Predicting Psychological Safety: The Moderating Role of Gender Congruence

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To the School of Graduate Studies in partial fulfilment of the

Requirements for the degree of

Master of Science in Management (OB/HR Specialization)

Faculty of Business Administration

Memorial University of Newfoundland

Graduating: October 2024

St. John's, Newfoundland and Labrador

Abstract

Psychological safety was initially introduced as a concept approximately six decades ago. The research in this area experienced a renaissance in the 1990's—a boom motivated by recognizing the challenge of navigating uncertainty and the changing nature of organizations. Today, theoretical and practical significance of psychological safety is amplified by the increasingly complex and interdependent nature of the work in organizations across industries. Using data collected by Mental Health Research Canada as part of their 2021 Guarding Minds at Work survey, a final sample of 1539 participants demonstrated that support from one's supervisor and respect from one's peers contribute positively to perceptions of psychological safety. Furthermore, it was hypothesized that these relationships would be moderated by gender congruence of the industry such that the relationships would be stronger for individuals in gender-incongruent industries. This hypothesis was found to be partially supported, indicating that the relationship between supervisor support and psychological safety was strongest for women who work in male-dominated industries. The study's limitations and implications for research and practitioners are discussed.

Keywords: psychological safety, supervisor support, perceived civility climate, gender congruence, male-dominated industries, female-dominated industries.

Acknowledgments

Table of Contents

List of Tables

List of Figures

Introduction

Today's organizations are complex and dynamic structures that require continuous improvements through learning, change, and innovation, which are imperative to their success. These processes develop across multiple levels of the organization as individuals and groups actively participate, collaborate, and experiment (Grant & Ashford, 2008; Nembhard & Edmondson, 2006). Employees, in turn, are expected to take a more active role at work, which has resulted in organizational scholars attempting to identify the factors that foster the employees' willingness to take interpersonal risks and invest their energies into work (Frazier et al., 2017). Psychological safety, or the belief that the workplace is safe for interpersonal risk-taking, is a cognitive state that facilitates this process of learning, change, and employee engagement (Edmondson, 1999; Kahn, 1990).

As a concept, psychological safety was introduced to the organizational sciences over half a century ago by Schein and Bennis (1965), who discussed the need to create psychological safety for individuals. These authors described psychological safety as an ecosystem where people can focus on productive discussion to prevent problems and accomplish shared goals. This would be possible because people would be less likely to prioritize self-protection over contributing towards the team's success (Edmondson, 1999). Psychological safety is defined as an individual's perception of the consequences of taking interpersonal risks in the workplace (Edmondson, 1999). According to Edmondson (1999), in psychologically safe environments, people believe they will not be penalized or thought less of if they make a mistake or ask for help, information, or feedback. This belief enables confidence in taking risks and gaining from the associated benefits of learning. Since Kahn's (1990) and Edmondson's (1999) initial work on psychological safety at the individual and team levels of analysis, empirical research on its antecedents, outcomes, and moderators has proliferated (Baer & Frese, 2003; Kark & Carmeli, 2009).

1

A large body of research has focused on the outcomes of psychological safety at work. A central theme in this research is that psychological safety facilitates the willing contribution of ideas and actions to a shared enterprise (Edmondson & Lei, 2014). For example, psychological safety helps us understand why employees share information and knowledge (Collins & Smith, 2006; Siemsen et al., 2009), speak up with suggestions for organizational improvements (Detert & Burris, 2007; Liang et al., 2012), and take the initiative to develop new products (Baer & Frese, 2003). Psychologically safe environments promote learning and allow employees to proactively avoid mistakes with successive identification of errors (Tynan, 2005). Increased psychological safety has been shown to be associated with higher error reporting rates in healthcare settings (Edmondson, 1996) and with increased levels of employee commitment and engagement (Rathert et al., 2009). Overall, psychological safety has been associated with various outcomes that benefit organizational learning and employees' willingness to speak out.

While there has been a large amount of research on the outcomes of psychological safety, less work has focused on its antecedents. In conceptualizing psychological safety as an individual's perceptions as to whether they are comfortable showing and employing themselves without fear of negative consequences to self-image, status, or career, Kahn (1990) argued that people are more likely to feel psychologically safe when they have trusting and supportive interpersonal relationships with work colleagues.

Through their meta-analysis, Newman et al. (2017) conclude that supportive practices and relationships at work foster or enhance psychological safety and lead employees to reciprocate in the form of positive work outcomes. Chen et al. (2014) also concur and posit that psychological safety and subsequent positive outcomes are not inherent but are exhibited by employees in exchange for positive behaviours shown towards them. If employees feel they are supported by their supervisors and well-liked and respected by their peers, they will

experience a higher level of psychological safety and will, in turn, contribute more wholeheartedly.

