

Article

Masculine Gender Norms and Adverse Workplace Safety Outcomes: The Role of Sexual Orientation and Risky Safety Behaviors

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Abstract: The current study tested the proposition that higher conformity to masculine gender norms (CMGN) is associated with increased safety risk-taking behaviors, which in turn are related to more accidents, injuries, and higher levels of accident underreporting. Additionally, we proposed that sexual minority status would exacerbate the relationship between conformity to masculine gender norms and safety risk-taking behaviors. Using two-wave lagged survey data obtained from $N = 403$ working adults, findings supported the proposed moderated-mediation model. High conformity to masculine gender norms was associated with increased safety risk-taking behaviors, accidents, injuries, and accident underreporting. Moreover, the relationship between CMGN and safety-risk-taking behaviors was stronger among homosexual men compared to their heterosexual counterparts. Additionally, safety risk-taking behaviors mediated the relationship between CMGN and safety outcomes. Finally, this indirect effect was stronger among homosexual men. Combined, these findings suggest that CMGN adversely impacts employee safety outcomes via safety-related risk-taking. We discuss these implications as well as the need for interventions designed to decrease risk taking behaviors in light of CMGN, particularly among sexual minorities.

Keywords: sexual orientation; injuries; accidents; risky safety behaviors; gender norms



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1. Introduction

1.1. Background

Despite efforts to address the prevalence of workplace accidents and injuries, such events represent a continuing concern for employees and employers alike. Indeed, in 2017 alone, 2.78 million fatal and 374 million non-fatal injuries and illnesses occurred worldwide, costing global employers roughly USD 2.99 trillion [1]. Roughly 2.8 million of these non-fatal accidents occurred within the United States, costing U.S. employers roughly USD 1 billion weekly in revenue [2,3]. However, despite the national and global impact of these events, research indicates that these figures may grossly underestimate the actual occurrence of experienced accidents and non-fatal injuries and may be partially attributed to accident underreporting, i.e., employees not properly reporting accidents and injuries to their employer [4–6].

Research has determined several antecedents associated with the prevalence of occupational accidents, injuries, and employee reporting behaviors. For example, in their recent meta-analysis on person- and situation-related antecedents of safety performance behaviors and outcomes, Christian et al. [7] propose a serial multiple mediation model of occupational safety. Specifically, situation-related antecedents include safety climate and related sub-constructs (e.g., safety systems and managerial commitment to safety), as well as safety leadership, while person-related factors include personality characteristics (e.g., neuroticism and propensity for risk-taking), job attitudes, and safety attitudes. Findings provide evidence for the indirect effect of distal situation- and person-related factors on safety outcomes (i.e., accidents and injuries) via proximal person-related factors (i.e., safety motivation and knowledge) and safety performance [7].

However, despite ample identification of different antecedents and determinants related to safety outcomes of interest, most solely focus on job- or organization-related factors rather than individual-level sociocultural factors. Specifically, limited research has examined masculine gender norms as a predictor of workplace accidents, injuries, and accident underreporting. To address this gap, conformity to masculine gender norms (CMGN) is examined as an additional person-related construct, fitting within the model of Christian et al. [7] for occupational safety. We argue that, in part, CMGN will indirectly predict workplace accidents, injuries, and accident underreporting due to shared associations with increased risk-taking, emotional control, and resistance to assistance.

Masculine gender norms guide and constrain individual behaviors via rules, standards, expectations, and values associated with acceptable masculine behaviors, presentation, and expression [8–10]. Additionally, individual adherence to these gender norms (i.e., CMGN) have been associated with increased risk-taking, as well as decreased help-seeking behaviors and concern for personal health and safety [11]. Specifically, masculine gender norms are associated with several health compromising behaviors including increased substance abuse, alcohol and tobacco consumption, and unsafe sexual behaviors [10,12,13]. We expect a similar relationship to occur with organizational safety behaviors, resulting in more safety-related risk-taking, work-related accidents, injuries, and accident underreporting.

The current study evaluates whether the influence of CMGN extends to occupational safety behaviors and decisions. This broadens the conceptualization of Christian et al. [7] of occupational safety by providing an additional person-related antecedent, while also substantiating the mediating role of safety compliance (i.e., safety risk-taking behaviors) reflected in the original model. In addition, this study examines sexual minority individuals, a historically underrepresented community in occupational safety research. Existing evidence suggests that this population may be vulnerable to adverse safety outcomes due to higher engagement in health and safety compromising behaviors (e.g., substance abuse and risky sexual behaviors) compared to heterosexual counterparts [14,15]. Furthermore, the increased prevalence of these behaviors can be partially attributed to greater CMGN and over-compensatory efforts to maintain one's masculine identity [15]. Overall, our study disentangles the association between sexual identity status and CMGN, as well as its relation to safety behaviors (i.e., safety compliance) and outcomes (i.e., accidents, injuries, and reporting behaviors).

Below, we review the construct of masculine gender norms and identify which norms may be most applicable to the workplace setting. Next, we detail how conformity to these masculine gender norms may predict employee accidents, injuries, and reporting behaviors. Following this, we propose that safety risk-taking behaviors will partially account for the posited relationships between CMGN and safety outcomes. Finally, we present a rationale for the expectation that these relationships will be exacerbated among sexual minority workers. Figure 1 presents an overview of the conceptual model to be tested.

1.2. Masculine Gender Norms

Social norms reflect rules and standards that guide and constrain one's behavior [8]. Gender norms thus represent a subset of rules and standards that specifically guide and constrain masculine and feminine behaviors [9,10]. However, there is ongoing debate regarding the construction of gender and gender norms. Similar to research examining gender-oriented personality differences (e.g., Schmitt [16]), some theories, such as the sex role theory, infer a more evolutionary and stable construction of gender where gender-stereotypic traits stems from innate psychological needs [11,17]. In contrast, other researchers (e.g., [11]) posit that gender norms are dynamic and adopted from culture. An element of this perspective is that an understanding of masculine and feminine gender norms is commonly developed through nurture experiences (i.e., environmental training) and observational learning; specifically, individuals learn acceptable and unacceptable gendered behaviors through valued models, efforts to encourage conformity to gender

stereotypic beliefs and/or behaviors, and potential policing behaviors [15]. Expanding upon this perspective, Courtenay [11] argues that dominant norms are not merely socialized; rather, individuals actively construct and reconstruct these norms through individual actions and behaviors. Translating this to the context of this study, we are particularly interested in masculine gender norms, which reflect the societal standards that define what it means to be a “man” [18]. These masculine norms are widely associated with a deterrence of self-care behaviors and bodily maintenance, an encouragement of risk-taking and self-destructive behaviors, less concern for personal health and safety, displays of invulnerability and avoidance of emotional reactions, and an unwillingness to request needed help or assistance, etc. [10,11,15,19,20]. However, internalization and conformity to such norms varies between-person [15]. While acknowledging the debate regarding the causes of masculine gender norms, it is the safety-related consequences of such variation in conformity to these norms that represents the focal point of the current study.

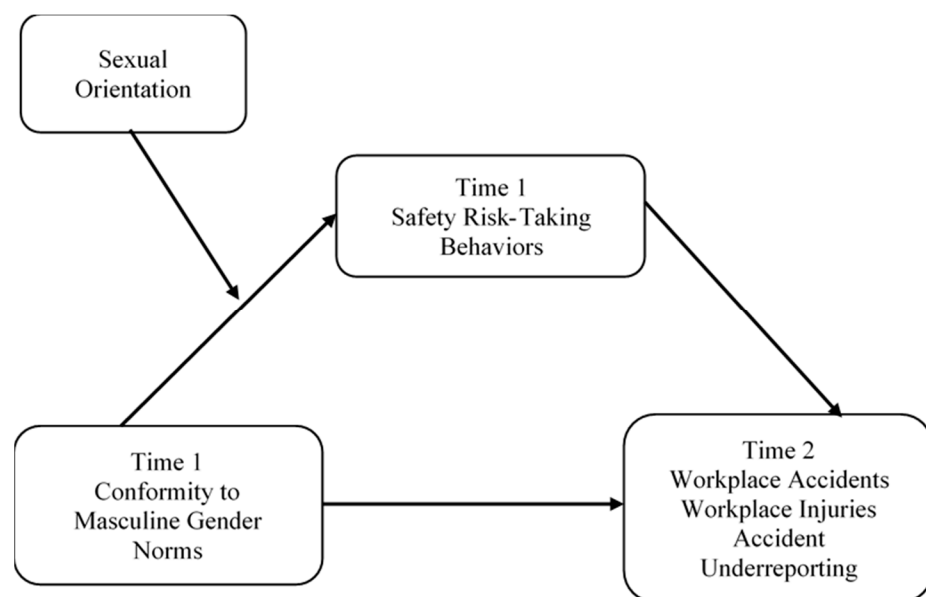


Figure 1. Theorized path model.

