Article

Chilean Men Exposed to the Major Earthquake in 2010: Investigation of the Impacts on Their Health

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Abstract

The article presents the results of a study involving 18 men, 4 years after one of South America's most powerful natural disasters: An earthquake occurring off the coast of Chile in February 2010. Participants reported having developed new psychological health problems in the months following the catastrophe. The manifestations most frequently reported by participants were the presence of depressive and stress symptoms, as well as sleep disorders. The majority of participants registered scores of 33 and above on the *Impact of Event Scale–Revised*, indicating that they were suffering from posttraumatic stress. Furthermore, although the majority of interviewed men reported having suffered psychological or physical health problems following the disaster, only a small minority had sought help from professional health services. The article develops insights into the men's social interactions and underlines the importance of supporting further research on red health topics, in particular the help-seeking behavior of men following exposure to natural disasters.

Keywords

men, psychological health, physical health, help seeking, earthquake, tsunami

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Introduction

Studies have reported that disaster events can have significant impacts on the physical and psychological health, as well as the social and professional lives, of survivors (Kim, Plumb, Gredig, Rankin, & Taylor, 2008; Kozlovskai et al., 1991; Labra, 2015; Labra, & Maltais, 2013; Lalande, Maltais, & Robichaud, 2000; Maltais, Côté, & Gauthier, 2007; Maltais & Simard, 2008; Wang et al., 2007). Udomratn (2008), for example, in a study of the psychological and social consequences of various natural disasters, indicates that the prevalence of posttraumatic stress (PTS) in survivors ranges between 8.6% and 57.3%, independent of such variables as the length of time between the disaster event and data collection, the type of disaster or its intensity. Certain authors, in addition, have noted an increased incidence of depressive and somatic symptoms, emotional distress, memory problems, and heightened anxiety (Arnberg, Eriksson, Hultman, & Lundin, 2011; Auger et al., 2003; Maltais, 2003; Maltais, Robichaud, & Simard, 2001; Suzuki et al., 2011). Catastrophe survivors can also manifest functional difficulties in their social roles and in the performance of daily activities (Yates, 1992). Work, leisure, studies, and social activities are often modified and even abandoned because the efforts required to restore the life environment are overwhelming. In terms of behavioral effects, many studies have noted changes in the consumption of prescription and nonprescription medication, alcohol, and drugs, in particular among men (Auger et al., 2003; Dugal et al., 2012; Lajeunesse et al., 2013; Maltais, Lachance, & Brassard, 2002; Tremblay et al., 2005). These various difficulties can persist over significant

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periods of time, endangering the psychological and physical health of survivors (Maltais et al., 2001) and, significantly, the elevated substance consumption patterns are more prevalent among men than among women.

Many determinants affect men's engagement with their physical and psychological health, whether in the course of daily life or after exposure to a traumatic event. Kolmet, Marino, and Plummer (2006, as cited in Bizot, 2013, p. 16) concluded that male study participants were both interested in and well informed on their health, including conditions such as stress and burnout. Consequently, the authors argue that health professionals would be wrong to design interventions based on the assumption that men are disinterested in their health. Robertson (2006), in a study of 20 male participants (aged 27-43 years) and 8 health professionals, arrives at a similar conclusion, asserting that men exhibit feelings of responsibility toward their bodies.

However, many men dissimulate and deny symptoms of illness over long periods of time, independent of severity (Charmaz, 1994). In doing so, they adopt various strategies, such as flight, in order to avoid revealing their problem, and wait until they reach the limit of their capacities to withstand hardship, sometimes until the situation becomes critical, before actively seeking help (Banks, 2001; Dulac, 2001; Rondeau, 2004). Moreover, men appear to be particularly susceptible to risk factors associated with psychological distress, such as socioeconomic difficulties, material precariousness, relationship breakdown and celibacy, family difficulties, lack of awareness of social and health services, not having a family physician (Roy et al., 2015), experiences of rejection and repression on the part of health personnel who consider men's behavior to be less compliant with interventions, and having lived in an underprivileged environment (Lacourse, 2005). Thus, more men than women reported low levels of social support, particularly in the 25 to 44 age group (Roy et al., 2015). While a study by Bizot (2013) identifies that fewer men (5%) than women (9%) reported significant symptoms of psychological distress, men continue to have higher suicide rates than do women; in the Québec region of Saguenay, for example, men account for 80% of annual suicide deaths. Tremblay et al. (2015), for their part, indicate that conditions such as stress, mood disorders, anxiety, and psychological distress are less frequently reported by men than by women. Importantly, it has been noted in disaster contexts that levels of satisfaction with help obtained have an incidence on post-disaster psychological health (Maltais, Lachance, Brassard & Dubois, 2005). As reported by a number of authors, men are less in the habit of speaking about their emotions and, consequently, are less likely to rely on social support networks, notwithstanding the benefits such support can provide (Houle, 2005; Staudacher, 1994). Twice as many men as women report not relying on a confidant (14.3% vs. 7.6%; Bergeron & Cloutier, 2005, p. 51). According to Tremblay, Fonseca, and Lapointe-Goupil (2003), men are less inclined than women to seek psychosocial help.