This body of research, while extensive, has yet to examine how these phenomena manifest across different demographic groups, such as across genders, races, and nationalities. Analyzing psychological safety research over consecutive decades, Edmondson and Lei (2014) and Edmondson and Bransby (2023) highlight demographic-specific research as a promising avenue for the future.

Gender is a particularly interesting demographic variable given the slow rate of achieving gender parity. The World Economic Forum, in their 2022 report, expressed alarm at the state of the Gender Gap Index which shows global gender parity for labour-force participation. The Gender Gap Index had been slowly declining since 2009, until 2020 when the rate of decline was greatly exacerbated by the pandemic to the lowest it had been since its inception in 2006 (62.9%). While more recent reports do show some improvement, it is not happening fast enough to be encouraging. While women have made inroads into male-dominated professions and industries, they are still a minority gender in many industries.

Psychological safety may be particularly important to women's employee engagement in male dominated occupations because in these environments female employees tend to be shut down, or when they are listened, they are less likely to be recognized for their contributions (Grant & Sandberg, 2015).

Ultimately, a low level of psychological safety may have detrimental outcomes. Indeed, Chandrasekaran and Mishra (2012) examined several teams in technology firms and found that team members are less likely to leave their team when they feel psychologically safe. Conversely, employees who feel like they cannot meaningfully contribute to their organizations (i.e., those who feel psychologically unsafe to contribute) will feel less motivated to do their job and will more likely look for alternative employment opportunities

(Campero, 2021; Hackman & Oldham, 1976). Homophily suggests that we feel safer with individuals who are similar to us. Hence, when an individual works in a context where they are a gender minority, they may require more support than an individual who works in a context where they in the gender majority in order to feel the same level of psychological safety.

Therefore in this thesis, I focus the notion of gender congruence as a potential moderator of two antecedents of psychological safety. In an environment where an individual has a supportive supervisor and perceived civility among organizational members, the gender congruence they experience might be an essential factor affecting the relationship between these predictors and perceptions of high psychological safety.

Antecedents of Psychological Safety

Frazier et al. (2017) conducted a meta-analysis to discuss the various antecedents, outcomes, and moderators of psychological safety at different levels of analysis. In addition to positive personality traits and work-design characteristics, they identified positive leader relations and supportive work context as being significant predictors of psychological safety.

A variety of positive leadership constructs, including ethical leadership (Walumbwa & Schaubroeck, 2009), leader-member exchange (Coombe, 2010), trust in one's leader (Madjar & Ortiz-Walters, 2009), and management style (Halbesleben & Rathert, 2008) were examined as precursors to psychological safety, and found to be significantly and positively related to psychological safety. This is perhaps not surprising considering how a good leader is able to inspire feelings of support, resilience, consistency, trust, and competence in their employees (Kahn, 1990).

Kahn's (1990) work included constructs designed to capture the overall supportive work context. Other than from one's supervisor, support can come from peers as well. As such, a variety of variables capturing the quality of interpersonal relationships with peers

4

have been linked with psychological safety, including support from team members (Schepers et al., 2008), team caring (Bstieler & Hemmert, 2010), and trust in team members (Mayfield et al., 2016). All of these constructs were found to be positively linked to psychological safety.

Given that psychological safety is a perception that an individual forms, the quality of interaction with those working together (be it supervisors or peers) is very important. If an individual perceives that their supervisor or peers will think less of them or ridicule them if they act on their instinct and fail, they will not want to take that risk.

In 2009, Carmeli and Gittell conducted two studies, first a cross-sectional one and then a longitudinal one, which repeatedly underscored the importance of high-quality interpersonal relationships in fostering a psychologically safe environment. Carmeli et al. (2009) also posit that considering the significant influence leaders have on the behaviours and expectations of their follower workgroups, a leader's behaviour is an essential precursor to the psychological safety and perceived civility climate within supervised workgroups. Leaders project workplace expectations upon their direct reports, and employees are typically sensitive to the actions of their superiors (Tyler & Lind, 1992). Leaders fostering environments of collaboration and civility are, therefore, more likely to have followers who feel psychologically safe.

Edmondson (2004) argues that if supervisors are accessible and approachable to their followers, people would feel more comfortable in their work environment. Furthermore, when interpersonal relationships in someone's work environment are supportive, open, and respectful, they significantly impact feelings of safety (Edmondson, 2004; May et al., 2004). Therefore, in this thesis, I focus on two critical interpersonal factors that affect one's perception of psychological safety: supervisor support and perceived civility climate among employees.

