

Danger zone: Men, masculinity and occupational health and safety in high risk occupations

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Abstract

The workplace is a key setting where gender issues and organizational structures may influence occupational health and safety practices. The enactment of dominant norms of masculinity in high risk occupations can be particularly problematic, as it exposes men to significant risks for injuries and fatalities. To encourage multi-disciplinary collaborations and advance knowledge in the intersecting areas of gender studies, men's health, work and workplace health and safety, a national network of thirteen researchers and health and safety stakeholders completed a critical literature review examining the intersection between masculinities and men's workplace health and safety in order to: (i) account for research previously undertaken in this area; (ii) identify themes that may inform our understanding of masculinity and workplace health and safety and; (iii) identify research and practice gaps in relation to men's workplace health and safety. In this paper we present key themes from this review. Recommendations are made regarding: (i) how to define gender; (ii) how to attend to and identify how masculinities may influence workers' identities, perceptions of occupational risks and how institutionalized practices can reinforce norms of masculinity; (iii) the importance of considering how masculinities may intersect with

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other variables (e.g. historical context, age, class, race, geographical location) and; (iv) the added significance of present-day labour market forces on men's occupational health and safety.

Keywords

Gender; Masculinities; Workplace safety; Men's health; Review

1. Introduction

Nowhere is the risk to men's health more apparent than in the workplace. In North America, Europe and other jurisdictions, men are more likely to die from work-related injuries than women. In Canada, more than 97% of all reported workplace fatalities between 1993 and 2005 were male (Bilsker et al., 2010). Similarly, in 2012, 92% of all workplace fatalities in the US, and 96% in Australia occurred amongst men. Workplace injuries have been linked to significant health care and workers' compensation costs (US Bureau of Labor Statistics, 2013; Safe Work Australia, 2013). For example, in Canada in 2008, the direct costs (including those relating to workers' compensation benefits payments, health care and rehabilitation) associated with occupational injuries was 9.7 billion dollars (Labour Program, 2013).

Several reasons have been postulated for these differential health and work-related risks and fatalities between men and women. First, the gendered segregation of occupations and the gendered division of labour within specific occupations can place men at greater risk for injury and fatality (Messing et al., 2003; Courtenay, 2000; Du Plessis et al., 2013; Ibanez and Narocki, 2011). In fact, men are overrepresented in higher risk industries such as construction, mining, fire-fighting, military, farming, fishing, and protective services (Messing et al., 2003; Ibanez and Narocki, 2011; Arcury et al., 2014; Breslin and Polzer, 2007; Desmond, 2006; Lawson, 2010; Phakathi, 2013; Power and Baqee, 2010). In addition, men and women may experience different types of occupational injuries and reasons for illness absences. Men may be exposed to greater workplace hazards and traumatic injuries and women more chronic musculoskeletal conditions, anxiety and depression (Messing et al., 2003; Laaksonen et al., 2010). Men in high risk occupations may experience increased exposure to: (i) physical risks associated with mechanical, electrical, or chemical elements; (ii) violence and psychological hazards; and (iii) normative expectations relating to masculinity (sometimes referred to as "hypermasculinity" or "hegemonic masculinity") – which demand that men be physically tough and fearless in the face of risk or danger (Safe Work Australia, 2013; Power and Baqee, 2010; Ely and Meyerson, 2010).

Second, there is evidence to suggest that gender (defined as the social and cultural processes by which men and women learn, adapt, negotiate and express attitudes and behaviours assigned to them based on their sex) (Johnson et al., 2007) and gender identities (defined in relation to how individuals perceive themselves on a spectrum of masculinity and femininity) (Johnson et al., 2007) can influence health and help-seeking behaviours (Ness, 2012; Verdonk et al., 2010). In general, men have demonstrated that they are more likely than women to engage in risky activities, such as smoking, alcohol overuse and unsafe

sexual practices (Dolan, 2011; Creighton and Oliffe, 2010). Conversely, men are less likely than women to engage in health seeking and health promotion behaviours (Berger et al., 2005; Addis and Mahalik, 2003). In a study examining gender differences in discourses regarding health, Charles and Walter highlight how men may be more reluctant than women to engage in discussions about their health (Charles and Walters, 2008). Similarly, in a study examining men's accounts of masculinity and its relationship to help-seeking behaviour, O'Brien et al. reveal that men are less likely to attend to serious health and body symptoms and more likely to believe that it is necessary to endure high degrees of pain and conceal mental health issues (O'Brien et al., 2005). Men's reluctance to discuss mental health issues has been reported across male-dominated occupations such as farming (Harrell, 1986; Fraser et al., 2005; Alston and Kent, 2008), the military (Finnegan et al., 2010), protective services (Cheek and Miller, 1983) and mining (Campbell, 1997).