Mahalik et al. [10] originally developed an 11-factor-model of masculinity consisting of: emotional control, self-reliance, risk-taking, disdain for homosexuals (i.e., heterosexual self-presentation), primacy of work, winning, playboy, violence, pursuit of status, dominance, and power over women. However, while several of the aforementioned factors may be associated with masculine representation in the workplace, we argue that four specific factors are most salient to predicting work-related risky safety behaviors and subsequent safety outcomes: risk-taking, emotional control, heterosexual self-presentation, and self-reliance.

Risk-taking represents a learned and normative affinity and an acceptance of high risk-behaviors (e.g., work-safety behaviors). Emotional control represents the ability to manage emotional reactions to various forms of stimuli (e.g., stress or injury) and is often associated with muted reactions to adverse events. Heterosexual self-presentation is associated with an avoidance of threats, possible speculation, or expectations that one is homosexual. This aversion towards being labeled homosexual stems from a perceived gender inversion prescribed to homosexual individuals and the enduring belief that homosexual men exhibit more feminine behaviors and, therefore, threaten male dominance [20,21]. Finally, self-reliance is associated with a normative aversion to asking for assistance or help from others and avoidance of discussing personal issues (psychological or physical) with others.

1.3. Conformity to Masculine Gender Norms and Workplace Safety Outcomes

To substantiate expectations regarding the predictive role of CMGN, we examine the social norms approach [22,23] and the Gender Role Strain Paradigm (GRSP) [24,25]. According to the social norms approach, individual actions are often based on misperceptions about normative attitudes and/or behaviors and absorbed through salient referent groups [26]. For masculine gender norms, normative information is obtained via proximal male figures (e.g., family, coworkers, etc.) and these individuals determine acceptable masculine behaviors, presentation, and expression [8–10]. Additionally, the social norms approach posits that these misperceptions often lead to unfavorable behaviors (e.g., risk-taking) being falsely labeled as normative [22,23]. We argue that, due to normative risk-taking, emotional control, and resistance to assistance associated with masculine gender norms, unsafe work behaviors will be perceived as asserting one's masculine identity and, thus, normative. Therefore, males who strongly conform to these norms will have more engagement in safety risk-taking behaviors (i.e., low levels of safety compliance), workplace accidents and injuries, and less accident reporting.

Pleck's [24,25] GRSP posits that characteristics and behaviors associated with masculine gender norms result in dysfunctional strain for conforming individuals. Specifically, pressure to fulfil masculine role demands is associated with decreased concern for possible consequences (e.g., interpersonal, psychological, and physiological) when enacting traditionally masculine behaviors. These problematic behaviors include increased alcohol consumption, sexual risk and/or partners, and refusal of physical and psychological help during distress [27]. Within this framework, we expect that normative masculine dimensions (e.g., risk taking and self-reliance) will result in increased safety-risk taking behaviors. These unsafe practices will result in more experience of workplace accidents and injuries, as well as more individual-level accident underreporting.

Research on the relation between masculine gender norms and safety outcomes has been mixed. Some studies demonstrate a non-significant relationship between masculine gender norms and safety outcomes (e.g., [28]), while others support a significant and contextually bi-directional relationship between the two (e.g., [29]). Examining farm-related accidents, Harrell [30] found that specific dimensions of masculinity (i.e., emotional control, male dominance, and risk-taking) were indirectly associated with increased farm-related accidents and decreased compliance with safety standards (e.g., safe equipment operation). Recently, Nielsen et al. [31] found a significant negative relationship between masculine gender norms and safety oversight reporting. Safety oversight reporting measures motivational reasons not to bring up safety issues to one's supervisor (e.g., to ensure the job gets done) [32]. This construct partially mirrors individual-level underreporting where individuals do not properly report experienced accidents and injuries to their supervisor; however, safety oversight reporting centers on motivation rather than numeric estimations of reporting behaviors.

Combined, theoretical and empirical evidence suggests that masculine gender norms often establish potentially unsafe behaviors as normative. Furthermore, conformity to masculine gender norms (i.e., risk-taking, emotional control, and self-reliance) is expected to result in dysfunctional strain and negative consequences for male employees. Specifically, these norms promote engagement in unsafe behaviors and decreased concern for associated consequences. These associations have been supported in existing research (e.g., [30,31]), as internalization of masculine gender norms has been associated with an increased prevalence of workplace accidents and injuries, as well as decreased reporting of safety issues due to desires to meet organizational demands. Therefore, we expect that:

Hypothesis 1 (H1). *Employees who have strong conformity to masculine gender norms will experience more injuries (a), accidents (b), and have higher levels of accident underreporting (c), than those who weakly adhere to these norms.*

1.4. Masculinity and Safety Risk-Taking Behaviors

At-risk individuals' willingness to engage in safe practices is contingent on whether specific behaviors are compatible with their masculine identity [33]. In these instances, pervasive masculine gender norms, like those described in Mahalik's [10] model (e.g., winning, primacy of work, self-reliance, etc.), can be adaptive and positive influences on work and safety behaviors. For example, in some instances, safe workplace behaviors are promoted and coincide with increased performance, as they help to preserve one's role as a financial provider. However, more commonly, increased internalization of masculine gender norms is associated with engagement in more extreme measures and risk-taking. This is particularly well-demonstrated with health-risk taking (e.g., illicit drug use and risky sexual behaviors) [10,12,13,34,35].

We operationalized safety risk taking behaviors as a function of the extent to which employees adhere to safety procedures and complete work-tasks according to safety rules and regulations [34,36]. Safety compliance represents a well-established predictor of numerous safety outcomes; additionally, meta-analyses (i.e., [7,37,38]) have established safety compliance as a significant mediator of the relationship between a variety of individual and organizational level antecedents and employee safety outcomes (e.g., accidents, injuries, and underreporting). These antecedents include safety climate, organizational climate, burnout, safety knowledge, safety motivation, job attitudes, safety attitudes, and personality characteristics, among others. Moreover, these meta-analyses support a significant negative relationship between safety compliance and workplace accidents and injuries; additional empirical work supports the link with accident underreporting [39,40].

Although conformity to masculine gender norms has been linked to risky behaviors in other domains (e.g., health), few studies have examined workplace implications. Despite this, research suggests that masculine work environments are those associated with competitiveness, increased tolerance for risk, overstrain, and injury, and increased reluctance to comply with health and safety standards [41]. At the individual level, CMGN has been associated with increased safety violations or conscious ignoring of safety regulations in order to complete job tasks [31]. Furthermore, Harrell [30] found that male farmers resisted safety practices that were perceived to interfere with personal autonomy, the ability to make a profit, and their masculine identity. Specifically, emotional control, power, and risk-taking dimensions of masculinity were indirectly associated with increased risk-taking behaviors (i.e., profit-oriented risk-taking and unsafe operation of farming equipment), as well as negative safety outcomes (i.e., farm-related accidents).

In the proposed conceptual model, safety risk-taking behaviors is expected to mediate the relationship between CMGN and safety outcomes, as it represents a supported predictor of proposed safety outcomes and because, theoretically, CMGN should be associated with increased risk-taking behaviors. Therefore, we expect:

Hypothesis 2 (H2). *Conformity to masculine gender norms will be positively associated with safety risk-taking behaviors.*

Hypothesis 3 (H3). *Safety risk-taking behaviors will partially mediate the relationship between conformity to masculine gender norms and (a) experience of workplace injuries, (b) experience of accidents, and (c) accident underreporting.*

1.5. Effects of Masculine Gender Norms by Sexual Orientation

Historically, sexual minority individuals are considered gender transgressive, meaning that they do not conform to masculine gender norms [42,43]. Homosexual males are expected to exhibit stereotypically feminine personality traits, interests, skills, and behaviors when compared to heterosexual counterparts [43–46]. Opposite expectations are applied to lesbian women, as they are associated with more masculine traits and behaviors. Due to this gender inversion and perceived failure to conform to masculine gender norms, homosexual men are often met with informal and largely negative social sanctions and/or

policing behaviors [47]. These behaviors include derogatory labels (e.g., sissy), distancing behaviors (e.g., isolating transgressive individuals), and discriminatory organizational practices (e.g., in hiring and promotion processes) [48].

In reaction to chronic stigmatization, homosexual men often enact behaviors to assert CMGN. Specifically, these behaviors include distancing oneself from non-heterosexual counterparts, engaging in passing or concealing behaviors, and exceeding organizational and/or gender standards [11,48,49]. Demonstrating these behaviors, a qualitative study by Poulin et al. [20] found that in order to assert adherence to the hyper-masculine soldier image, homosexual male soldiers would perform above formal requirements and expectations. Additionally, these individuals avoid forming social connections with other non-heterosexual personnel, engage in passing behaviors (i.e., present oneself as heterosexual), establish double lives (i.e., conform to the archetype of masculinity solely at work), and request transfers from assigned postings or trades to avoid hyper-masculine environments.