5

Supervisor Support and Perceived Civility Climate

Kahn (1990) postulates that an essential aspect of psychological safety is the quality of interpersonal relationships employees share with those at work. If the employee perceives their organization and, more importantly, their direct supervisor as providing care and support, they will feel a greater amount of psychological safety. Edmondson (1999) also identified positive relationships with leaders as having a crucial influence on perceptions of psychological safety. Relationships with leaders signal essential information to employees concerning support, resilience, consistency, trust, and competence (Kahn, 1990). Further, social exchanges between leaders and followers have a crucial impact on the formalization of expectations regarding what is and is not appropriate behaviour (Edmondson, 2004). As such, it is no surprise that a variety of leadership constructs have been examined as precursors to psychological safety. May et al. (2004) also empirically showed that high-quality supervisor and peer relations positively influence psychological safety. Quality of relationships among organizational members is the basis for a life-enhancing work environment (Dutton, 2003). Dutton (2003) goes on to attribute respectful engagement as one of the most fundamental precursors to being able to inculcate high-quality relationships in the workplace, which, in turn, enhances one's perception of psychological safety.

Interpersonal relationships promote psychological safety when they are supportive and trusting because they have a degree of flexibility that allows one to try new tasks and behaviours without fearing the repercussions of failure. This emboldens employees to take initiative and increases confidence (Rhoades & Eisenberger, 2002). People feel safer in climates categorized by openness (Jourard & Rubin, 1968) and supportiveness (Gibb, 1961). On the other hand, if interpersonal relationships reinforce the hierarchical structures within the organization, they are perceived as stifling and threatening. If a person feels threatened

that their supervisor could make them redundant, they will not deem it safe to take risks, thus making the environment psychologically unsafe.

In the same vein, Kahn (1990) describes management style and the processes that affect psychological safety. Supportive, resilient, and reliable management inspires psychological safety. Supportive leaders translate system demands and reinforce members' behaviours to create a high degree of openness (Kozlowski & Ingen, 2006; Hult et al, 2000). Like supportive interpersonal relationships, supportive managerial environments allow people the freedom to try new tasks and behaviours without worrying about consequences. In practice, this inspires the willingness to experiment and creates opportunities for innovation. Therefore, in line with past theory and empirical findings, I hypothesize:

Hypothesis 1: Supportive supervision is positively related to psychological safety.

Psychological safety is also associated with workplace civility. Klingberg et al. (2018) found that psychological safety was negatively and significantly related to workplace incivility when they examined the negative workplace behaviours and negative communication among seventy-seven Emergency Department physicians. Arnetz et al. (2019) observed similar results when they examined that being bullied or disrespected in the workplace negatively affected 331 registered nurses' perceptions of psychological safety.

Civility refers to interpersonal behaviours demonstrating mutual respect between individuals or groups (Andersson & Pearson, 1999) and perceived civility climate is an individual's perception of how civil their workplace is. Conversely, uncivil workplace behaviours are "low-intensity deviant behaviour with ambiguous intent to harm the target, in violation of workplace norms for mutual respect, [typically] displaying a lack of regard for others" (Pearson et al., 2001, p. 1389). According to Hernandez et al. (2015), uncivil work behaviours could include exclusion from meetings or social events, hostile stares, demeaning

remarks, or sarcastic tones. These result in lower levels of psychological safety for those against whom such behaviours are frequently exhibited (Klingberg et al., 2018).

Much like supportive supervision described earlier, if interpersonal relationships reinforce a culture of bullying and incivility where one risks being ridiculed if they take a gamble and it does not work out, the environment would be associated with psychologically unsafe perceptions. On the other hand, fostering a civil workplace climate has been known to yield positive individual and organizational outcomes, including higher levels of organizational commitment, job satisfaction, management trust, less turnover, physical symptoms of stress, and absences (Leiter et al., 2011). Work units characterized by trust and respect among co-workers are more psychologically safe than those characterized by a culture of incivility and bullying (Arnetz et al., 2019). Therefore, in line with past theory and empirical findings, I hypothesize:

Hypothesis 2: Perceived civility climate is positively related to psychological safety.

While the research has demonstrated a positive relationship of supportive supervision and civility with psychological safety, very little attention has been paid to how demographic differences among employees factor into these relationships. Edmondson and Bransby (2023), at the end of their systematic review of the research of the past decade, emphasize the need to examine psychological safety through a gendered lens. While biological sex no doubt plays a role, it might not be the most important boundary condition associated with psychological safety. The research and theory on groups where women or men are a gender minority suggests it may not simply be an individual's gender that matters, but whether they are a gender minority in their work context. The theory of homophily. suggests that investigating the relative congruence of an individual's demographics with the context in which they work and how this might change the relationship between antecedents and psychological safety is an interesting question. I now turn to a discussion of homophily ,

outlining how this theory supports the idea that gender congruence might change the relationship between supportive supervisors, perceived civility climate, and psychological safety.