Third, further compounding men's health risks are their limited social supports and apparent inability to mobilize social supports when needed (Williams, 2003). This is particularly problematic as the presence of support from spouses and family members has been associated with an enhanced likelihood that men will initiate and engage in health and safety practices (Campbell, 1997; Durey and Lower, 2004).

Greater exposure to health and safety risks combined with limited supports can place men in precarious positions when managing their occupational health and safety (OH&S) needs. In addition, how men express their gender, how closely they identify with dominant norms of masculinity, and how workplaces do, or do not, reinforce dominant masculinities can influence OH&S practices (Du Plessis et al., 2013; Power and Baqee, 2010; Ely and Meyerson, 2010). To date, workplace safety research has focused primarily on examining differences in workplace injuries based on sex (e.g. whether an individual is biologically male or female), and less consideration has been given to understanding how gender issues in general, and masculinities more specifically, can influence men's health and safety in the workplace (Jensen et al., 2014). The workplace has been identified as a key setting where gender identities are constructed and negotiated, and thus a key location where gender may influence health and safety practices (Ramirez, 2011). In addition, how a workplace is organized can shape the risks men may be exposed to.

To enhance our understanding of the intersection of masculinities and men's workplace health and safety, we established a national and inter-disciplinary team of researchers and workplace health and safety stakeholders, with intersecting interests in men's health, work and OH&S (see Table 1 for team composition). We completed a critical review of the scientific peer-reviewed literature examining the intersection between masculinities and men's workplace health and safety in order to: (i) account for research previously undertaken in this area; (ii) identify themes that may inform our understanding of masculinity and workplace health and safety; and (iii) identify research and practice gaps in relation to men's workplace health and safety.

2. Review purpose and method

Within our review we focused on examining peer-reviewed evidence (i.e. quantitative, qualitative, mixed method studies and review articles), that **directly** addressed the issue of men's health and safety in the workplace in relation to gender and/or masculinity. Evidence was excluded if it only addressed one of our primary areas of interest (i.e. it spoke only to men's health, only to issues of masculinity, or only to issues of occupational health and safety or workplace safety culture). For example, we excluded evidence if it only discussed issues of masculinity and men's health but did not directly relate to OH&S issues at the workplace. Similarly, we excluded evidence that discussed issues related to OH&S and safety culture in the workplace if it did not specifically relate to gender issues. By narrowing our inclusion criteria, we were able to target evidence that focused on the specific intersection between men's health, masculinity, and workplace health and safety. This, in turn, allowed us to eliminate extraneous evidence, for which we would need to extrapolate a potential relationship, and to develop more specific OH&S recommendations.

To ensure we captured a breadth of evidence across relevant disciplines (e.g. medicine, health sciences, nursing, psychology, sociology, gender studies and occupational health and safety) we searched nine databases (i.e. Medline, CINAHL, PsychInfo, Embase, Social Sciences Index, Applied Social Sciences Index and Work Abstracts, Women's Studies International, Google Scholar). Search terms were developed with input from the research team (who possess expertise in work rehabilitation, gender studies and occupational health and safety) and included the following key words: masculinity, masculinities, macho, gender, gender role, occupation, occupational, workplace, health, health and safety.

In total, 96 papers were retrieved and underwent full review by three reviewers. This included full reading of each papers and extraction of the following data into evidence tables: (i) the paper's central objective and research question(s); (ii) research design and methods; (iii) theoretical perspectives and/or assumptions; (iv) sample characteristics; (v) data collection and analysis; (vi) data interpretations; (vii) key findings and conclusions; (viii) a critical interpretation of how findings can inform our understanding of masculinity in relation to health and safety at work; (ix) factors that may intersect with masculinity to influence health and safety at work; and (x) research gaps and suggestions for future research. Data in the evidence tables were subsequently analyzed to characterize our sample of studies, and to identify key themes relevant to understanding how masculinity may influence men's OH&S.