Men appear generally hesitant to ask for help, whether from their family, friends, or professional services (Tremblay et al., 2015), especially in the case of mental or emotional difficulties (Houle, 2005). However, the studies of Bizot, Moisan, and Viens (2013), Noonee and Stephens (2008) and Kolmet et al. (2006) report that increasing numbers of men are preoccupied by their health and adopt more measures than previously to safeguard and improve it, including physical activity and new dietary habits. Conversely, social pressures can also push men toward overwork and certain high-risk physical activities whose negative affects they minimize (Bizot, 2013). However, it appears that unemployed individuals are those most at risk of psychological distress, including the risk of suicide (Saint-Laurent &Tennina, 2000).

Men's traditional modes of socialization appear to be at the root of many difficulties (Rondeau, 2004). As Nantel and Gascon (2002) have observed, the male identity is frequently perceived as necessarily independent and invulnerable. Thus, rigid and restrictive gender roles assimilated through socialization not only hinder individuals from attaining their full human potential but also become a source of stress, tension, and role conflicts. For example, the quest for autonomy as a vector of male identity can induce men to distance themselves from help and health services when they find themselves in a position of vulnerability (Roy et al., 2015). For his part, Dulac (2001) considers male socialization to be an inhibitor of male help seeking, adding that soliciting help can be socially interpreted as a sign of weakness and nonmasculinity. Asking for help requires individuals to reveal their private lives and exhibit their weaknesses, whereas masculine values advocate concealing one's private life and exhibiting only strength (Dulac, 2001). A recent study confirms numerous men's reticence in seeking help (Tremblay et al., 2016). It is important to note that help seeking is part of a complex process that, as described by Gross and McMullen (1983, as cited in Turcotte, Damant, & Lindsay, 1995), involves three distinct stages: (a) perception of the situation as a problem that may benefit from external help; (b) decision to accept the problem and remedy it, either alone or by seeking help; and (c) enactment of strategies to obtain the necessary help.

Numerous researchers have noted that the physical and psychological health of survivors is significantly affected by exposure to natural disasters (Denissen, Butalid, Penke, & van Aken, 2008; Kim et al., 2008; Lachance, Santos, & Burns, 1994; Maltais et al., 2007; Vernberg, Silverman, La

Greca, & Prinstein, 1996; Wang et al., 2007), but few studies have inquired specifically into the impact of natural disasters on men and their health. The present article seeks to mend this gap by examining the experiences of 18 male survivors of a major earthquake and tsunami event that occurred in Chile in 2010.

The Chilean Earthquake of February 27, 2010

According to the U.S. Geological Survey, the tremor occurred off Chile's Maule coast, beginning at 3:45 a.m. local time, for a duration of 3 minutes, and attaining of 8.8 on the moment magnitude scale. It is listed as the sixth strongest seismic event ever recorded worldwide and the second strongest in Chilean history, exceeded in magnitude only by the great Valdivia earthquake of 1960. The earthquake affected the three regions of Biobío, Maule, and O'Higgins, whose combined population of 4 million people represents 23% of Chile's total population. The death toll was 521 (Ministry of the Interior and Public Security, 2010) and close to half the population of the three regions was directly affected. Chile's government estimates that 440,000 residences were either destroyed or severely damaged, with the overall costs of damages to private property and public infrastructures surpassed US$30 billion (CEPAL, 2010). Minutes following the offshore tremor, a tsunami propagated throughout the Pacific Ocean, reaching the Chilean coast. The tsunami was recorded as far away as Japan, where waves ranging between 1.20 and 1.50 meters flooded the coast 23 hours after the original earthquake. In Chile, the wave caused more deaths than did the earthquake (Martin et al., 2010).