Further, homosexual men may be enacting their notions of masculinity in more risky and unhealthy ways (e.g., [15]). Homosexual men have higher rates of substance abuse and dependence [50], smoking [10], risky-sexual behaviors [13], and eating disorders [51] compared to heterosexual counterparts. Hamilton and Mahalik [15] demonstrate that these differential rates may be partially attributed to CMGN, in addition to being influenced by pressures stemming from minority stress or stressors associated with chronic stigmatization. Indeed, evidence suggests that concurrent and increased pressure for men to endorse gendered societal norms [11] and chronic stigmatization associated with one's sexual identity may result in over-compensatory engagement in stereotypically masculine behaviors and potential health compromising behaviors [20]). Specifically, for homosexual men, stronger CMGN was associated with increased drinking, smoking, illicit drug use, and high-risk sexual behaviors.

In the work environment, we expect that engagement in, and acceptability of, unsafe workplace behaviors represents a form of "social proof" that an individual conforms to masculine gender norms. This assumption supports the dimensions of masculinity [10], particularly acceptable risk-taking. Concurrently, research suggests that engagement in unsafe health practices (e.g., illegal drug use) is higher among homosexual individuals compared to their heterosexual counterparts and can be partially attributed to conformity to masculine gender norms. We expect this to extend to workplace safety, as higher levels of safety risk-taking mirrors the passing behaviors and supra-performance exhibited by homosexual military personnel in the study of Poulin et al. [20]. The intention to engage in these hyper-masculine and over-compensatory behaviors is to subvert prescribed feminine expectations and normative desire to present as heterosexual articulated in masculine gender norms, while also avoiding potential policing behaviors associated with perceived transgressions. Therefore, we argue that homosexual men will be less compliant with organizational safety rules and regulations in response to CMGN due to attempts to assert their notion of masculinity. These efforts will subsequently lead to higher rates of accidents and injuries. As an additional method to prove conformity to masculine gender norm conformity, specifically self-reliance norms, homosexual men will report a larger discrepancy between experienced and reported accidents (i.e., accident underreporting). Therefore, the expectation is that:

Hypothesis 4 (H4). *Sexual minority status will exacerbate the negative effect of CMGN on safety risk-taking behaviors.*

Hypothesis 5 (H5). *The mediation effect of safety risk-taking behaviors will be stronger for homosexual employees than for heterosexual employees.*

2. Method

2.1. Participants and Procedure

In order to test these hypotheses, an anonymous survey (classified as exempt on 10 January 2020 by the authors' Institutional Review Board #18040 and conducted in accor-

dance with the Declaration of Helsinki) was initially administered to and completed by 800 U.S. working individuals via Qualtrics. Participants were recruited via TurkPrime, an online human subjects' crowdsourcing platform that utilizes Amazon's Mechanical Turk, and gave informed consent prior to their participation. As recommended by Peer et al. [52], we only recruited "high-reputation" respondents who maintained a minimum 90% approval rating across at least 100 previously completed tasks. Prior to proceeding to the main T1 survey, participants were asked to complete a 7-item qualification test, which contained both screening and non-screening questions to ensure that potential respondents properly fulfilled inclusion requirements. Due to the focus on safety outcomes, respondents qualified to participate if they indicated working in a "position that exposes them to safety hazards or risk of injury." Furthermore, participants needed to be employed, identify as male (cis or transgender), and identify as either heterosexual or homosexual. In order to obtain an even sample of heterosexual and homosexual individuals (i.e., 400 individuals each), we used a stratified sampling method and hosted two separate recruitment surveys, one for each subgroup.

Data were collected across two time points, baseline and a one-month follow-up. Time 1 measured sexual orientation, conformity to masculine gender norms, and risky safety behaviors, whereas T2 assessed all safety outcomes. This lagged design of this study (presented in Figure 1) introduces a temporal lag between construct measurement and helps to reduce issues of common method variance [53]. Participants were compensated \$2 at T1 and, subsequently \$3 for completion of the T2 survey. Of those sampled ($N = 800$) at T1, only 521 respondents were invited to complete the T2 survey because a large portion of respondents were able to bypass TurkPrime programming to block duplicate IP addresses. This technical error resulted in some respondents with multiple survey attempts (after not meeting inclusion criteria on their first attempt), non-human bots, and participants utilizing multiple MTurk IDs. Additionally, respondents who did not pass at least two of the three integrated attention checks were dropped from the study. Of the 521 invited respondents, $N = 403$ completed the T2 survey, resulting in a 77% retention rate.

The final sample predominantly identified as heterosexual (57%) rather than homosexual (43%). Furthermore, the majority of individuals in the total sample indicated that they had disclosed their sexual orientation to others within their workplace (87%). Specifically, 96% of heterosexual and 75% of homosexual men reported disclosing their sexual identity at work. Participating individuals primarily identified as white (57%), followed by African American (28%) and mixed-race (6%). The average age of respondents was 34.9 years ($SD = 8.94$), with a range from 18 to 68. Most respondents had completed a bachelor's degree (39%), closely followed by master's degree (21%) and some college credit (14%). The majority of respondents were permanent workers (91%). Finally, of the 21 industries represented, 20% of the respondents worked in manufacturing, 8% in retail trade, 8% in construction, and 8% in finance and insurance.

2.2. Measures

2.2.1. Sexual Orientation

Sexual orientation was assessed with a single item, which asked participants to choose the sexuality label that best aligned with their personal sexual identity. When dummy coding this variable, heterosexual respondents were coded as a 0 and homosexual respondents were coded as a 1.

2.2.2. Conformity to Masculine Gender Norms

Conformity to masculine gender norms was assessed using an abbreviated 20-item version of Mahalik and colleagues' [10] Conformity to Masculinity Norms Inventory (CMNI) created by Owens [54], containing five items for each included dimension of masculine gender norms: risk-taking, self-reliance, emotional control, and heterosexual self-presentation. Sample items from each dimension include "Taking dangerous risks helps me to prove myself," "I hate asking for help," "I tend to keep my feelings to myself,"

and “It would be awful if someone thought I was gay.” The 4-point Likert response options ranged from strongly disagree (0) to strongly agree (3) and were coded such that higher numbers reflect greater conformity to the masculinity norms. The Cronbach’s alpha was 83.

2.2.3. Safety Risk-Taking Behaviors

Safety risk-taking behaviors were assessed using Probst and Brubaker’s [55] 2-item measure which assesses the extent to which employees violate organizational safety rules and policies. Respondents were asked, “How often do you . . . ” “take shortcuts in safety guidelines in order to get the job done faster” and “ignore safety rules and regulations at work.” Response options ranged from strongly never (1) to constantly (5). The Cronbach’s alpha is 89.

2.2.4. Workplace Accidents

Workplace accidents were measured using two distinct scales. The first was an open-ended recall-based measure developed by Probst et al. [39], which was originally adapted from Hayes et al. [56]. This measure asks employees to recall (1) how many total safety incidents they experienced and reported over the past 12 months, as well as (2) how many total safety incidents they experienced but did not report over the past 12 months. Individuals were provided with definitions for accidents, lost-time injury, first-aid injury, near-miss, reported event, and unreported event to avoid confusion as to what constitutes an accident or injury, an issue articulated by Pransky et al. [57]. By summing the number of reported and unreported accidents, a total number of experienced workplace accidents could be obtained.

The second was a recognition-based measure developed by Probst and Graso [6] based on the U.S. Bureau of Labor Statistics’ Occupational Injury and Illness Classification System (OIICS) [58]. This measure includes a list of 17 exposure events identified by this classification system and participants were asked if they had experienced the event, if the event resulted in injury or property damage, and if it was reported. Examples of these events include slip, trip, fall, contact with hazardous materials, improper lifting, and accidentally hit by a worker. Response options were coded no (0) and yes (1). Therefore, the experienced events score could range from 0 to 17.

2.2.5. Accident Underreporting

Accident underreporting was measured through the recall (i.e., [39]) scale mentioned above. For the recall measure, accident underreporting was calculated by dividing the number of unreported events by the total amount of events that occurred within that 12-month period and multiplying that resulting number by 100.

2.2.6. Workplace Injuries

Workplace injuries were assessed through the use of an additional checklist of injuries developed by Probst and Graso [6]. Participants were asked to indicate whether they experienced the following workplace injuries during the last year: shoulder or neck problems, back injury, cuts or puncture wounds, bumps or bruises, broken bones, repetitive motion injuries, skin or lung problems, rotator cuff injury, hearing problems, electrical burn/shock, wrist problems, head trauma, eye irritation, hand/finger injury, joint problems, and other. Response options were no (0) and yes (1). Therefore, the total experienced injuries could range from 0 to 16.