Homophily as a Theoretical Framework

Ample research has documented the gendering of organizations, including the segregation of men and women into different jobs, occupations, firms, and industries (Bielby & Baron, 1986); patterns of selective recruitment and advancement (Acker, 1990); and wage differentials (Drazin & Auster, 1987). These differences in career outcomes mean that there are certain careers that women might refrain from pursuing (McPherson et al., 2001), particularly those that are male-dominated.

If women do enter these male-dominated occupations, they are at risk of feeling excluded and isolated, with growth opportunities being denied to them as a result. For example, Morgan et al. (2004) discuss this phenomenon in terms of the IT workforce comprising mainly of males, with women being vastly underrepresented. They attribute these negative experiences to informal social networks, which are prevalent in most male-dominated industries and often referred to as the "Old Boy's Network" (p.1313). In these networks, men are able to share information in a less formal setting, learn to trust each other, and establish personal relationships. However, the existence of such networks can be problematic for women, as their being excluded can mean missing out on vital intel that could be crucial for career development. Morgan et al. (2004) conclude that this discourages women and often acts as a deterrent to them joining the IT industry.

Social interactions across a range of relationship types and diverse empirical contexts are notoriously homophilous (McPherson et al., 2001). Homophily is defined as the tendency to associate with people similar to ourselves (Ertug et al., 2022). Prior research on homophily theorizes that "people associate most often and most strongly with others who are similar to

themselves" (Kleinbaum et al., 2013, p. 1316). The mechanism of homophily explains group composition in terms of the similarity of members' characteristics. In principle, these characteristics may refer to social identities that are attached externally to individuals (e.g., ascribed characteristics such as gender, race, or age) or to internal states concerning values, beliefs, or norms (Lazarsfeld & Merton, 1954). Whether external or internal, they predispose similar individuals towards a greater level of interpersonal attraction, trust, and understanding and, consequently, greater levels of social affiliation than would be expected among dissimilar individuals.

Theory as well as empirical evidence point to two distinct mechanisms that contribute to homophily: choice homophily, or the preferences of actors to affiliate with similar others (Reagans, 2011), and induced homophily, which results when people find themselves in situations in which they are surrounded disproportionately by others like themselves (McPherson & Smith-Lovin, 1987). Since choice homophily accounts for homogeneity in associations through preference, it is often claimed that those who are dissimilar are more difficult to interact with than those who share common knowledge or experiences (McPherson et al., 2001). This results in the perception that the rewards of interaction will not exceed the costs, so interaction is not worth pursuing. Brashears (2008) illustrates this with the example of an educated white male who might avoid speaking with a less educated Asian female, not because he finds her unpleasant, but simply because of their lack of shared experience, which gives them little to no foundation for a relationship. Regardless of whether these preferences reflect difficulty or one's actual choice, the end result is the same: when given the opportunity, individuals will seek similarities in their relationships and avoid differences (Heckathorn, 2002).

By contrast, structural homophily accounts for homogeneity in association through social constraint (Blau, 1977). Individuals are channelled into particular social locations by

processes larger than themselves and, as a consequence, are surrounded by those who are similar to them in various aspects. Because many individuals only have access to those who are similar to themselves, most friendship networks are relatively homogeneous. As a result, many friendships are, for example, educationally homogeneous simply because many people make friends in the workplace, and the type of work one does is strongly related to one's education (Renzulli et al., 2000). When combined, the powerful forces of structural homophily and choice homophily produce startling homogeneity in individual associations. While structure restricts the pool of available associates, ensuring that choice can only operate on a limited set of options, choice ensures that what little opportunity for diversity remains is mostly foregone (Brashears, 2008).

In extant OB literature, researchers have looked at the uneven distribution of members of social groups across jobs and industries and have posited that homophily tends to reinforce social stratification by providing more beneficial social capital to members of majority groups (Bielby & Baron, 1986). Homophily is usually attributed to the predictability and trust that is facilitated by social homogeneity (Kanter, 1977). Extrapolating this to an organization where one group is in the majority, homophily would predispose most of the group's members to fraternize with those like themselves, leaving those in the minority out. Such is the experience of gender incongruity.

The Experience of Gender Incongruity

Georg Simmel's (1950) seminal work argued persuasively that numerical modifications to the composition of a group bring about qualitative transformations in group interactions. While Simmel's work dealt almost exclusively with absolute numbers, it was Kanter (1977) who first looked at relative numbers and their impact on group behaviour.