The present study seeks to develop the current state of knowledge on the health of men who have been exposed to natural disasters by examining the Chilean disaster, which is characterized by a dearth of qualitative research into its effects on men's health. The existing literature on the effects of natural disasters tells us little about either the health of male survivors, impact on their personal and family relationships, or their quality of life. The results of the present study will reach researchers, students, and organizations delivering interventions to victims of disasters, with the aim of developing new avenues for intervention and research addressing men's health.

Conceptual Framework

The present study adopts a constructivist approach that seeks to trace the creation of meanings through which people construct their perception of reality. Whether descriptive, evolutionary, or genetic, constructivist epistemologies focus on addressing such questions as follows: How do we know what we know and how do we communicate what we know? (Zuñiga, 1993). For (Von Glasersfeld, 1988) the constructivist epistemology views the world as constructed by empirical experience and, as such, as unconcerned with ontological reality. Constructivism, therefore, holds that there are multiple realities, each dependent on an individual observer; these multiple realities are social, experiential, local, and specific constructs whose form and content are determined by the individuals who construct them.

Based on the work of Von Glasersfeld (1992) and Larochelle and Désautels (1992), Zuñiga (1993) summarizes constructivism by discussing three core ideas: (a) Its foundations lie in skepticism, which insists on the impossibility of validating knowledge acquired through experience by reference to knowledge originating from a different source; (b) Historical developments have also added instrumentalist theory as a means of rescuing religion and, subsequently, politics, limiting the researcher to methods and leaving broader explanations and the choice of societal action (social projects, orientations, priorities) to theologians and politicians; (c) An awareness of the constructed nature of concepts, the constructed nature of scientific facts in Labra (2013, p. 17).

The constructivist framework of the present study provides an epistemological perspective on a subjectivist position. The researcher and "the investigated" become a singular "monistic" entity; the results, therefore, are the product of interaction processes that link researcher and subject (Guba, 1990). In terms of methodology, the male participants' individual constructions are selected and refined hermeneutically and subsequently compared and contrasted dialectically.

Method

Based on the constructivist framework, a qualitative study design was elaborated in line with research objectives. The present study is exploratory in nature: its results are qualitative and indicative, based on a small sample of male respondents ($n = 18$) residing in the Maule region of Chile. The current state of knowledge on men's medium term health following natural disasters does not offer many points of reference in the Chilean context, where research into the impacts of catastrophic events on men's health, as well as family and social relationships, thus far has remained underdeveloped. Data collection for the present study were conducted through face-to-face, semi-structured interviews.

Before going further, it is important to define the concept of gender as it is understood in the present study. Thus, gender signifies socially recognized criteria that delineate the masculine and feminine characteristics of individuals. In other words, gender relates to a given society's cultural norms that, in emphasizing real and

imagined aspects of biological sex, come to regulate which ways of living, acting, thinking, and feeling are considered more appropriate to either men or women (Pleck, 1995, as cited in Tremblay & L'Heureux, 2010).

Participant Recruitment

The sample was constituted using a nonprobabilistic method described by Chauchat (1985, as cited in Mayer & Ouellet, 1991) as "empirical." Initially, three participants were recruited through contact with the president of the *Villa* Olímpica earthquake survivors association in Maule. All participants received comprehensive information detailing the goals and implications of the study, as well as information on how their anonymity would be maintained. Additional participants were recruited using the snowball method (Gile & Handcock, 2011; Goodman, 1961), based on references from the first participants interviewed. The snowball method proved highly successful for the purposes of the study, since each of the initial respondents was able to refer another participant who met the criteria necessary for inclusion in the study. Interview locations and schedules were established in collaboration with each participant. The data collection period extended between January and March, 2014.

Data collection were carried out by the lead researcher in semidirected, face-to-face interviews, which were recorded on audio media and transcribed integrally by a research assistant who was a native speaker of Spanish. Interviews addressed diverse themes and subthemes to draw a comprehensive portrait of respondents' perspectives on their life paths and the consequences of the catastrophe on various aspects of their lives (psychological and physical health, changes in personal, social, and family life, support received, and help seeking). Many of the questions used were originally elaborated as part of a study into the impacts of a natural disaster that affected rural Quebec in 1996 (Maltais, Lachance, Brassard, & Picard, 2002). The instrument used for the purposes of the study was a Spanish translation of a French-language questionnaire developed by Maltais, Lachance & Brassard (2002a); double back-translation method was employed to ensure instrument validity. The analysis also took into account a number of additional themes emerging from participant interviews. Respondents' sociodemographic characteristics were collected through a short questionnaire composed exclusively of closed questions. This same instrument was used to administer the *Impact of Event Scale–Revised* (IES-R; Weiss, 2007), which serves to identify the presence or absence of PTS manifestations. The IES-R is composed of 22 items assessing intrusive experiences and avoidance responses in posttraumatic situations for which respondents were asked to indicate frequency of occurrence during the preceding week.