2.3. Data Analysis Strategy

We used SPSS 26 to first calculate the descriptive statistics (means, standard deviations, and correlations) of the measured variables (see Table 1). To test the proposed first-stage moderated mediation model, we used Hayes’s [59] SPSS PROCESS macro (Model 7). This not only provides the relevant regression coefficients, but also bootstrapped confidence intervals of direct and conditional indirect effects and an index of moderated mediation

(see Table 2). We used 10,000 bootstraps and a confidence interval of 95%, and also mean-centered the conformity to the masculine gender norms scale.

Table 1. Descriptive Statistics and Scale Intercorrelations.

	M	SD	1	2	3	4	5	6
Masculine Gender Norms (T1)	1.40	0.28						
Sexual Orientation (T1)	0.43	0.50	0.07					
Safety Risk-Taking (T1)	2.54	1.21	0.44 **	0.33 **				
Accidents: Recognition (T2)	4.83	4.31	0.34 **	0.29 **	0.62 **			
Accidents: Recall (T2)	3.22	3.88	0.25 **	0.25 **	0.46 **	0.59 **		
Accident Underreporting (T2)	32.55	35.91	0.14 **	0.11 *	0.27 **	0.37 **	0.42 **	
Workplace Injuries (T2)	4.83	4.19	0.30 **	0.37 **	0.60 **	0.79 **	0.60 **	0.38**

Notes. Listwise = 384; * $p < 0.05$; ** $p < 0.001$. For sexual orientation: 0 = heterosexual and 1 = homosexual.

Table 2. Results of the Moderated-Mediation Analyses (PROCESS, model 7).

Step 1: Mediator variable model	Risky Safety Behavior				
	Bootstrapped CI [95%]				
	Coeff.	SE	p	LL	UL
Conformity to Masculine Gender Norms (CMGN)	1.04	0.16	<0.001	0.71	1.36
Sexual Orientation	0.78	0.10	<0.001	0.59	0.97
CMGN X Sexual Orientation	1.28	0.26	<0.001	0.77	1.78
Step 2a: Outcome variable model	Experienced Accidents: Recognition				
	Bootstrapped CI [95%]				
	Coeff.	SE	p	LL	UL
Masculine Gender Norms	0.59	0.52	ns	−0.42	1.61
Risky Safety Behavior	2.12	0.16	<0.001	1.80	2.44
Step 2b: Outcome variable model	Experienced Accidents: Recall				
	Bootstrapped CI [95%]				
	Coeff.	SE	p	LL	UL
Masculine Gender Norms	0.08	0.53	ns	−0.95	1.12
Risky Safety Behavior	1.46	0.16	<0.001	1.14	1.79
Step 3a: Outcome variable model	Accident Underreporting				
	Bootstrapped CI [95%]				
	Coeff.	SE	p	LL	UL
Masculine Gender Norms	6.62	5.26	ns	−3.72	16.96
Risky Safety Behavior	7.03	1.66	<0.001	3.77	10.28
Step 2d: Outcome variable model	Workplace Injuries				
	Bootstrapped CI [95%]				
	Coeff.	SE	p	LL	UL
Masculine Gender Norms	0.04	0.51	ns	−0.95	1.04
Risky Safety Behavior	2.08	0.16	<0.001	1.77	2.39

Notes. N = 393.

3. Results

3.1. Descriptive Statistics

Table 1 presents the descriptive statistics, scale reliabilities, and inter-scale correlations between studied variables across the two time points. Examining the inter-scale correlations associated with the tested lagged model (see Figure 1), T1 CMGN was significantly and positively associated with T1 safety risk-taking behavior ($r(403) = 0.44, p < 0.001$), as well as T2 experienced accidents for both the recall ($r(399) = 0.25, p < 0.001$) and recognition measure ($r(398) = 0.34, p < 0.001$), accident underreporting ($r(393) = 0.14, p < 0.001$), and workplace injuries ($r(403) = 0.30, p < 0.001$). This implies that, consistent with Hypothesis 1, stronger CMGN is associated with more safety risk-taking behaviors, workplace accidents, injuries, and accident underreporting. Notably, CMGN was not significantly associated with sexual orientation ($r(403) = 0.07, p = 0.179$), suggesting that conformity to masculine gender norms does not differ by sexual orientation.

Aligning with expectations, safety risk-taking behaviors were significantly and positively related to safety outcomes and sexual orientation. Specifically, more safety risk-taking behaviors at T1 were associated with more T2 accidents, for both the recall ($r(399) = 0.46, p < 0.001$) and recognition measure ($r(398) = 0.62, p < 0.001$), injuries ($r(403) = 0.60, p < 0.001$), and accident underreporting ($r(393) = 0.27, p < 0.001$). Findings also suggested that homosexual individuals engaged in more safety risk-taking behaviors compared to heterosexual counterparts ($r(403) = 0.33, p < 0.001$). Finally, self-identifying as homosexual was significantly and positively associated with more workplace accidents (recall: $r(399) = 0.25, p < 0.001$; recognition: $r(398) = 0.29, p < 0.001$), injuries ($r(403) = 0.37, p < 0.001$), and accident underreporting ($r(393) = 0.11, p < 0.05$).

3.2. Tests of Hypotheses Using PROCESS

Aligning with Hypothesis 2, there was a significant positive relationship between CMGN and safety risk-taking behaviors ($B = 1.04, p < 0.001$; see Table 2), suggesting that higher CMGN is associated with more safety risk-taking behaviors. Although there were no formal hypotheses regarding sexual orientation, it was also a significant predictor of safety risk-taking behaviors ($B = 0.78, p < 0.001$), such that homosexual men engaged in more safety risk-taking behaviors compared to heterosexual individuals.

In turn, safety risk-taking behaviors predicted more workplace accidents for both the recall ($B = 1.46, p < 0.001$) and recognition measures ($B = 2.12, p < 0.001$), injuries ($B = 2.08, p < 0.001$), and accident underreporting ($B = 7.03, p < 0.001$). Although Hypothesis 3 predicted a partial mediating effect, after accounting for safety risk-taking behaviors, CMGN was no longer a significant predictor of experienced accidents, injuries, and accident underreporting, indicating a full (rather than partial) mediating effect of safety risk-taking behavior. Therefore, these findings partially support Hypothesis 3, as safety risk-taking behaviors fully (rather than partially) mediated the relationship between CMGN and the safety outcomes of interest.

Finally, in support of Hypothesis 4, there was a significant interaction between CMGN and sexual orientation on safety risk-taking behaviors ($B = 1.28, p < 0.001$). Specifically, as evidenced by the form of the interaction represented in Figure 2 plotted at low (-1 SD) and high ($+1$ SD) levels of CMGN, the positive relationship between CMGN and safety risk-taking behaviors was stronger for homosexual (slope = 2.32) compared to heterosexual (slope = 1.04) individuals. As suggested by Hayes [59], to examine the conditional indirect effect predicted in Hypothesis 5 of CMGN, mediated through safety risk-taking behaviors and moderated by sexual orientation, on the safety outcomes of interest, we examined conditional indirect effects for each sexual orientation group and the index of moderated mediation.

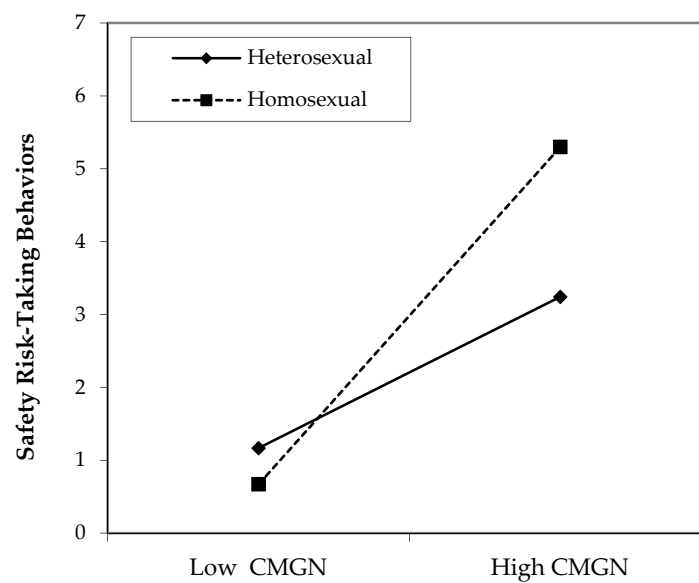


Figure 2. Interaction Effect of Sexual Orientation on the CMGN-Safety Risk-Taking Behaviors Relationship.

