autonomy, empowerment and the desire to make choices on their own in a wide range of areas'. The observed prominence of individual control and responsibility (as opposed to external social and environmental factors) in Canadians' representations of health risk may be the result of such a shift. However, it may relate to the widespread tendency for people to attribute events to internal rather than external causes (Ross 1977). It should be noted, however, that the reflection of this perspective in Canadians' health risk representations is not necessarily indicative of the public's acceptance or demand for this approach for the management of health risks. In fact, it was only upon being asked to define the concept of health risk in greater detail that discourse on the importance of individual responsibility regarding health risk emerged. As well, although to a much lesser extent, representations of health risk involving social and environmental

risks did emerge, suggesting that these are recognised by some individuals. Whether it stems from current trends in health campaigns and policy or fundamental behavioural dispositions, an overemphasis on individual responsibility could nevertheless have detrimental impacts by stigmatising individuals who are ill or unjustly exposed to health risk (Guttman and Ressler 2001), or by overshadowing the need to address the environmental or socioeconomic forces that may lead to disproportionate exposure or vulnerability to health risk in the first place.

Age and gender variations

In the semi-structured interviews, participants linked health, risk and health risk with individual control and responsibility. However, there were differences between the participants in these links. Participants' discussions of individual control and responsibility varied in relation to their age and gender. As James and Eyles (1999) have shown, women were less likely to focus on the idea of actively making choices to control their health compared to men. In line with the dominant view of women as more risk averse than men (Arch 1993), women also less frequently made references to the positive aspects of risk. The tendency for women to be more concerned about health risks and to view themselves as having less control over them, compared to men, has been documented previously (Krewski *et al.* 2009) and has been attributed to a wide range of factors, including biological differences, educational attainment, sociopolitical factors and social roles (Gustafson 1998, Finucane *et al.* 2000).

This greater aversion to risk and lesser propensity to think about individual control in relation to health risks among women could be connected to gender differences in social expectations regarding risk-taking for men and women (Thom 2003). Expected to play a primary role as caretaker, women may be less inclined to feel they are at liberty to take risks to their health – a sentiment expressed by Victoria, who reported having restricted her activities in order to assume her familial role. As well, meta-analyses have shown that men are more likely to take risks than women in several domains (Byrnes *et al.* 1999). Such observations have been attributed to gendered socialisation processes related to risk behaviour, with greater encouragement of risk-taking for boys relative to girls (Morrongiello and Dawber 2000, Morrongiello and Lasenby-Lessard 2007).

References to ageing were found in a few discussions about health risk. In one case, the process of ageing itself was regarded as a health risk by limiting one's individual autonomy. At the other end of the spectrum, ageing and the life experiences that come with it helped Adam adopt a different perspective on his health and on his perceived ability to live with health risk, thereby casting light on the potentially empowering nature of ageing in the context of health risk. Finally, ageing had an impact on the types of decisions Victoria described making to control her exposure to health risks throughout her life as her family role evolved. Together, these observations point to an interesting dynamic between ageing, individual control and representations of health risk, which warrants greater attention. A number of studies have examined health risk perceptions and behaviours in adolescence and young adulthood, some exploring factors predicting developmental trajectories (see, e.g., Arnett 1998, Millstein and Halpern-Felsher 2002, Teese and Bradley 2008). However, little work has focused on later life stages. Further research on the health risk representations, perceptions of control and health risk decisions of older adults would be fruitful to determine how these evolve over the life course.

Limitations

While the current study provides valuable insight into Canadians' representations of the concepts of health, risk and health risk, certain limitations warrant discussion. First, although word associations were elicited from a large number of individuals in the survey, it was sometimes difficult to interpret findings due to the brevity of responses. Consequently, results based on the survey provided a rather broad and simplistic snapshot of Canadians' representations of health, risk and health risk. With additional information on the context and meaning of individuals' responses during the interviews, however, it was nevertheless possible to conduct a deeper analysis of individual representations of these concepts. Second, it is unknown to what extent representations of health risk have changed over time in Canada. Additional research is required to monitor such changes in the future.

Conclusion

In line with public health discourse emphasising individual responsibility for health (Blaxter 1990, Wight 1999, Joyce 2001, Wikler 2002, Lemire *et al.* 2008, Musso and Wakefield 2009), the findings of the present study point to the high value that Canadians place on health, as well as the strong sense of control and personal agency that they place over health risks. At the same time, findings indicated important variations in terms of sense of control and personal agency. Specifically, such variations were shaped by gender and age, and could reflect differences in social roles and life stages. In future research, it may be of interest to more explicitly address how representations of health risk vary along these dimensions throughout the life course.

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Note

1. The coding matrices included a list of themes that emerged in responses to the word association questions. These were derived by the primary author and include the themes listed in Tables 1–3 for health, risk and health risk, respectively. To evaluate the coding matrices, a second independent researcher selected the theme from these lists that was the best fit for each response.

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