Data Analysis Plan

Collected data were processed by the lead researcher using the three-step content analysis method proposed by (Strauss & Corbin, 1990), consisting of codification, categorization, and interpretation of data. In order to identify *units of meaning* during the first step, successive readings of participants' testimonies were carried out so as to elaborate a codification of the body of collected data. The second step consisted in analyzing the codified data with the aim of identifying specific categories. In addition, the established codes were further linked, regrouped, and classified into more comprehensive categories. Last, the codified and categorized data were interpreted in light of the research questions.

Ethical Considerations

The present study was conducted in full observance of participants' human rights and in compliance with the fundamental principles asserted in the second edition of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (CRSH, CRSNG, & IRSC, 2010). The study did not pose risks for the psychological health of the participants.

Respondents' nominative data were retained on paper in a locked file cabinet accessible only to one designated member of the research team. All participants were attributed pseudonyms to ensure their confidentiality during data analysis and interpretation. The interview transcripts and database will be destroyed 5 years after the conclusion of the study. A consent form, approved by the ethical research committee at Université du Québec en Abitibi-Témiscamingue, was presented to participants prior to each interview. All respondents participated on an entirely voluntary basis and could at any time and without consequence opt out of the study without justifying their decision (see Table 1).

Results

Eighteen interviews were conducted with men who had been exposed to the earthquake and tsunami event of 2010 in Chile. The interviews produced a diverse set of testimonies that are rich in information on participants' experiences as male survivors of a catastrophic event and offer a broad view onto men's health and help seeking following a natural catastrophe. The collected data were classified in four broad categories: (a) individuals' actions and reactions during and following the earthquake, (b) behavioral changes following the event, (c) impacts on

Table 1. Characteristics of Interviewees.

Characteristics	*N* = 18
Gender	
Male	18
Age, years	
21-40	7
41-60	6
61-80	5
Studies	
Primary education	3
Secondary education	13
University degrees	2
Marital status	
Married (with children)	17
Single (without children)	1
Occupation	
Work full-time (transport, fisheries, plumbing, security, etc.)	12
Professional work (education)	3
Study full-time/part-time	1
Retired	2
Exposure	
Earthquake	10
Tsunami	8
Mental distress	
Current cases	13
Noncases	5

respondents' physical health, and (d) impacts on their psychological health.

Actions and Reactions During the Earthquake

Saving and Protecting Loved Ones. Respondents reported three types of actions or reactions during the catastrophe. One was to protect, rescue, and care for family members. Men who reported taking this type of action (n = 11) primarily acted to safeguard their children and spouses from perils arising from the catastrophe, moving them away from danger, and attempting to provide a calming presence.

> [. . .] 27th February! My reactions were first of all to care for my family. My daughter was overwhelmed! She was crying, she was screaming. She finally threw up in the yard, that's where we went to find shelter. The only thing I did just automatically was to take care of my family, to rescue the people closest to me: my wife and my two children. What was most difficult was calming my daughter and my wife; for the rest everything went OK. (Rodrigo)

Uncertainty Over the Health of Loved Ones Residing Elsewhere or Who Were Not in the Family Home During the Event. A second type of reaction reported was worry about the safety of family members who were not at home at the time and those who resided outside the city or in the coastal region affected by the tsunami. These respondents' (n = 7) main concern was whether their family members had survived the events. They endured hours and, in some cases, days of distress without news on the health of their loved ones. The act of taking responsibility for the well-being of their own nuclear family combined with the concern they felt for other family members elsewhere, elevated these men's stress levels, as they appear to have felt responsible for rescuing all their loved ones, despite the overwhelming chaos of the situation. Juan's testimony is telling in this regard:

> Not being able to help my family and my mother, they were at their house during the earthquake, it distressed me tremendously, not knowing if they were safe. What was happening to them? These were very difficult moments but I didn't want to share that with my wife and children, I didn't want them to worry even more.