The indirect effects of CMGN on workplace accidents for both the recall (effect = 1.51, 95% CI (0.96, 2.20)) and recognition measure (effect = 2.20, 95% CI (1.45, 3.08)) via safety risk-taking behaviors were significant for heterosexual individuals. Similar patterns were exhibited for injuries (effect = 2.16, 95% CI (1.46, 3.00)) and accident underreporting (effect = 7.14, 95% CI (3.62, 11.64)) for heterosexual individuals. Concurrently, the indirect effects of CMGN on workplace accidents for both the recall (effect = 3.37, 95% CI (2.46, 4.42)) and recognition measure (effect = 4.91, 95% CI (3.86, 6.11)) via safety risk-taking behaviors were also significant for homosexual individuals. These findings also extend to the indirect effects for injuries (effect = 4.81, 95% CI (3.85, 5.90)), and accident underreporting (effect = 16.17, 95% CI (8.73, 24.19)).

Given the significant indirect effects for both groups, we also examined the indices of moderated mediation. These were significant when predicting workplace accidents for both the recall (index = 1.85, 95% CI (1.06, 2.80)) and recognition measure (index = 2.71, 95% CI (1.60, 3.95)), injuries (index = 2.65, 95% CI (1.57, 3.80)), and accident underreporting (index = 9.03, 95% CI (4.24, 14.95)). Supporting Hypothesis 5, these findings suggest that the indirect effect of CMGN on the studied safety outcomes through safety risk-taking behaviors is stronger for homosexual compared to heterosexual individuals. A graphical representation of these indirect effect size differences between heterosexual individuals and homosexual individuals is depicted in Figure 3.

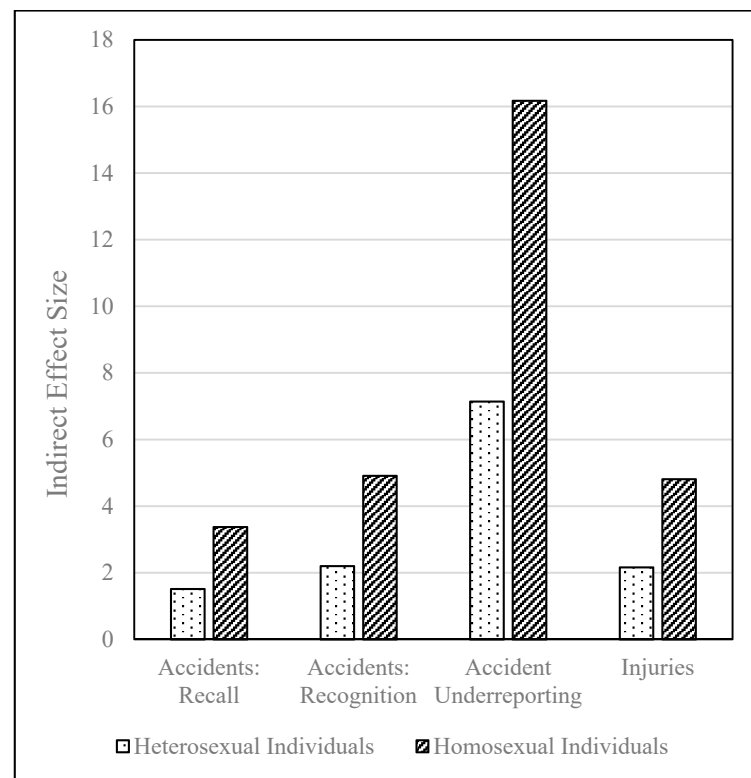


Figure 3. Indirect Effect Sizes by Sexual Orientation.

4. Discussion

4.1. Summary of Findings

The purpose of the current study was to assess conformity to masculine gender norms as a person-related predictor of adverse safety outcomes, extending existing models of occupational safety (e.g., [7,37]). To further investigate the relationship between CMGN and safety outcomes, we tested safety risk-taking behaviors as an explanatory mechanism. This approach enabled us to examine the extent to which individuals who strongly conform to masculine gender norms fail to comply with organizational safety guidelines and regulations, resulting in subsequent increases in work-related accidents, injuries, and accident underreporting. Finally, exploring a potential boundary condition for this mediation, we examined the moderating role of sexual orientation, as prior evidence suggests that sexual minorities are likely to over-conform to masculine gender norms to distance themselves from perceived gender role violations (e.g., [15,20]).

Findings from this two-wave lagged design supports initial research exploring the association between masculine gender norms and adverse safety outcomes (i.e., [30,31]), as well as previous meta-analyses that establish the nomological net of variables for accident, injuries, and accident underreporting (e.g., [7]). Specifically, these results suggest that strong conformity to masculine gender norms is associated with a higher prevalence of workplace accidents, injuries, and accident underreporting. However, as evidenced by the supported full mediation model, these effects are almost completely explained by engagement in safety risk-taking behaviors (e.g., ignoring guidelines and taking unsafe shortcuts to meet production demands). This suggests that greater conformity to masculine gender norms prompts subsequent safety-related risk-taking, which is then associated with more workplace accidents, injuries, and accident underreporting. This aligns with the safety model of Christian et al. [7], suggesting that there is an indirect effect of distal person-related factors on safety outcomes through prior effects of safety performance (i.e., safety compliance). Thus, CMGN appears to be a valuable person-related predictor of adverse safety outcomes.

As predicted, we also found that the conditional indirect effects of CMGN on safety outcomes via safety risk-taking behaviors were stronger for homosexual men compared to their heterosexual counterparts. This suggests that, for homosexual individuals, higher levels of CMGN are associated with comparatively higher safety risk-taking and, subsequently, more adverse safety outcomes (i.e., increased accidents, injuries, and underreporting). Furthermore, the significant direct effect of sexual orientation on safety risk-taking behaviors suggests that homosexual men engage in more safety-related risk-taking compared to their heterosexual counterparts. Combined, these findings align with previous research suggesting that homosexual men tend to engage in more risk-taking behaviors (i.e., safety risk-taking behaviors) in order to undermine perceived gender violations, distance themselves from feminine stereotypes, and prove themselves when it comes to dimensions of traditional masculinity, which, in turn, results in a high prevalence of adverse health and safety outcomes compared to heterosexual counterparts [15,20,60].

4.2. Theoretical Implications

The current study provides several contributions to existing masculinity theory and empirical study. First, its findings help to further clarify the limited and mixed literature regarding the relationship between conformity to masculinity norms and safety outcomes. Indeed, our results suggest that higher CMGN is associated with more accidents, injuries, and accident underreporting. This expands upon work of Nielsen et al. [31], as well as Harrell [30], which demonstrates the negative impacts of high CMGN on the prevalence of safety oversights, violations, and farming accidents.

Furthermore, the current study bolsters and expands upon previous studies suggesting that CMGN is associated with more risk-taking behaviors. Previous research has primarily centered on health [15] and sexual risk-taking behaviors [13]. The current findings indicate that the adverse impact of high CMGN also extends to safety risk-taking behaviors within workplace contexts. This is demonstrated by the significant direct effect of CMGN on safety risk-taking behaviors, as well as the supported full mediation model, as the relationship between CMGN and safety outcomes was completely mediated through safety risk-taking behaviors. This aligns with current understandings of masculine gender norms and the social norms approach [22,23], in which less concern for personal well-being, a deterrence of health and safety behaviors, and simultaneous encouragement of risk-taking and self-destructive behaviors are falsely labeled as normative and results in higher engagement in risk taking behaviors, in this case, safety-related risk-taking [11,19].

Our findings also build upon the Gender Role Strain Paradigm [24,25]. This theory suggests that the pressure to fulfill masculine role demands often overrides concerns for personal health and safety, subsequently resulting in various negative consequences. As discussed in a review by Levant and Richmond [27], endorsing such masculinity ideals is associated with increased reluctance to obtain psychological help, higher alcohol consumption, more sexual risk-taking and partners, increased sexual aggression, lower paternal engagement in child rearing, and increased negative attitudes towards racial and gender minorities, among other outcomes. However, it is important to note that this review focuses on endorsement, as measured by the Masculine Role Norm Inventory, rather than conformity. Nonetheless, mirroring these findings, the current results suggest that the pressure to fulfill masculine role demands and prove conformity to masculine gender norms may lead to increased engagement in safety risk-taking behaviors. This disregard for personal health and safety at work subsequently results in dysfunctional strain consequences in the form of higher rates of experienced workplace accidents, injuries, and accident underreporting.