In summary our sample of evidence included 75 qualitative, 18 quantitative and 3 mixed methods articles, published between 1986 and 2013. Articles were predominately published in the US followed by the United Kingdom, Australia, Canada, Norway, Sweden, South Africa, New Zealand, the Netherlands, Finland, China, Spain and Belgium. This body of research focused on the role of gender in high risk industries, which encompassed a predominance of male workers, and included the following occupations: agriculture; forestry; construction; mining; fish harvesting; oil refinery; firefighting; policing, protective services and security work; the military; and professional sports.

In what follows, we:

1. summarize key concepts relating to theories of masculinity (as discussed by scholars in masculinity studies) that inform the analysis of men's OH&S
2. discuss key themes relevant to masculinity and workplace health and safety
3. provide preliminary recommendations on how gender issues can be considered in workplace contexts
4. identify gaps in current understandings and recommendations for future research in men's workplace health and safety.

3. Theoretical conceptualizations of masculinity

Masculinity is defined as a configuration of practices that are organized in relation to the structures of gender identities and relations (Connell, 1987). Brannon argues that men are encouraged to follow four rules when establishing their masculinity: (1) "no sissy stuff," which requires the rejection of any and all of the characteristics associated with femininity; (2) "the big wheel," which involves the quest for wealth, fame and success at all costs; (3) "the sturdy oak," which demands the display of confidence, reliability, unshakeable strength and unwavering toughness; and (4) "give 'em hell," which is characterized by a willingness to break rules, flout authority and use force whenever necessary (Brannon, 1976). Similarly, Connell claims that the most highly valued kind of masculinity in modern Western societies typically consists of aggression, courage, emotionlessness, strength, self-reliance and sexual potency (Connell, 1987, 1995). For Connell, this kind of masculinity is "hegemonic" insofar as it is characterized by and oriented toward the display of dominance and the exercise of power. Building on Connell, Kimmel argues that hegemonic masculinity has been eternalized, idealized and naturalized in the modern West (Kimmel, 1994). And while few men manage to embody hegemonic masculinity in its entirety, many men, according to Connell and Kimmel, either strive to do so or are complicit in sustaining it in order to maintain their position in established hierarchies (Connell, 1987, 1995; Kimmel, 1994).

Within the context of high risk male-dominated occupations, theories of hegemonic masculinity have been applied to examining men's practices in professional sports (Anderson and Kian, 2012), construction (Ibanez and Narocki, 2011; Iacune, 2005), farming (Alston and Kent, 2008), forestry (Brandth and Haugen, 2000), logging (Coen et al., 2013), transportation (Pettersen, 2006), and the military (Hinojosa, 2010). For example, in a study examining media coverage of head injuries in the National Football league, Anderson and Kian show how professional football players are encouraged to identify with hegemonically masculine norms and sacrifice their bodies and health for sporting glory (Anderson and Kian, 2012). Hinojosa illustrates how military men use hegemonically masculine discourses to establish occupational hierarchies and to differentiate themselves as superior to other military and non-military personnel - who are considered less physically able, less emotionally controlled and self-disciplined, and less willing to take risks (Hinojosa, 2010). Coen et al. reveal how dominant masculine ideals of strength and stoicism in rural resource-based communities discourage men from reporting mental health issues and seeking assistance (Coen et al., 2013). And Collins demonstrates how gay men working

in male-dominated industries remain silent about their sexual identities and express reluctance to report injustice, or health and safety concerns (Collins, 2013).

4. Key themes relevant to masculinity and Men's workplace health and safety

4.1. The celebration of heroism, physical strength, toughness and stoicism

Heroic and otherwise hypermasculine behaviours have been identified in many studies examining high risk male occupations. These include mining (Forestell, 2006), farming (Durey and Lower, 2004), construction (Iacune, 2005), firefighting (Desmond, 2006), the military (Hinojosa, 2010), protective service workers (Cheek and Miller, 1983) and professional athletes (Anderson and Kian, 2012). As Laplonge notes, doing dangerous work is frequently equated to doing gender (Laplonge and Albury, 2013). For example, Thurnell-Read and Parker describe how the occupation of firefighting is replete with images celebrating heroism, courage, fearlessness, physicality, and bodily strength (Thurnell-Read and Parker, 2008). Similarly, in their historical examination of masculinities in the Clydeside Heavy Industries (in the UK) between the 1930s and 1970s, Johnston et al. illustrate multiple examples of heroic actions which reinforce male pride in the labour process and expected hardships endured by men within the workplace itself (Johnston and McIvor, 2004). Finally, examining masculine identities within the context of South African gold mines, Campbell illustrates how established expectations of how men should behave can encourage men to demonstrate bravery and face their fears (Campbell, 1997).