Kanter (1977) focused on gender in organizations and describes skewed groups as those which have a large preponderance of one gender over another. She noted that the

numerically dominant gender usually controls the group and its culture. Kanter (1977) categorizes the few of another gender in a skewed group as "'tokens' because they are often treated as representatives of their category, as symbols rather than individuals" (p.966). Her research found that three perceptual phenomena arise in groups with token members.

First, tokens feel "more visible" (Kanter, 1977, pg. 967) than others in the sense that group members pay more attention to them. This constant visibility produces an increased pressure to perform. For example, Kanter (1977) found that token women often felt self-conscious, which interfered with their performance. Moreover, they worried that other team members would view their performance as evidence regarding the abilities of all women. The women responded to these performance pressures by seeking "invisibility" (Kanter, 1977, pg. 974) in various ways (e.g., dressing blandly, behaving meekly) or, conversely, by trying to outperform everyone on the team.

Second, tokens produce "polarization" (Kanter, 1977, pg. 975) in groups. The boundaries between tokens and other group members are strengthened because those other members exaggerate how much they differ from the tokens. Kanter (1977) found, for example, that male co-workers acted more tersely when token women were present, isolated those women by conducting certain activities (work-related and otherwise) only when token women were absent, and asked token women to pass various "loyalty tests," (Kanter, 1977, pg. 978) such as laughing at sexist jokes or joining in when other women in the company were talked about or criticized. The women responded to this polarization by accepting their social isolation from male co-workers, or conversely, by becoming more masculine in their appearance and behaviour, hoping to be treated as "insiders" (Kanter, 1977, pg. 980).

Finally, tokens experience "assimilation" (Kanter, 1977, pg. 980) when their unique personal qualities are overlooked or ignored by other group members, who rely instead on broad stereotypes about the type of person the tokens represent. Kanter (1977) found, for

example, that male co-workers often misidentified token women as lower-status female workers (e.g., secretaries) rather than colleagues. Additionally, Kanter (1977) found that role entrapment occurred when token women were viewed and treated by male co-workers as occupants of a few stereotypical feminine roles, such as "mothers" (p.982) or "cheerleaders" (p.983) Some token women responded to this assimilation by actually leaning in and becoming what other members of their team perceived them to be, changing not only their appearance and behaviour but also their self-perceptions.

Young and Hurlic (2007) put forth a model to explain 'gender enactment' in order to facilitate a better person-group fit. They posit that people, more often women, will act in a manner atypical of their gender to better fit within their environment and assimilate with their peers. For example, a senior female executive might feel the need to change the cadence of her voice to sound more serious and authoritative if she wants to be seriously considered for a management position, or a young female engineer might hesitate to speak up about an offensive joke a co-worker shared on their group's Slack chat. This makes women feel more at odds with their environment and results in them feeling psychologically unsafe.

When explaining skewed groups, Kanter (1977) frequently uses gender as an example by pointing to the effects of proportions many women face in groups and organizations where numerical distributions have traditionally favored men. She found that in less extreme distributions, less exaggerated effects were observed. This research is invaluable in helping us understand male-female interactions and the situations facing women in organizations by introducing structural and contextual effects. Despite being produced decades ago, the salience of Kanter's work has been proven time and time again with the tokenism theory being tested in the recent years and found to be just as relevant (Lewis & Simpson, 2012; Ridgeway, 2011).

The study of the effects of proportions on women in skewed groups is of interest as it allows an understanding of what happens to women who occupy token statuses and are nearly alone in a peer group of men. This situation is commonly faced by women in management as well as those entering male-dominated fields at all levels of industry. Women who work in male-dominated occupations and industries face challenges that differ from those who work in more gender-balanced and female-dominated occupations (Martin & Barnard, 2013) and industries. These challenges affect their retention and career success. For example, extant literature suggests that women in such situations have reported higher levels of stress (Van Den Berg & Van Zyl, 2008), work-family conflict (De Klerk & Mostert, 2010), and fewer opportunities for workplace progression (Mey & Lloyd, 2007) among other negative consequences.

For example: Men making up the majority group in professions like construction, warehousing, etc., means that their gender role aligns better with stereotypes associated with these occupations; they feel like they fit in better, which contributes positively to their psychological safety (Cheryan & Markus, 2020). Contrarily, women in such occupations may feel like they do not fit in, which contributes to feelings of insecurity and low psychological safety. This may be associated with higher levels of turnover for women in these professions (Halliday et al., 2022).