Delving into the safety literature, results from this study provide an additional distal person-related antecedent to existing conceptualizations of occupational safety. Specifically, building upon the sequential mediation model proposed by Christian et al. [7], results suggest that stronger CMGN is associated with higher incidences of individual-level accidents, injuries, and accident-underreporting. However, further supporting the original

model, the relationship between our proposed antecedent and subsequent safety outcomes was mediated by safety risk-taking behaviors. This comports with additional research that presents safety compliance and, conversely, safety risk-taking behaviors as significant mediators of workplace accidents, injuries, and accident underreporting, as well as several known antecedents (e.g., [37,38]). Overall, as predicted, this study not only supports an additional person-related predictor of safety outcomes (i.e., CMGN), but also substantiates the mediating role of safety performance (i.e., safety risk-taking/compliance) reflected in the original model.

Finally, findings suggest that homosexual men represent a vulnerable population regarding adverse safety performance and outcomes. First, the significant moderation suggests that, for homosexual individuals, the negative effects of high CMGN on safety risk-taking behaviors is magnified. Second, compared to heterosexual individuals, homosexual men engage in more safety risk-taking behaviors. Third, findings suggest that high CMGN results in more safety risk-taking behaviors and ultimately worse safety outcomes. This indirect effect was stronger for homosexual men when compared to heterosexual men, further suggesting that homosexual men represent a vulnerable community when it comes to engagement in safety risks and subsequent accident, injuries, and rates of underreporting. Such results comport with previous research, specifically that homosexual men tend to fulfill perceived masculine role demands in more risky ways, thus partially explaining the higher observed rates of substance abuse, risky sexual behaviors, and STDs among other adverse outcomes within the community [10,13–15,50]. Overall, our study findings warrant increased future exploration of the impact of sexual minority status on occupational safety outcomes.

4.3. Practical Implications

From a practical perspective, these results suggest the need for increased focus on interventions that address issues related to the toxicity of masculine gender norms, safety risk-taking behaviors, and the improvement of workplace conditions for sexual minority employees. However, while there is existing research documenting the pervasiveness of masculinity at work, there is minimal research assessing viable practical solutions. Despite this, there are calls for more attention on components of organizational culture that undermine the gender status quo [61] with the aim of working against the traditional emphasis on promoting production over safety and learning, a lack of managerial support for safety measures, disincentives for reporting accidents, tying workplace knowledge and competence to aggressiveness and emotional control, and normalizing unsafe work practices [61,62]. For example, Ely and Meyerson [61] suggest that (a) focusing on collectivist goals, (b) redefining competence and detaching perceptions of competence from masculine traits, and (c) promoting a learning orientation at work will be helpful in promoting deviation from traditional enactments of masculinity. Overall, the intention is to address masculine norms through identification of situations where masculinity can promote risky practices, advocate for increased education on how organizational structures and social relations exacerbate health and safety issues, and increase consideration of gender relations when developing policies and interventions, in addition to consistent support of diverse displays of masculinity [61,63].

Though not empirically tested as interventions to attenuate the negative impacts of masculine gender norms, the above suggestions align with well-cited safety-related interventions (e.g., [31]). Some viable interventions include improved safety incentive and reporting systems (e.g., increased confidentiality, destigmatizing accident reporting, and faster result reporting) [64], promoting a positive safety climate [4,37,65], advocating for strong safety leadership and, concurrently, continually enforcing safety policies and regulations [65,66]. These interventions are meant to undermine the acceptance of risk-taking at work, reduce the prevalence of workplace accidents and injuries, while simultaneously promoting safety compliant behaviors and increasing comfort with reporting of accidents experienced. As suggested by Ely and Meyerson [61], individual efforts to

prove conformity to masculine norms to others may be more important than the trait itself, so the intention is that utilizing these safety-focused interventions may be beneficial for reprimanding and subsequently reducing the engagement in behaviors associated with traditional masculine traits. In the case of the current study, this would be the utilization of non-compliant safety behaviors and reduced accident reporting in order to abide by masculine role demands associated with risk-taking, emotional control, and self-reliance.

Moreover, similar to the safety literature emphasizing the vital role of safety leadership and leader enforcement of safety regulations (e.g., [65]), supervisor enforcement of nondiscrimination policies and positive behavior expectations may be important to mitigate the pervasiveness of stereotyping, bias, and discrimination. Organizational leaders, particularly supervisors, represent models of organization-wide support for diversity, as well as provide significant bearing on employee diversity climate perceptions and help to determine what behaviors (e.g., allyship behaviors) are acceptable within the work environment [67–70]. Therefore, increased supervisor and organizational supportiveness of diversity may impact the experiences of gender transgressive identities and mitigate the negative influences of masculine gender norms within the workplace.

4.4. Limitations and Future Directions

Despite the contributions of this study, there are some limitations that need to be acknowledged. First, our study only utilized self-report measures. Additionally, the current study utilized a lagged rather than a full longitudinal test of the model. However, the lagged approach is still preferable over cross-sectional designs, as the separation of constructs across time points assists with addressing common method bias issues that may arise from self-report measures and cross-sectional tests [53].

As noted earlier, we did experience some issues with the MTurk filtering tools and respondents attempting to bypass our inclusion criteria. As a result, 35% of those who completed the T1 survey were not invited to participate at T2. Nevertheless, despite these technical issues, we were able to identify and appropriately exclude these individuals and obtain a nearly balanced sample of both heterosexual and homosexual men that properly met our study criteria.

The use of MTurk, an online crowdsourcing platform, could also potentially hinder the external validity of this study since internet and computer access were required to participate. Furthermore, when considering our safety variables and associated inferences, some research (e.g., [71]) suggests that prevalence estimates may be higher for MTurk samples compared to public samples, suggesting the possibility of this with our estimates of CMGN, accidents, injuries, risk-taking, and accident underreporting. However, despite this concern, this aforementioned study (i.e., [71]) and others (e.g., [72,73]) have supported that MTurk samples yield generalizable findings for various forms of studies (both experimental and observational) and are comparable to many other traditional samples and other panel data sources.

There are several avenues of future research that can build upon the current study. First, the current study examined a single boundary condition that magnifies the negative impacts of CMGN on safety risk-taking behaviors. However, it would be important to examine other potential first-stage moderators that buffer this relationship. For example, diversity climate, which encompasses several diversity-related initiatives (e.g., offering training, open discussion on diversity, leadership commitment to diversity) has been associated with improved employee relations in heterogeneous work environments (e.g., [74]). Additionally, supervisor support [65,67,69] may represent another boundary condition, given that supervisors represent potential role models to subordinates regarding acceptable and unacceptable behaviors in the workplace. Such normative expectations can be associated with cultural competency, allyship, or occupational safety, and therefore may influence the enforcement of masculine gender norms within the work environment, as well as employee compliance with safety protocols. Additionally, as described previously, there is much debate regarding masculine (and feminine) gender norm construction. While

this study specifically focused on variation in participant's conformity to pervasive masculine gender norms, research that identifies potential biological, personality, or culturally oriented mechanisms influencing the adoption of these norms would provide valuable insight into the examined relationships. It would be also important to control for some other these aforementioned variables (e.g., personality traits) when examining the relationships tested within this study, providing several avenues for future research. Finally, it would be important for future research to evaluate the extent to which the current findings apply to other sexual orientations and gender identities.

5. Conclusions

Through the lens of social norms theory and the gender role strain paradigm, this study tested whether stronger conformity to masculine gender norms is associated with increased safety risk-taking behaviors and subsequently increased work-related accidents, injuries, and accident underreporting. Results support our predictions and suggest that the negative impacts of CMGN on individual-level safety outcomes can be explained by non-compliance with safety guidelines and regulations. Moreover, results support that being a sexual minority (i.e., homosexual) intensified the adverse effects of CMGN on safety risk-taking behaviors, and thereby, subsequent negative safety outcomes including accidents, injuries, and underreporting. Overall, this study highlights the need for increased organizational attention and consideration of the interplay between masculine gender norms and workplace norms, as represented in various organizational structures, policies, and interpersonal relations. Intentional and/or unintentional endorsement and promotion of such norms appears to have adverse impacts on safety performance and subsequent safety outcomes, especially for sexual minority employees. Therefore, focused interventions meant to undermine hegemonic masculinity may present an avenue to improve occupational safety.