Displays of physical strength have also been viewed as intimately related to "manhood" and essential to men's abilities to complete work tasks across occupational contexts (Ibanez and Narocki, 2011; Alston and Kent, 2008; Brandth and Haugen, 2000). For example, in a study exploring factors relating to occupational injuries and fatalities in the farming industry, Guthrie et al. (2009) illustrate how farming has traditionally be viewed as work that requires a "tough", "active" "male work ethic." Similarly, in an examination of Australian shark fishing, King describes traditional images of men within Australian "mateship" culture as stoic, resilient, self-reliant, sardonic, loyal, generous to the likeminded, and resentful of authority (King, 2007).

4.2. Acceptance and normalization of risk

With their emphasis on strength and toughness, dominant masculinities can affect how risks are perceived by men and, in turn, accepted and normalized in workplace contexts (Johnston and McIvor, 2004). The expectation that men accept the risks in their work, and endure pain without complaints is evident across a number of studies that explore gender issues in male-dominated occupations. For example, Breslin et al. reveal how gender plays a role in silencing workplace complaints, with male workers reporting that they frequently feel a need to stifle their complaints in order to "prove" their worth in the work world (Breslin and Polzer, 2007). Similarly, in a study examining how men are socialized into becoming fire fighters, Desmond describes how men are conditioned to function in harsh conditions, with minimal sleep, and become acclimatized to the dangers in their work (Desmond, 2006). Within the mining industry, Campbell and Wicks describe how risks and workplace injury

events have come to be viewed in fatalistic terms; that is, as a normal part of the job (Campbell, 1997; Wicks, 2002). Amongst electricians, Nielson describes how male electrical workers are trained and socialized to accept and manage the dangers of risks by striking a contradictory balance between viewing electricity as a danger and viewing it as an exciting part of their work (Nielson, 2012). Similarly, Knudsen reports how fishermen have come to accept injuries as an inevitable part of the job (Knudsen and Gron, 2010). In some cases, disabilities that result from involvement in high risk work, such as mining, were also viewed as “badges of honour” and the price that men had to pay for such work (Forestell, 2006).

The initial acceptance of risks can be further “normalized” through institutionalized practices that reproduce and reinforce normative gender expectations. For example, Sanne argues that the risks associated with railway work have been accepted by railway workers and have become part of their occupational identities (Sanne, 2008). Similarly, Desmond and Erickson discuss how rural and working class masculinities encourage young firefighters to view risk a normal part of the job, as a personal responsibility, and to not question whether health and safety should be a collective responsibility (Desmond, 2011; Erickson, 2008). This can be particularly problematic in high risk occupations where men must work closely with one another, and where other’s decisions and actions can influence co-workers health and safety. For example, King illustrates how skippers and crew members must work very closely to ensure safety on fishing boats, as others’ competence and safety behaviours can endanger the entire crew (King, 2007).

As an additional sub-group, young male workers may be especially vulnerable to workplace injuries and fatalities due to their limited work experience and their increased likelihood of being employed in smaller companies, which may not be subjected to the same OH&S standards (Breslin and Polzer, 2007; Breslin and Smith, 2005; Breslin and Mustard, 2003; Mitchell et al., 2002; Zakocs et al., 1998; Suruda et al., 2003). Young workers may also experience greater vulnerable to institutional pressures to accept and normalize occupational risks. Nielson argues that workplace social relations and power structures that exist within an organization may play an even greater role than individual choice in normalizing risk perceptions for young persons (Nielson, 2012). Examining young workers’ perceptions of risks in their situated everyday work activities, Nielson reveals how they may not be choosing to engage in risky practices but are, instead, choosing to adapt to their work organization’s social definitions of “normal” risk practices. This suggests how social and organizational pressures, in addition to individual identification with masculine norms, can influence acceptance of risks and how risky situations in turn can produce gendered expectations. Young workers report that they understand how an organization’s OH&S practices may be mitigated by its desire to save time and enhance profits, and how their position as new workers can limit their power, agency and ability to ask questions related to workplace health and safety practices. In making decisions about how to proceed when they encounter risky tasks, young workers report that they have to weigh the personal risks associated with safe task completion against the risks associated with not adapting to the male dominant workplace culture (Nielson, 2012).