Spiritual Concerns. The third type of reaction to the situation related in interviews, by three respondents, was prayer; for these men, praying for the security of their household possessions as a means of limiting material damages occupied an important place during the disaster:

> [. . .] My house is old, it was built at least 75 years ago! But I take good care of it! I didn't know if it would resist all the shaking during the quake. That house is what brings us together as a family. That's why I prayed for it all to stop, so that the damages wouldn't be too severe! (Rodrigo)

Reactions After the Earthquake

Finding Shelter. Participants' reactions in the days and weeks that followed seem to have varied in relation to their distance from the epicenter. For example, those living in villages in areas devastated by the tsunami sought refuge in nearby hills (n = 6), where they stayed for several weeks afterward. Those more directly affected by the earthquake, first sought to leave the buildings they were in at the time, escaping toward the outside (n = 12). Once the tremor had passed and a measure of calm had returned, some were able to find refuge with their extended families.

> [. . .] We thought about going to a hill, this one called O'Higgins [. . .] But the earthquake was so big, I told my wife: you go up first and I'll join you on Mutrun hill [. . .] Mutrun is over 70 meters in height; so I said: the neighborhoods will be flooded and Mutrun is very high. We'll be safer there! And it even has places where helicopters can land to bring us food and water and everything! We were trying to escape the sea, stay alive and everything happened so quickly! So my wife, instead of going where I said, went

> to the other hill, O'Higgins [. . .] I finally managed to find her after a few days, I was so worried! [. . .]. (Carlos)

Aiding Those in Need. While women ensured children's safety and watched over family possessions, men ($n = 14$) brought aid and support to their neighbors (the elderly, women, children, and the incapacitated). Thus, the division of tasks was largely determined by male and female social roles.

> Once we found shelter, I rushed to help neighbors who needed a hand, helped getting them out of their houses, finding water and bringing food [. . .]. Here in our neighborhood everybody helps out. (Adolfo)

> We helped people who had no water and blankets. Even though it was summer, the nights were cold anyway! (Juan)

Life Changes Following the Disaster

Positive Feelings: Solidarity, Helping Others, and a Strengthened Sense of Spiritual and Family Values. The testimonies of respondents show that they experienced both positive and negative outcomes following their exposure to the disaster, both in the case of the earthquake and the tsunami. The diverse, positive outcomes of the disaster in men's personal lives, included an increased sense of solidarity with members of their community ($n = 6$), a strengthening of spiritual values ($n = 4$), as well as an increased frequency of contacts with relatives and friends ($n = 9$). In addition, the earthquake/tsunami appears to have resulted in an increased appreciation of family values for participants ($n = 7$), who consider that, since these events, the family occupies a greater place in their lives. The following excerpts are representative of their testimonies:

> My relationship with my wife and my family has improved a lot since the events. We spend more time together, we talk more than before. I feel that a lot has changed since. It's the same with my children, and it's been like this since February 2010! (Cristian)

> Since the earthquake, I value my family more, because I realized that I could have lost them during the earthquake [. . .]. (Ignacio)

Although the threat of death or injury has receded and things have slowly returned to normal, many of the interviewed men continue to experience persistent feelings of sadness.

> Now, and it's been like this for some time, the simplest things make me emotional. I often feel like crying. I don't think I was like this before and I don't know why I've become like this. I don't think it's a question of aging, I'm only 48. (Aurelio)

Three respondents stated during their interviews their family relationships returned to the same state as before the disaster and that nothing significant had changed: "We were very close after the earthquake, but this only lasted several months" (Humberto, 51). One respondent talked of a permanent separation from his wife 1 year following the event.

Negative Feelings: Elevated Stress Levels, Sleep Deprivation, Unprecedented Sense of Heightened Emotion and Sadness, Decrease in Social Interaction. Conversely, the earthquake/tsunami of 2010 seems also to have been at the root of a variety of relatively negative behavioral changes in the personal and social lives of the participants. For example, many ($n = 11$) related a long period of feeling a constant state of alert following the disaster. Other negative effects reported by participants included sleeping disorders ($n = 11$), manifestations of anxiety and nervousness ($n = 4$), and a decrease in the frequency of contacts with family and friends ($n = 4$).