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References

1. Safety and Health at Work. Available online: <http://www.ilo.org/global/topics/safety-and-health-at-work/lang--en/index.htm> (accessed on 25 July 2020).
2. Employer-Reported Workplace Injury and Illnesses. 2017. Available online: <https://www.bls.gov/news.release/osh.nr0.htm> (accessed on 25 July 2020).
3. Workplace Injuries Cost U.S. Companies over \$1 Billion per Week. Available online: <https://www.prnewswire.com/news-releases/workplace-injuries-cost-us-companies-over-1-billion-per-week-300644539.html> (accessed on 25 July 2020).
4. Probst, T.M.; Estrada, A.X. Accident under-reporting among employees: Testing the moderating influence of psychological safety climate and supervisor enforcement of safety practices. *Accid. Anal. Prev.* **2010**, *42*, 1438–1444. [[CrossRef](#)] [[PubMed](#)]
5. Probst, T.M.; Barbaranelli, C.; Petitta, L. The relationship between job insecurity and accident under-reporting: A test in two countries. *Work Stress* **2013**, *27*, 383–402. [[CrossRef](#)]
6. Probst, T.M.; Graso, M. Pressure to produce = pressure to reduce accident reporting? *Accid. Anal. Prev.* **2013**, *59*, 580–587. [[CrossRef](#)] [[PubMed](#)]

7. Christian, M.S.; Bradley, J.C.; Wallace, J.C.; Burke, M.J. Workplace safety: A meta-analysis of the roles of person and situation factors. *J. Appl. Psychol.* **2009**, *94*, 1103–1127. [[CrossRef](#)]
8. Cialdini, R.B.; Trost, M.R. Social influence: Social norms, conformity, and compliance. In *The Handbook of Social Psychology*; Gilbert, S., Lindzey, G., Eds.; McGraw-Hill: Boston, MA, USA, 1999; Volume 2, pp. 151–192.
9. Mahalik, J.R. A model of masculine gender role conformity. In *Masculine gender role conformity: Examining theory, research, and practice*. In Proceedings of the 108th Annual Convention of the American Psychological Association, Washington, DC, USA, 4–8 August 2000.
10. Mahalik, J.R.; Locke, J.D.; Ludlow, L.H.; Diemer, M.A.; Scott, R.P.J.; Gottfried, M.; Frietas, G. Development of the Conformity to Masculine Norms Inventory. *Psychol. Men Masc.* **2003**, *4*, 3–25. [[CrossRef](#)]
11. Courtenay, W.H. Constructions of masculinity and their influence on men’s well-being: A theory of gender and health. *Soc. Sci. Med.* **2001**, *50*, 1385–1401. [[CrossRef](#)]
12. Mahalik, J.R.; Burns, S.M.; Syzdek, M. Masculinity and perceived normative health behaviors as predictors of men’s health behaviors. *Soc. Sci. Med.* **2007**, *64*, 2201–2209. [[CrossRef](#)]
13. Mahalik, J.R.; Lagan, H.D.; Morrison, J.A. Health behaviors and masculinity in Kenyan and U.S. male college students. *Psychol. Men Masc.* **2006**, *7*, 191–202. [[CrossRef](#)]
14. Cochran, S.D.; Ackerman, D.; Mays, V.M.; Ross, M.W. Prevalence of non-medical drug use and dependence among homosexually active men and women in the US population. *Soc. Study Addict.* **2004**, *99*, 989–998. [[CrossRef](#)] [[PubMed](#)]
15. Hamilton, C.J.; Mahalik, J.R. Minority stress, masculinity, and social norms predicting gay men’s health risk behaviors. *J. Couns. Psychol.* **2009**, *56*, 132–141. [[CrossRef](#)]
16. Schmitt, D.P.; Realo, A.; Voracek, M.; Allik, J. Why can’t a man be more like a woman? Sex differences in Big Five personality traits across 55 cultures. *J. Pers. Soc. Psychol.* **2008**, *94*, 168–182. [[CrossRef](#)] [[PubMed](#)]
17. Pleck, J.H. *The Myth of Masculinity*, 3rd ed.; MIT Press: Cambridge, MA, USA, 1987.
18. Kaya, A.; Iwamoto, D.K.; Brady, J.; Clinton, L.; Grivel, M. The role of masculine norms and gender role conflict on prospective well-being among men. *Psychol. Men Masc.* **2019**, *20*, 142–147. [[CrossRef](#)]
19. Bunton, R.; Crawshaw, P. Risk, ritual, and ambivalence in men’s lifestyle magazines. In *The Commodification of Health Care*; Henderson, E.S., Petersen, A., Eds.; Routledge: London, UK, 2002; pp. 187–203.
20. Poulin, C.; Goulinger, L.; McCutcheon, J. Violating gender norms in the Canadian military: The experiences of gay and lesbian soldiers. *Sex. Res. Social Policy* **2018**, *15*, 60–73. [[CrossRef](#)]
21. Carrigan, T.; Connell, B.; Lee, J. Toward a new sociology of masculinity. *Theory Soc.* **1985**, *14*, 551–604. [[CrossRef](#)]
22. Berkowitz, A.D.; Perkins, H.W. Current issues in effective alcohol education programming. In *Alcohol Policies and Practices on College and University Campuses*; Sherwood, J., Ed.; National Association of Student Personnel Administrators Monograph Series; National Association of Student Personnel Administrators: Columbus, OH, USA, 1987; pp. 69–85.
23. Perkins, H.W.; Berkowitz, A.D. Perceiving the community norms of alcohol use among students: Some research implications for campus alcohol education programming. *Int. J. Addict.* **1986**, *21*, 961–976. [[CrossRef](#)] [[PubMed](#)]
24. Pleck, J.H. *The Myth of Masculinity*; MIT Press: Cambridge, MA, USA, 1981.
25. Pleck, J.H. The gender role strain paradigm: An update. In *A New Psychology of Men*; Levant, R.F., Pollack, W.S., Eds.; Basic Books: New York, NY, USA, 1995; pp. 11–32.
26. Berkowitz, A.D. Applications of social norms theory to other health and social justice issues. In *The Social Norms Approach to Prevention*; Wesley-Perkins, H., Ed.; Jossey-Bass: San Francisco, CA, USA, 2003; pp. 259–279.
27. Levant, R.F.; Richmond, K. A review of research on masculinity ideologies using the Male Role Norms Inventory. *J. Men’s Stud.* **2007**, *15*, 130–146. [[CrossRef](#)]
28. Harvold, J.I. National cultures and safety orientation: A study of seafarers working for Norwegian shipping companies. *Work Stress* **2007**, *21*, 173–195. [[CrossRef](#)]
29. Lu, C.S.; Lai, K.H.; Lun, Y.H.V.; Cheng, T.C.E. Effects of national culture on human failures in container shipping: The moderating role of Confucian dynamism. *Accid. Anal. Prev.* **2012**, *49*, 457–469. [[CrossRef](#)]
30. Harrell, A.W. Masculinity and farming-related accidents. *Sex Roles* **1986**, *15*, 467–478. [[CrossRef](#)]
31. Nielsen, K.J.; Hansen, C.D.; Bloksgaard, L.; Christensen, A.D.; Jensen, S.Q.; Kyed, M. The impact of masculinity on safety oversights, safety priority, and safety violations in two male-dominated occupations. *Saf. Sci.* **2015**, *76*, 82–89. [[CrossRef](#)]
32. Nielsen, K.J.; Mikkelsen, K.L. Predictive factors for self-reported occupational injuries at 3 manufacturing plants. *Saf. Sci. Monit.* **2007**, *11*, 1–9.
33. O’ Brien, R.; Hunt, K.; Hart, G. It’s caveman stuff, but that is to a certain extent how guys till operate: Men’s accounts of masculinity and help seeking. *Soc. Sci. Med.* **2005**, *61*, 503–516. [[CrossRef](#)]
34. Blazina, C.; Watkins, C.E. Masculine gender role conflict: Effects on men’s psychological well-being, chemical substance usage, and attitudes toward help-seeking. *J. Couns. Psychol.* **1996**, *43*, 461–465. [[CrossRef](#)]
35. Iwamoto, D.K.; Cheng, A.; Lee, C.S.; Takamatsu, S.; Gordon, D. “Man-ing” up and getting drunk: The role of masculine norms, alcohol intoxication, and alcohol-related problems among college men. *Addict. Behav.* **2011**, *36*, 906–911. [[CrossRef](#)]
36. Neal, A.; Griffin, M.A.; Hart, P.M. The impact of organizational climate on safety climate and individual behavior. *Saf. Sci.* **2000**, *34*, 99–109. [[CrossRef](#)]