Lastly, there is some evidence to suggest that the way men are socialized through apprenticeship training programs and established communities of practice also influences health and safety practices. For example, Johnston describes how, historically, apprenticeship methods have socialized men into “macho” workplace cultures that value competitive spirits, a high tolerance for danger and overstrain, and reluctance to comply with health and safety standards (Johnston and McIvor, 2004). For example, in his examination of professional English football culture, Parker illustrates how values associated with working class masculinities are transferred to trainees through apprenticeships, situated social learning and the establishment of communities of practice (Parker, 2006). Similarly, Somerville and Abrahamsson illustrate how safety training in the mining industry reflects hegemonically masculine norms, is frequently learned on the job, passed on from one generation of miners to another, and can be at odds with “formal” safety training (Somerville and Abrahamsson, 2003).

4.3. Acceptance and normalization of work injuries and pain

In addition to accepting risks at work, men are often expected to endure physical pain and injuries without complaints. Such expectations are evident across multiple studies of male dominated occupational contexts including construction (Ajslev et al., 2013), professional sports (Hammond et al., 2013; Roderick, 2006), and mining (Wicks, 2002). In fact, playing through pain and injuries is viewed as a normal part of an athlete’s “job” (Hammond et al., 2013). Examining professional English footballers’ attitudes and decisions with respect to playing with an injury, Hammond et al. reveal how sports injuries are only considered severe if they affect athletes’ performance (Hammond et al., 2013). In other words, pain alone is not considered a critical indicator of the need to take time off work. Men’s bodies may also be viewed as “corporeal capital” and strategies are frequently employed by managers and coaches to discredit the severity of injuries in order to encourage injured professional athletes to return to play/work (Roderick, 2006). Similarly, within the construction industry, Ajslev, Lund, and Møller describe how established working class masculinities—which typically emphasizes strength, stamina and the ability to withstand physical pain—in combination with increased time and productivity pressures, increase the prevalence of musculoskeletal occupational injuries amongst men (Ajslev et al., 2013).

4.4. Displays of self-reliance, resistance to assistance, authority and occupational health and safety practices

Historically men have been expected to be self-reliant, to establish themselves as their family’s “breadwinner,” and to resist authority—including established OH&S safety practices (Johnston and McIvor, 2004). For many men, identifying with and fulfilling a breadwinner role is a crucial part of how they demonstrate their masculinity. For example, maintaining one’s role as a worker and breadwinner was an expressed goal of South African gold miners (Macheke and Campbell, 1998), aging tradesmen in Australia (Marchant, 2013), aging male migrant workers in Pakistan (Qureshi, 2012), and Latin migrant male workers (Ramirez, 2011; Walter et al., 2004; Ordonez, 2012).

A desire to demonstrate self-reliance may also influence men’s request for and acceptance of assistance in relation to their health and safety needs. Williams indicates that men are less

likely to comply with medical treatments (Williams, 2003) while Courtney argues that men resist medical attention as a display of “toughness” and self-reliance (Courtenay, 2000). Similarly, Charles and Walters argue that dominant norms of masculinity may influence men’s perceptions regarding their health, risk surveillance and medical management strategies (Charles and Walters, 2008). In a study examining men’s experiences of health seeking behaviours, O’Brien et al. explain how men may resist help for multiple reasons, including not wishing to appear weak or to waste others’ time with “minor” issues (O’Brien et al., 2005). The desire to be self-reliant and autonomous was also expressed by men in relation to resistance to OH&S policies and practices. For example, within farming, Harrell (1986) and Guthrie et al. (2009) both report that male farmers may resist safety strategies they perceive to interfere with their personal autonomy and ability to make a profit. Related studies suggest that men are more likely to engage in health and safety practices if they think that doing so is compatible with their masculine roles (e.g. worker, breadwinner, fathering/provider roles) (O’Brien et al., 2005; Verdonk et al., 2010).

4.5. Labour market forces, productivity pressures and profit over occupational health and safety

Labour market forces and structural elements may also act as additional impediments to men’s occupational health and safety practices. These include: (i) growth in non-standard temporary or contractual work arrangements; (ii) an increased preponderance of young males working in high-risk male dominated industries (Durey and Lower, 2004; Iacuone, 2005); (iii) production pressures (Ibanez and Narocki, 2011; Arcury et al., 2014; Lawson, 2010; Durey and Lower, 2004; Collins, 2013); (iv) fear of reprisal or job loss if unsafe work is refused (Nielson, 2012); (v) changes in workers’ compensation policies and practices with resulting limitations in benefits provided to workers; and (vi) the influence of insurance mechanisms such as experience rating, on the underreporting of health and safety issues and workplace incidences (Mansfield et al., 2012). Despite the prevalence of OH&S policies and the routine use of “safe work” messaging, workers continue to report ongoing gaps between the official rhetoric of collaborative safety partnerships and actual workplace practices. Workers may still not feel genuinely empowered to refuse and report unsafe conditions.