> I think I have a sleeping disorder since the earthquake. Now I sleep very lightly. Before I slept really well, nothing could wake me up quickly! I could be let's say beside a loud tractor or anything else making noise could be close and I wouldn't wake up. But now, the smallest noises wake me up. There's all kinds of noises I hear when I'm falling asleep that make me think of those I heard the night of the earthquake in 2010; even today I still feel like this! If I hear a strange noise, the first thought that comes into my mind is that it might be another earthquake! It hurts. (Juan)

> One thing I feel happening now that was never part of my life before is that I feel as if constantly in a state of alert, as if another earthquake were about to happen all the time! For example, when night falls, I always make sure to unlock the front door in case we need to leave quickly, you see! (Carlos)

Perceptions of Physical Health

A More Fragile Health. According to respondents' testimonies, many physical health problems have appeared since their exposure to the earthquake/tsunami. They therefore considered that their health deteriorated over the 4 years between the disaster and the data collection period. However, these men also questioned whether such health problems were related to their exposure to the disaster or, rather, to advancing age. The health complications cited by these respondents included cirrhosis of the liver, chronic fatigue, muscle and bone pain, deterioration of vision, problems in the joints, and even cancer.

> After the earthquake I became sick, I had a lot of illnesses appear [. . .] But all that was maybe because of my age [57]. The illnesses just appeared, prostate cancer, for instance, but also others, psychological [. . .]. (Juan)

> The only thing is that I've been losing my vision, I see less and less well since some time! I need glasses now. (Ramon)

> [. . .] I have muscle pains, it's as if there was a hot iron going in and out of my skin. This became more chronic after the earthquake [. . .] It's become more complicated over the past 3 years. I might be 65, but I don't think I'm all that old! (Cano)

Perceptions of Psychological Health

Manifestations of Depression and Stress. The two principal psychological health complications noted in participant testimonies were manifestations of depression and stress. Ten of the men talked about their difficulties in overcoming emotional pain and feelings of despair, many feeling that they had few options for the future following financial losses resulting from the destruction of their homes or businesses during the disaster.

> Sometimes, I feel as if the world is coming down on me and that I don't have the will to continue in our struggle for reconstruction [. . .] Courage . . . well, I somehow manage to find it by myself to keep going, but it's hard. (Mario)

> Surely it was depression that I lived for a while, but after you have to simply think positive, no choice! (Sergio)

> I was depressed, I think! But I wasn't really aware of it. With depression, you don't really know when you're in it [. . .]. My business had major losses. I wasn't really able to think about myself, my wife means everything to me and I had to take care of her and my children. I had a son who took his own life a year after the earthquake! He was 22. After all that, I felt like I wasn't going well, I didn't have the energy I had before. (Osvaldo)

Most of the men participating in the study noted a deterioration of the psychological health after February 2010. Indeed, 13 participants registered a score of 33 or higher on the IES-R, indicating that they were dealing with PTS complications.

In terms of PTS manifestations related by respondents, one man recounted how the safety of his nuclear family was a source of stress in view of the prospect of another earthquake:

> I lived through the earthquake of 1985, but that was nothing compared to 2010. I'm scared of something like that happening again, I worry about my wife and 6-year-old girl. It worries me to think that there might be another earthquake and that I won't be at home when it happens. Even today, it's like it occupies all my thoughts. (Adolfo, 32)

The participant testimonies show also that a majority of the interviewed men continued to feel a persistent, daily sense of fear. They described this feeling in various ways, for example: "You live with fear permanently. You don't know where or when another earthquake will hit and you think about the worst, you think about your wife, your children" (Aurelio). Despite this prevalence of psychological health difficulties encountered after the disaster, only two of the men reported having sought professional counseling to deal with the manifestations they were experiencing. It is important to note that these two men, whose behavior did not conform with norms of traditional masculinity, were both the youngest and the most educated of the study participants. This observation suggests that we may be on the cusp of a paradigm shift in the perception of men's roles and its impact on help-seeking behaviors, in which education may play a major role.

Decreased Motivation. Certain respondents experienced difficulties finding the strength to go on and in identifying solutions to their problems, while others experienced exhaustion after having focused exclusively on the well-being of their children and spouses, ignoring their own difficulties: "I think that I'm beginning to take back my life, to live a normal life . . . !" (Juan).

Discussion

The present study involved 18 male participants who had been exposed to a major earthquake and tsunami event occurring in Chile on February 27, 2010. The collected data gives access to qualitative information on the experiences of men 4 years following their exposure to one of the strongest natural disasters ever recorded.