37. Clarke, S. An integrative model of safety climate: Linking psychological climate and work attitudes to individual safety outcomes using meta-analysis. *J. Occup. Organ. Psychol.* **2010**, *83*, 553–578. [[CrossRef](#)]
38. Nahrgang, J.D.; Morgeson, F.; Hofmann, D.A. Safety at work: A meta-analytic investigation of the link between job demands, job resources, burnout, engagement, and safety outcomes. *J. Appl. Psychol.* **2011**, *96*, 71–94. [[CrossRef](#)] [[PubMed](#)]
39. Probst, T.M.; Graso, M.; Estrada, A.X.; Greer, S. Consideration of future safety consequences: A new predictor of employee safety. *Accid. Anal. Prev.* **2013**, *55*, 124–134. [[CrossRef](#)]
40. Probst, T.M.; Petitta, L.; Barbaranelli, C. Comparing recall vs. recognition-based measures of accident underreporting: A two-country examination. *Accid. Anal. Prev.* **2017**, *106*, 1–9. [[CrossRef](#)]
41. Johnston, R.; McIvor, A. Dangerous work, hard men, and broken bodies: Masculinity in the Clydeside heavy industries, c. 1930–1970s. *Labour Hist. Rev.* **2004**, *69*, 135–151. [[CrossRef](#)]
42. Fassinger, R.E.; Arseneau, J.R. I'd rather get wet than be under that umbrella: Differentiating the experiences and identities of Lesbian, Gay, Bisexual, and Transgender people. In *The Handbook of Counseling and Psychotherapy with Lesbian, Gay, Bisexual, and Transgender Clients*; Bieschke, K.J., Perez, R.M., DeBord, K.A., Eds.; American Psychological Association: Washington, DC, USA, 2007; pp. 19–49.
43. Kite, M.E.; Deaux, K. Gender belief systems: Homosexuality and the implicit inversion theory. *Psychol. Women Q.* **1987**, *11*, 83–96. [[CrossRef](#)]
44. Blashill, A.J.; Powlishta, K.K. Gay stereotypes: The use of sexual orientation as a cue for gender-related attributes. *Sex Roles* **2009**, *61*, 783–793. [[CrossRef](#)]
45. Blashill, A.J.; Powlishta, K.K. The impact of sexual orientation and gender role evaluations of men. *Psychol. Men Masc.* **2009**, *10*, 160–173. [[CrossRef](#)]
46. Lehavot, K.; Lambert, A.J. Toward a greater understanding of antigay prejudice: On the role of sexual orientation and gender role violation. *Basic Appl. Soc. Psychol.* **2007**, *29*, 279–292. [[CrossRef](#)]
47. Butler, J. *Gender Trouble: Feminism and the Subversion of Identity*; Routledge: New York, NY, USA, 1999.
48. Schope, R.D.; Eliason, M.J. Sissies and tomboys: Gender role behaviors and homophobia. *J. Gay Lesbian Soc. Serv.* **2004**, *16*, 73–97. [[CrossRef](#)]
49. Kite, M.E.; Whitley, B.E., Jr. Do heterosexual women and men differ in their attitudes toward homosexuality? A conceptual and methodological analysis. In *Psychological Perspectives on Lesbian and Gay Issues, Stigma and Sexual Orientation: Understanding Prejudice against Lesbians, Gay Men, and Bisexuals*; Herek, G.M., Ed.; Sage Publications: Thousand Oaks, CA, USA, 1998; Volume 4, pp. 39–61.
50. Meyer, I.H. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychol. Bull.* **2003**, *129*, 674–697. [[CrossRef](#)]
51. Williamson, I.; Hartley, P. British research into the increased vulnerability of young gay men to eating disturbance and body dissatisfaction. *Eur. Eat. Disord. Rev.* **1998**, *6*, 160–170. [[CrossRef](#)]
52. Peer, E.; Vosgerau, J.; Acquisti, A. Reputation as a sufficient condition for data quality on Amazon Mechanical Turk. *Behav. Res. Methods* **2014**, *46*, 1023–1031. [[CrossRef](#)]
53. Podsakoff, P.M.; MacKenzie, S.B.; Podsakoff, N.P. Sources of method bias in social science research and recommendations on how to control it. *Annu. Rev. Psychol.* **2012**, *63*, 539–569. [[CrossRef](#)]
54. Owens, J. Assessing the factor structure of the 55 and 22 item versions of the Confirmatory to Masculine Norms Inventory. *Am. J. Men's Health* **2011**, *5*, 118–128. [[CrossRef](#)] [[PubMed](#)]
55. Probst, T.M.; Brubaker, T.L. The effects of job insecurity on employee safety outcomes: Cross-sectional and longitudinal explorations. *J. Occup. Health Psychol.* **2001**, *6*, 139–159. [[CrossRef](#)]
56. Hayes, B.E.; Perander, J.; Smecko, T.; Trask, J. Measuring perceptions of workplace safety: Development and validation of the Work Safety Scale. *J. Saf. Res.* **1998**, *29*, 145–161. [[CrossRef](#)]
57. Pransky, G.; Snyder, T.; Dembe, A.; Himmelstein, J. Under-reporting of work-related disorders in the workplace: A case study and review of the literature. *Ergonomics* **1999**, *42*, 171–182. [[CrossRef](#)]
58. Bureau of Labor Statistics. *Workplace Injury and Illness Summary*; United States Department of Labor: Washington, DC, USA, 2008.
59. Hayes, A.F. *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*; Guilford Press: New York, NY, USA, 2013.
60. Hunt, C.J.; Fasoli, F.; Carnaghi, A.; Cadinu, M. Masculine self-presentation and distancing from femininity in gay men: An experimental examination of the role of masculinity threat. *Psychol. Men Masc.* **2016**, *17*, 108–112. [[CrossRef](#)]
61. Ely, R.J.; Meyerson, D.E. An organizational approach to undoing gender: The unlikely case of offshore oil platforms. *Res. Organ. Behav.* **2010**, *30*, 3–34. [[CrossRef](#)]
62. Wicks, D. Institutional bases of identity construction and reproduction: The case of underground coal mining. *Gen. Work Organ.* **2002**, *9*, 308–335. [[CrossRef](#)]
63. Stergiou-Kita, M.; Mansfield, E.; Bezo, R.; Colantonio, A.; Garritano, E.; Lafrance, M.; Lewko, J.; Mantis, S.; Moody, J.; Power, N.; et al. Danger zone: Men, masculinity, and occupational health and safety in high-risk occupations. *Saf. Sci.* **2015**, *80*, 213–220. [[CrossRef](#)] [[PubMed](#)]
64. Reason, J.T. *Managing the Risks of Organizational Accidents*; Ashgate: Aldershot, UK, 1997.

65. Probst, T.M. Organizational safety climate and supervisor safety enforcement: Multi-level explorations of the causes of accident under-reporting. *J. Appl. Psychol.* **2015**, *100*, 1899–1907. [[CrossRef](#)] [[PubMed](#)]
66. Clarke, S. Safety leadership: A meta analytic review of transformational and transactional leadership styles as antecedents of safety behaviors. *J. Occup. Organ. Psychol.* **2013**, *86*, 24–49. [[CrossRef](#)]
67. Deitch, E.A.; Barsky, A.; Butz, R.M.; Chan, S.; Brief, A.P.; Bradley, J.C. Subtle yet significant: The existence and impact of everyday racial discrimination in the workplace. *Hum. Relat.* **2003**, *56*, 1299–1324. [[CrossRef](#)]
68. Driscoll, J.M.; Kelley, F.A.; Fassinger, R.E. Lesbian identity and disclosure in the workplace: Relation to occupational stress and satisfaction. *J. Vocat. Behav.* **1996**, *48*, 229–242. [[CrossRef](#)]
69. Duguid, M.M.; Thomas-Hunt, M.C. Condoning stereotyping? How awareness of stereotyping prevalence impacts expression of stereotypes. *J. Appl. Psychol.* **2015**, *100*, 343–359. [[CrossRef](#)] [[PubMed](#)]
70. Herdman, A.O.; McMillan-Capehart, A. Establishing a diversity program is not enough: Exploring the determinants of diversity climate. *J. Bus. Psychol.* **2010**, *25*, 39–53. [[CrossRef](#)]
71. Jeong, M.; Zhang, D.; Morgan, J.C.; Cornacchione-Ross, J.; Osman, A.; Boynton, M.H.; Mendel, J.R.; Brewer, N.T. Similarities and differences in tobacco control research findings from convenience and probability samples. *Ann. Behav. Med.* **2019**, *53*, 476–485. [[CrossRef](#)] [[PubMed](#)]
72. Kees, J.; Berry, C.; Burton, S.; Sheehan, K. An analysis of data quality: Professional panels, student subject pools, and Amazon's Mechanical Turk. *J. Advert.* **2017**, *46*, 141–155. [[CrossRef](#)]
73. Litman, L.; Robinson, J.; Abberbock, T. Turkprime.com: A versatile crowdsourcing data acquisition platform for the behavioral sciences. *Behav. Res.* **2017**, *49*, 433–442. [[CrossRef](#)]
74. Chung, Y.; Liao, H.; Jackson, S.E.; Subramony, M.; Colakoglu, S.; Jiang, Y. Cracking but not breaking: Joint effects of faultline strength and diversity climate on loyal behavior. *Acad. Manag. J.* **2015**, *58*, 1495–1515. [[CrossRef](#)]