Norms of masculinity may further interact with productivity pressures and the pursuit of profit over health and safety to influence workplace health and safety practices amongst men in high risk occupations. Such occupations are often characterized by economic incentives such as piecework, high wages for physically demanding and dangerous work, and competitive tendering processes (Desmond, 2006; Phakathi, 2013; Power and Baqee, 2010). This focus on productivity and profit may reinforce and institutionalize “masculinized” values that discipline workers to perform at maximum physical capacity, tolerate adverse work conditions and sacrifice their bodies, their health and their safety to “get the job done” (Arcury et al., 2014; Desmond, 2006; Phakathi, 2013; Power and Baqee, 2010). Paap provides evidence that the precarious position of construction workers in the current labour market encourages competition amongst workers, compromises adherence to health and safety policies and practices, and produces situations where, to gain favour with employers, workers perform “masculinities” in ways that privilege productivity over safety (Paap, 2006). Furthermore, institutionalized practices that characterize work in high-risk

occupations as a “competitive battlefield” and that require men to embody physical prowess and emotional control may limit help-seeking behaviours. These practices may also lead to poor lifestyle choices and ineffective stress management strategies that, in turn, produce ill health effects (Desmond, 2006; Somerville and Abrahamsson, 2003).

Recent labour market changes have also increased the availability of temporary versus permanent work opportunities, and men are increasingly finding themselves employed in non-standard work arrangements, in more dangerous jobs, and high-risk settings (Williams, 2003). Temporary work can produce deleterious effects due to the enhanced exposure to uncertain and precarious working arrangements and the decreased provision and monitoring of OH&S standards (Gagliarducci, 2005; Law Commission of Ontario, 2012; Lippel et al., 2011; Virtanen et al., 2005; Gallagher and Underhill, 2012). For example, temporary workers in the construction industry are at greater risk for falls due to inadequate OH&S training, lack of use of personal protective equipment, and poor workplace health and safety management systems (Arcury et al., 2014; Dong et al., 2009). Temporary workers are also often young males assigned to the least desirable and most dangerous jobs (MacEachen et al., 2012; Tucker and Turner, 2013), inexperienced, less knowledgeable about the job and unable to discern risk (McCloskey, 2008). Thus, the implementation of OH&S strategies can also prove more challenging in non-standardized working situations and arrangements.

5. Recommendations for practice and future research

Gendered experiences, as well as perceptions of, and attitudes toward gender can be deeply entrenched, and thus often taken for granted. As a result gender-related influences may not be readily apparent unless we closely examine how gender norms, relations and institutionalized practices can influence choices, behaviours, actions, and interactions in the workplace. Evidence from our review reveals how socialization processes can reinforce dominant masculine expectations of toughness, stoicism, fearlessness and self-reliance, and how this in turn can influence experiences of workplace risks and men’s occupational health and safety. Thus we recommend that workplaces address how gender may influence workers’ identities, perceptions of risk, and how work is completed at the workplace. A gender sensitive perspective can include: (i) attending to workplace discourses and identifying situations in which men are expected to be stoic, decline assistance and accept injuries as expected elements of their work; (ii) identifying situations where hyper-masculine behaviours can reinforce risky practices and increase the potential for injury or illness; (iii) exploring how social relations at the workplace and existing organizational structures and hierarchies can reinforce specific behaviours; (iv) examining how health and safety issues are negotiated in the workplace and how such negotiations may be influenced by gendered social processes; (v) encouraging and supporting more diverse displays of masculinity, not just dominant or hegemonic ones; and (vi) considering issues of gender when developing policies and designing and evaluating health and safety interventions.

Through our literature review we also identified several knowledge gaps and provide recommendations below for future research into men’s workplace health and safety from a gender-sensitive perspective. First, there are concerns related to how gender is defined and distinguished from sex. We noted that “sex” and “gender” are frequently used inter-

changeably within research studies without the provision of clear definitions. The use of clear definitions will ensure that distinctions are made between these two analytic constructs, while still conceiving of them as interrelated. Sex as a construct may relate more specifically to the measurement of primary and secondary sex characteristics, such as hormones and reproductive functions (Johnson et al., 2007). Conversely, gender is most frequently discussed as a social construct and speaks to cultural processes by which men and women learn, adapt, negotiate and express attitudes and behaviours (Johnson et al., 2007). To enhance clarity we recommend that researchers define how they are conceptualizing sex and gender within their specific studies, and sex and gender analysis methodologies.