However, the same effects are not necessarily experienced by men in female-dominated workplaces. For example, multiple case studies conducted by Williams (1989, 1992, 1993) in various female-dominated occupations concluded that underrepresented men not only tend to escape the negative consequences of tokenism but are also generally treated advantageously by superiors, co-workers, and clients or customers. Williams (1993) describes how male elementary school teachers experienced a great deal of encouragement and admiration from within the profession, as well as from the public, simply because they

were men, and male secretaries were brought on board for more sensitive projects because their male bosses felt that they were more trustworthy. As a consequence of such preferential treatment, these men's opportunities for within-organization or internal career development tend to exceed those of their female counterparts. Hultin (2003) likens this positive upward mobility to the existence of a "glass elevator" (p.31) as opposed to a "glass ceiling" (p.31) encountered by women in their professional careers.

Despite the disparate levels of gender equality across industries, there has been little attention given to the effects of the industry's composition on the retention of minority genders, particularly females in male-dominated sectors (Halliday et al., 2022). Understanding the inherent problems endemic to these industries is of utmost importance as it can advance interventions to help global managers become more effective at acquiring and retaining the best talent, regardless of gender.

Gender Congruence as a Moderator

Ibarra (1995) posits that any set of dyadic relationships, such as that with a supervisor and their direct report, is embedded in a structural context that allocates more extraordinary privilege and power to certain actors (Krackhardt & Kilduf, 1990). The effect of these relationships might be even more critical for individuals who are working in industries with skewed gender ratios, particularly for women in male-dominated industries (i.e., women in gender-incongruent sectors). Women in a gender incongruent industry might need to rely more on their relationship with their supervisor to help reinforce their confidence and make up for the lack of supportive camaraderie in the workplace.

Indeed, women in male-dominated occupations often experience enhanced visibility, a heightened sense of attention, and a greater risk of social isolation (Johnson et al., 2019). For these reasons, supervisor support should be more important for women's psychological safety, compared to men's, in positions where they experience heightened identity threats.

Johnson et al. (2019) suggest that supportive supervisors can serve as identity safety cues, helping to reduce perceived threats based on one's gender.

Like supervisor support, the effects of perceptions of incivility climate in the workplace could also potentially be stronger in the case of industries with skewed gender proportions, especially for women in male-dominated industries, who might already feel that their co-workers think of them as incapable or incompetent.

For instance, Devlin and Hern (2017) outline an internal memo that was made public in 2017. Written by a Google software engineer, the memo implied that women are under-represented in male-dominated fields like software engineering because they are biologically ill-equipped for such work. The memo went on to imply that women's stronger interest in people and neuroticism might make them less naturally suited to being coders. On Blind – a platform that requires users to prove who they work for before posting – several women working as software engineers in California wrote about how Silicon Valley no longer felt like a safe place and how they felt betrayed by such comments coming from within their own fraternity.

Devlin and Hern (2017) further elucidate that such internal memos, while troubling, are still the soft end of the sort of hostile working environment female employees can face at overwhelmingly male tech firms. At the extreme end, as companies such as Uber and Tinder have learned, this environment can result in cases of sexual harassment and illegal discrimination (Becker, 2020; Seiner, 2019). This factor acts as a major deterrent for young and passionate female coders to even consider a career in Tech. Beyond the most egregious cases, the broader culture of even the most diverse Silicon Valley firms can still end up being off-putting to would-be employees. The campus-style culture, which encourages workers to be on site from dawn till dusk, renders it hard for any primary caregiver to be "part of the

team." At the same time, in some companies, an antipathy for part-time work or on-site creches can also limit flexibility for working mothers.

Another reason why gender congruence might be important is that working in a sector where one's gender is in the majority means working with a lot of people who share similar priorities. Majority representation means that the industry would, more than likely, already have provisions in place to address the concerns of their majority workforce. If lacking, organizations also would be more motivated to invest in such solutions if a large portion of their current or potential workforce considers it a priority. For instance, the NHS, the UK's public healthcare system, is over 77% female, many of whom are mothers or will become mothers during the course of their careers (Peate, 2023). The NHS, therefore, has the option of flexible, compressed, and part-time hours available to working mothers, as well as having on-site childcare centers in every hospital (Platts, 2023).

Conversely, if one's gender is under-represented in an industry, the priorities of the minority gender would often take a backseat to those of the majority. In such a situation, the minority gender may find it difficult to assert their needs and demand solutions to their problems, fearing increased hostility from colleagues. A woman pilot-in-training who was interviewed by Germain et al. (2012) said that until more women became pilots, little effort would be made to change the cockpit environment to accommodate women's physical stature accurately. Describing the experiences of women in tech, Simard and Gilmartin (2010) refer to this as a "Catch-22" (p.15) situation whereby women would only be able to demand change by being assertive, which in turn makes them seem unlikable and difficult to work with.