The participant testimonies show that their experiences can be clearly divided into the two categories of those lived during the disaster and those lived afterward. As aforementioned, the participants' prime concern during the disaster was to ensure the safety of their families in a context of panic, desolation, and distress, demonstrating on their part a strong measure of composure, organizational capabilities, and concern for their loved ones. Having no control over the disaster as such, men turned toward the protection of their loved ones. Offering protection to their family was the only aspect of the disaster situation they felt they could control in the chaotic moments following the disaster. It is, in a sense, the epitome of their role as protectors and reinforces their sense of masculinity. The need to evacuate their wives and children appears to have been a prime concern for participants in a situation of generalized panic amplified by

difficulties of movement, doors that would not open, the noise of falling objects, the screams of neighbors, the rumble of the earthquake itself, and, in the coastal regions, the fear of an impending tsunami. Faced with these chaotic conditions, the men report experiencing a feeling of psychological overload that began at the moment the disaster occurred.

Afterward, when the impending threat of death and injury had subsided, two types of new concerns emerged: the health of relatives and material losses. As relates to the health of relatives, especially during the first several days following the disaster, many participants felt that at the time they had been overly worried about the members of their extended family, in particular, about those from whom they had no news.

Among the 18 men interviewed, 7 experienced major material damages to their households, while 3 lost all their material possessions. These losses were unsettling and occupied their thoughts. They began to ignore their basic needs, such as caring for their health, a likely result of the psychological overload they experienced, brought on by the overwhelming sense responsibility they felt to ensure the safety of their families. In addition, many were left to their own devices, as most did not seek outside help. They felt a necessity to remain strong in the eyes of their family in order to provide a secure foundation on which their wife and children could rely. Indeed, such reactions have been noted by a number of previous studies (Antil, Bergeron, & Cloutier, 2005; Dulac, 1997; Dulac & Groulx, 1999; Tremblay et al., 2005) and the critical issues raised relate to men's capacity for emotional expression, for making time for themselves, taking care of their health, and even the basic first step of asking for help; for most the predominant concern seems to have been the safety of the family and material losses. The results of the present study, therefore, confirm the presence in men of a propensity to disregard their own needs in order to safeguard the well-being of the family, which corresponds to men's traditional roles as providers and protectors. Further research into the factors that influence men's relationship with their health will be necessary to determine whether masculinity acts as an inhibitor to help seeking. If such is the case, traditional notions of masculinity, as assimilated and expressed in the Chilean context, will prove to favor at-risk behaviors and produce obstacles to men's help seeking. Rondeau (2004) states that traditional male modes of socialization are at the root of numerous problems experienced by men. Within the scope of the present study, it would appear that, faced with the task of safeguarding the safety of their family, male respondents took on responsibilities, they felt were expected of them, namely to remain strong, to defend the interests of those most vulnerable, and to disregard their emotions. The representation of a "strong male" projected within their family and social circle appears to have inhibited men's help seeking, demonstration of emotions and stress relief during the natural disaster. This potential link requires further research, however.

Given the various manifestations of stress they experienced, the majority of participants (16) considered that the changes in their personal lives resulting from the earthquake/tsunami were negative. Four years after the event, many still felt in a constant state of alert; they felt marked for life by the scale of the event (magnitude 8.8) and the shock of suddenly waking up to a disaster in the middle of the night (3.45 a.m. local time). Comparable observations have been made previously by Labra and Maltais (2014) based on interviews with elderly individuals who survived the same earthquake, conducted in 2011, 3 years prior to the data collection period of the present study. In particular, the authors noted that "[elderly individuals'] organization of daily life appears to have shifted towards preparation for a potential danger that could strike at any moment" (p. 38).

This feeling of constant tension manifests as sleeping disorders, heightened emotional sensitivity occurring without apparent motive, and behaviors characterized by anxiety and nervosity. These results support the hypotheses of a number of authors (Hovington, Maltais, & Lalande, 2002; Lazaratou et al., 2008; Maltais, Lachance, Brassard, Picard, 2002)who have suggested that the presence of postdisaster symptoms can persist beyond a period of 6 months following a natural disaster. It is worth noting, in addition, that participants who reported a heightened emotional sensitivity do not necessarily share this fact openly with their family and friends. Indeed, their testimonies indicate instead that they affect a self-controlled disposition and do not express their sorrow or other diverse emotions they experience. All too frequently, these men deal with their suffering alone.

Moreover, the interviewed men lived through periods of despondency linked with health problems experienced by family members; but this must also be considered in light of the fact that the great majority of participants (16 of 18) did not seek counseling with health professionals. These difficulties were further exacerbated by financial losses and the lengthy reconstruction of property following the disaster.