Second, as gender is a multi-faceted construct, we recommend that gender issues be examined at various levels in relation to OH&S. This could include examination of gender at the level of gender identities, gender relations and institutionalized gender practices. Within the literature we reviewed, gender has most frequently been conceptualized as an individual trait, and one that is ascribed to an individual based on his/her sex. However, gender can also be considered as a “verb” and examined in relation to the concept of “doing gender.” Doing gender may include discussions of how men (and women) present themselves as gendered beings, how they take up or resist dominant forms of gender identities/gender roles, or how individuals may be gendered through their participation in social processes.

Gender can also be conceptualized as a property of social formations, which transpire within social settings, such as organizations. From this perspective, gender is viewed as being both socially and contextually constructed and organizations themselves as sites for the production of gendered occupational cultures. Institutionalized gender practices at the level of workplace cultures and values can influence the expression and practice of dominant masculinities, in both men and women. For example, the expression of what are traditionally considered masculine traits (e.g. competitiveness, toughness, aggressiveness) may also occur amongst women, and women who work in male-dominated occupations may accept similar risks to men as a result of larger institutional practices (Breslin and Polzer, 2007). This is clearly evident amongst professional and elite level athletes, where both men and women are expected to accept risk and pain, illustrating the complexity of how gender may present in social contexts (Anderson and Kian, 2012; Hammond et al., 2013; Roderick, 2006; Theberge, 2008). Thus, by examining how institutionalized gender practices and the gendering of workplaces may influence workplace health and safety we suggest that we can enhance our understandings of how social processes can be used to develop and implement effective health and safety strategies. While our review focused on identified issues for men in high risk occupations, the identification of strategies that target “masculinized workplace cultures” may enhance the OH&S of both men and women.

Third, it is imperative that we consider how gender can interact with other variables to influence how gender is enacted. When interpreting observations of what we may consider masculinized behaviours it is necessary for researchers to attend to contextual specificities and the influence of other intersecting variables such as the historical context (Johnston and McIvor, 2004; Baron, 2006, class Desmond, 2006; Ramirez, 2011; Barron, 2006; Theil, 2007, age (Nielson, 2012; Breslin and Mustard, 2003; Granville and Evandrou, 2010), race/ethnicity (Arcury et al., 2014; Williams, 2003; Lippel et al., 2011; Virtanen et al., 2005),

geographical location (e.g. urban/rural) (Desmond, 2006; Alston and Kent, 2008; Durey and Lower, 2004; Brandth and Haugen, 2000; Coen et al., 2013; Guthrie et al., 2009; Mitchell et al., 2002) and abilities/disabilities (Roderick, 2006; Lippel et al., 2011; Granville and Evandrou, 2010), in order to understand how masculinities may play out in local contexts. In addition, national cultural identities and how much a specific nation values masculine versus feminine traits can influence gender norms and how they may be taken up (Hofstede et al., 2010). This intersectional approach can also stimulate more nuanced and contextualized understandings of gender identities, roles and institutionalized gender practices.

Fourth, we must attend closely to how larger economic and structural issues (as described in Section 4.5) may also interact with masculine norms to influence men's OH&S. Identification with masculine traits, decreased job opportunities, the reduced role of unions and diminished job security are all factors that have eroded workers' collective power, their willingness to "rock the boat" and to express OH&S concerns when they arise. Similarly, the increased prevalence of temporary and precarious work arrangements, work migration and work mobility can produce additional health concerns for men and their families. These may include enhanced health risks due to constant changes in geographical locations, diminished opportunities to develop social relations, increased risks associated with travel, and decreased OH&S protection as a result of temporary work arrangements. Changes in both regulatory and environmental contexts in which men work, particularly in high-risk work situations, can also affect how effectively and efficiently men can perform their jobs. Currently, OH&S regulations and the provision of OH&S education are directed toward standard employment relations and therefore do not adequately address new work arrangements that include temporary employment contracts. Thus, further research is warranted to understand the health and safety implications for individuals working in more precarious economic times and how the social contexts in which men and women live can influence both the experience and expression of masculinities.