In the current thesis, I conceptualize gender congruence as the situation where employees work in an industry where their gender has majority representation. Conversely, a gender-incongruent environment is defined as working in an industry where the

17

representation of their gender is in the minority. The threshold used to make this distinction,

70:30, is derived from Kanter's (1977) study of skewed groups. Any industry with more than

70 percent representation of one gender would be classified as being dominated by that

gender. For example, a female nurse would experience a gender-congruent environment

within the healthcare industry, which is 81% female (Statistics Canada, 2021), while a female

petroleum engineer would experience gender incongruency within the energy industry, which

is only 18% female (Statistics Canada, 2021).

Expanding on Young and Hurlic's (2017) model (see page 13), if women are in a

minority in an industry, they may place a greater reliance on external factors (like supervisory

support and perceived workplace civility climate) in order to feel psychologically safe. This

effect might not be as strong for people working in gender-congruent industries. Therefore, I

hypothesize:

Hypothesis 3: Gender congruence moderates the relationship between (a) supervisor

support and psychological safety such that the relationship is stronger for females in male-

dominated industries than gender-congruent industries; and (b) perceived civility climate and

psychological safety such that the relationship is stronger for females in male-dominated

industries than gender-congruent industries.

While men who work in conventionally women-dominated occupations may

experience some advantages (outline above), they may also be subjected to the constraints of

gender norms. Along these same lines, Rudman and Fairchild (2004) investigate male nursing

students and their experiences of being victimized for choosing a conventionally female

career. Their literature review found that cross-sexed behaviour in males was judged more

negatively than cross-sexed behaviour in females in part because of the greater fear of

homosexuality in "feminine" boys compared with "masculine" girls. This could result in

male nurses feeling the need to put on a façade and exhibit more masculine mannerisms so as

to not risk appearing effeminate at all and them being bullied as a consequence. Parallels can be drawn here to the kind of 'gender enactment' exhibited by females as discussed earlier.

In certain vocations such as early childhood education, as Koch and Farquhar (2015) describe, men may be seen as incompetent or less capable of taking care of young children given how males are not considered to be 'natural caregivers'. They also observed that parents were hesitant to hand-over their children to someone who could be a potential child abuser. Their study found that parents had a clear preference for female preschool teachers.

We could make the assumption that men in such professions would also place greater reliance on external factors like supervisory support and workplace civility to be able to feel psychologically safe. This would be a stronger effect than would be observed for people working in gender-congruent industries, however possibly not as strong as that for female in male dominated industries as males in female dominated industries may have some advantages in addition to challenges. Therefore, I hypothesize:

Hypothesis 4: Gender congruence moderates the relationship between (a) supervisor support and psychological safety such that the relationship is stronger for males in female-dominated industries than gender-congruent industries; and (b) perceived civility climate and psychological safety such that the relationship is stronger for males in female-dominated industries than gender-congruent industries.

Figure 1 shows all hypotheses graphically represented. As outlined next, these hypotheses were tested using data from Mental Health Research Canada (MHRC).

<Insert Figure 1 from Appendix 1 here>

Methods

19

Mental Health Research Canada (MHRC) is a charitable organization based out of Ontario, Canada, aiming to increase Canadians' mental health awareness (https://www.mhrc.ca/what-we-do). One way they do this is by partnering with research organizations around the country and surveying Canadians across all demographics on mental health. To test the hypotheses in this thesis, I used archival data from the 2021 survey they conducted - Guarding Minds at Work. ICEHR confirmed that ethics approval would not be needed for the use of this secondary data as there was no identifiable information (See Appendix 2 for email correspondence).

Sample

A total of 5510 participants completed the entire survey. The data was cleaned according to the following steps. First, the careless responders (participants who gave the same response for all 73 questions) were removed by calculating the standard deviation at the item level and deleting all participant responses with SD=0. This left 4406 participants. Next, in order to operationalize gender congruence (see Measures section below), participants were sorted into female- or male-dominated industries by using the gender composition of participant-reported industries from the 2021 Census data from Statistics Canada (https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?LANG=E&genderlist=1,2,3&statisticlist=1,4&dguidlist=2021A000011124&headerlist=44&searchtext=Canada). Participants who worked in a female- or male-dominated industry were retained while those working in more gender-balanced industries were removed. This left 1654 participants. Then, by omitting all those who did not identify as either female or male, 1649 participants were left. Lastly, deleting all participants who had any missing data across the eight items (see Measures section below) resulted in a final total of 1539.

The final sample of 1539 participants consisted of 807 females and 732 males with an mean age of 45.09 years.

Measures

MHRC designed this survey using constructs related to the 13 dimensions of Psychological Health and Safety in the National Standard of Canada (Mental health commission CAN/CSA-Z1003-13/BNQ 9700-803/2013 (R2022)).