Despite the various disruptions to family life resulting from the disaster, all except one of the participants maintained their family relationships with their spouses and children. For a number of participants, as well, the events of February 27, 2010, led to a greater appreciation of their family, including the members of their extended family, as well as an increased sense of solidarity with others. Such reactions are likely linked to the men's sense of having come close to death. For Briere and Elliott (2000), as well as Galea, Tracy, Norris, and Coffey (2008), injury

and fear of death are factors that influence survivors' reactions following a natural disaster. Thus, the fact of having found themselves safe and sound with their immediate family appears to have awakened in them a greater sense of appreciation and empathy toward others.

In terms of social relationships, participants noted positive effects in relation to their neighbors. These men reported increased feelings of closeness with their neighbors, as well a new impetus for engagement in community organizations in which they were not active before the disaster. This observation leads us to consider a potential revitalization of community networks in the hours immediately following a natural disaster. Such cooperation served as a vector of local mobilization, channeling the efforts and energies of community members. In the days following the disaster, this organization aimed to answer the community's most pressing needs (saving lives, supplying water, and food, etc.). Later, the aims shifted toward more long-term goals, such as lobbying local and higher levels of government to facilitate home repairs and reconstructions.

In terms of health, the results identify that more than a third of participants developed new physical health problems following the disaster. According to Maltais (2003), it is not uncommon for the health of natural disaster survivors to undergo changes due to the strain they undergo adapting to postdisaster realities. Traumatic events place exert high levels of stress on the human body, making it potentially more vulnerable to illness. Study participants reported a diversity of health problems, a result that matches those noted by Labra (2015), Labra and Maltais (2014), Friedman and Schnurr (1995), and Robichaud et al. (2002).

In terms of psychological aspects of health, the extent of time passed since the event may have an incidence on survivors' level of recovery (Maltais et al., 2001), all the men interviewed in the course of the present study reported psychological health difficulties more than 4 years after their exposure to the earthquake/tsunami event.

The problem most frequently cited by respondents was sleep disorders. It is worth noting, as well, that such disorders, although cited by men belonging to various age groups, appeared to be more present among older participants. And it is important to consider, moreover, that only two respondents—one aged 21 years, the other aged 42 years—indicated having consulted a health professional in relation to these problems.

Diverse manifestations of depressive symptoms were cited by 7 of the 18 participants. The reported symptoms included a permanent lack of motivation, lack of energy, emotional pain, and acute concentration difficulties. This finding parallels those of numerous other studies reporting the presence of manifestations of depression and other psychological health problems following exposure to natural disasters. For example, Maltais et al. 2000; Maltais, Lachance, Brassard, Picard, 2002 in a study on the consequences of severe floods, reported significant differences between those who were affected by the event and those who were not, in both rural and urban contexts, in terms of the presence of manifestations of depressive symptoms, PTS, social dysfunction, and somatization. It is, therefore, not surprising that in the present study 7 of 18 participants reported typical symptoms of depression.

Conclusions

While a majority of interviewed men experienced physical or psychological health problems, only a minority (the two youngest and most educated men in the sample) reported having sought the support of local community health services. Are the effects of traditional male socialization more deeply ingrained in older men? Are perceptions of male roles changing among the younger generations? And what is the influence of education on men's perceptions of their social roles? These questions call for further study in order to better understand the meaning men assign to the fact of not asking for help in a context of distress and social disorganization. In addition, intrafamily dynamics may provide another fertile area of research, since it appears that the health problems men experience after a catastrophic event also affect their relationships with loved ones.

Finally, the constructivist approach adopted in the present study gives prominence to men's testimonies and allows for a better understanding of their experiences during the earthquake and tsunami event of 2010 in Chile. A salient element emerging from the collected data is the influence of traditional masculinity on men's help-seeking behaviors. This is a crucial element which social workers and other interveners should take into account in their appeals for men to use the various help services available to them. For that to happen, however, interveners and administrative staff in Chile's public health and social services network will need to receive training that prepares them to respond adequately to men seeking help.

Recommendations and Limitations

The present study has certain limitations related to the relatively small sample size. Although participant testimonies allowed for the collection of a significant volume of data on the health and help seeking of men exposed to the 2010 earthquake and tsunami event in Chile, the sample size does not allow for an extrapolation of the data to the national or international levels. The study nevertheless expands the current state of knowledge on the reality of male survivors of natural disasters.

In term of avenues for intervention, the study results suggest that further research is necessary.

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