Lastly, participants discussed the contentious question—and resulting policy implications—of how to address the influence of masculinity practices in the workplace. Several questions arose for further consideration and research. Do we accept masculinity practices in the workplace or do we try to change them? If we aim to change practices, at what level should these changes be targeted e.g. individual workers, workplace, institutional policies and practices? What strategies might be particularly effective with men, when addressing workplace health and safety issues?

6. Conclusions

To the best of our knowledge, this is the first national initiative that merged the substantive areas of masculinity studies and men's workplace health and safety, bringing together leading scholars, practitioners and health and safety organizations in the areas of health, men's studies, gender studies, workplace health and safety, and return to work. Drawing from broad areas of literature, examining the intersection between masculinities and men's occupational health and safety, and examples from regulatory bodies and injured workers' experiences allowed us to elucidate the importance of considering the role of gender in men's workplace health and safety at the level of the individual, the workplace and larger

social influences. We identify knowledge gaps and made recommendations for both workplaces and future research. This initial knowledge synthesis will provide a foundation upon which to further develop research which will consider the relationship between masculinity and occupational health and safety risks and how these can be addressed in both policy and practice throughout the course of men's lives.

Acknowledgments

This project was supported by a Canadian Institutes of Health Research (CIHR), Institute of Gender and Health Planning Grant (#MGE 130769). The team would also like to thank Ms. Roula Markoulakis and Ms. Stephanie Chesser for their assistance with the literature review and the workshop.

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Table 1

Team members, affiliations and expertise.

Name	Position(s)/affiliation	Expertise
Mr. Randy Bezo	Injured worker representative and advocate	Psychology, welding, construction, Management and quality assurance policy and programs
Dr. Angela Colantonio	Professor, Department of Occupational Science and Occupational Therapy, University of Toronto; CIHR Chair in Gender, Work & Health	Epidemiology, work-related traumatic brain injury, health, sex and gender analysis, evidence-informed drama as knowledge translation tool
Mr. Enzo Garritano	Vice President of Research, Education and Specialty Consulting at the Infrastructure Health and Safety Association	Health and safety across high risk occupations (e.g. construction, electrical, transportation), regulations and education
Dr. Marc LaFrance	Associate Professor of Sociology, Concordia University	Critical masculinities theories and studies, critical examination of the role of power and power relation in defining gender, gender issues as they relate to self, body and society
Dr. John Lewko	Director, Centre for Research in Human Development	Human factors, organizational culture, risk behaviour, injury prevention, accident investigations, safety management systems, work with unions, young workers, co-operative education
Dr. Elizabeth Mansfield	Research Associate, University of Toronto	Injured workers, worker's compensation, health and safety, return to work, sociological analysis of prevention policies and practices, sex and gender analysis
Mr. Steve Mantis	Previous Secretary, Ontario Network of Injured Workers Groups (ONIWG); Current, Chair, Research Committee, ONIWG	Worker's compensation, injured workers, workplace health and safety, research and knowledge translation, work with unions and policy makers
Dr. Joel Moody	Scientist, Electrical Safety Authority	Epidemiology of electrical injuries, accident enforcement of electrical safety codes, accident investigation partner consultation to enhance electrical safety, quantitative research
Dr. Nicole Power	Associate Professor, Department of Sociology, Memorial University	Gender (especially masculinities), work and related health and safety issues amongst youth and fisheries workers, male-dominated professions, regulatory and policy issues, training and apprenticeship, mixed methods, sex and gender analysis
Dr. Mary Stergiou-Kita	Assistant Professor, Department of Occupational Science and Occupational Therapy, University of Toronto	Work and return to work following brain injury, burns, electrical injuries and cancer survivorship qualitative research, guideline and tool development, consensus building methods and knowledge translation, occupational health and safety, sex and gender analysis
Dr. Nancy Theberge	Professor Emerita and Adjunct Professor, University of Waterloo, with appointments in the Departments of Kinesiology and Sociology; Adjunct Scientist, Institute of Work & Health (IWH), Member Centre for Research Expertise for the Prevention of Musculoskeletal Disorders (MSD)	Gender, work and health, gender and sport, gender and injuries in work and sport contexts, ergonomic interventions and prevention of workplace injuries Teaching: Graduate course in Work and Health and undergraduate course in Social Aspects of Injuries in Work and Sport
Ms. Eleanor Westwood and Ms. Krista Travers	Canadian Centre for Occupational Health and Safety (CCOHS) – the National Health and Safety Organization for Canada	Services, tools, and resources to eliminate work-related injuries and illnesses, development of strategies priorities for health and safety at the workplace