The survey used a 7-point Likert scale from 0 to 6, with 99 being used for missing values. The response scale was recoded to a standard 7-point Likert scale from 1 to 7, and the missing values were recoded from 99 to system-missing (SYSMIS) using IBM SPSS Statistics Version 29 (IBM Corp., 2023),

Initially, a CFA was conducted using all 13 dimensions. As the fit was not acceptable (a one-factor solution was the best fit), the items in the questionnaire were analyzed to determine which of them exhibited the most face validity related to the three constructs of interest. Hinkin (1995) describes the first step in scale generation as examining items to determine which items reflect the construct (i.e. face validity) before testing them empirically. Hence, I looked first at the face validity of items in the overall survey that would map onto the three constructs of interest. Once this process was completed, 8 of the 73 items were retained to create measures for supervisory support, perceived civility climate, and psychological safety. Many of the items were not retained because they did not relate to the three constructs of interest. The measures used are outlined next.

Supervisory support: Supervisory support was assessed with three items that exhibited face validity based on the definition of this construct as well as a review of existing literature (Kottke & Sharafinski, 1988). The three items were: (i) My supervisor supports me to do my job successfully; (ii) My immediate supervisor appreciates my work; and (iii) I can talk to my supervisor about the amount of work I have to do. This scale is highly reliable with $\alpha=.89$.

Perceived Civility Climate: Perceived Civility Climate (PCC) was measured using two items that demonstrated face validity and have also been used in existing literature on respect in the workplace (e.g., Smith & Kelloway, 2016). The two items were: (i) People treat each other with (consideration and) respect in the workplace, and (ii) People at work show sincere respect for others' ideas, values and beliefs. This scale is highly reliable with α=.90.

Psychological safety: Psychological safety was measured by assessing the face validity of the items in the MHRC questionnaire. The three items chosen were: (i) I would describe my workplace as being psychologically safe; (ii) I am able to raise concerns about psychological safety in my workplace; and (iii) People in my workplace understand the importance of protecting psychological health and safety. This scale is highly reliable with α=.87.

Gender congruence: This was a multi-categorical variable. Information about participants who identified as female or male and worked in either a female or male-dominated industry was stored as two variables: Gender (1: female, 2: male) and Industry Category (1: female-dominated, 2: male-dominated). These two variables were used to create a third variable, gender congruence, a categorical variable with three possible values as follows:

1. If a female was working in a female-dominated industry (Gender=1 and Industry Category=1) and a male was working in a male-dominated industry (Gender=2 and Industry Category=2), then gender congruence =1.

2. If a female worked in a male-dominated industry (Gender=1 and Industry Category=2), then gender congruence =2.

3. If a male worked in a female-dominated industry (Gender=2 and Industry Category=1), then gender congruence =3.

Here, category 1 is gender congruent, while 2 and 3 are gender incongruent.

The list of female and male-dominated industries, along with the number of employees from each included in this study, can be found in Table 1.

<div align="center"><Insert Table 1 from Appendix 1 here></div>

The list of items retained from the 2021 Guarding Minds at Work survey, including demographic questions about gender and industry, can be found in Appendix 3.

<div align="center">**Measurement Model**</div>

The correlations for the three measures chosen can be seen in Table 2. As can be seen, the correlations are quite high (.68 for Supervisory Support and PCC, .71 for PCC and Psychological Safety, and .74 for Supervisory Support and Psychological Safety), so I examined the discriminant validity of the three measures by doing a Confirmatory Factor Analysis. The fits of two plausible measurement models (described below) were estimated using the Mplus (Muthén & Muthén, 2017) robust weighted least square estimator (WLSMV). WLSMV estimation has been found to be well-suited to the ordered-categorical nature of the Likert scales used to assess supervisor support, PCC, and psychological safety in the present study and is more robust to non-normality assumptions than traditional maximum likelihood estimation (Morin et al., 2017).

<div align="center"><Insert Table 2 from Appendix 1 here></div>

The validity of the proposed measurement model was assessed by testing the fit of two competing models. Model 1 was specified as a one-factor model whereby scale items (indicator variables) were specified to load on a common latent factor. Model 2 was specified to retain the measures as three distinct yet correlated factors. Using the WLSMV estimator within Mplus, I tested the fit of the two measurement models: Model 1 (X^2=974.742, df=20; RMSEA=0.18; SRMR=0.05) and Model 2 (X^2= 136.52, df=17; RMSEA =0.07;

<div align="center">23</div>

SRMR=0.02). Of the two models, the fit of Model 2 was found to be superior to Model 1. The fit indices of the two models are given in Table 3.

<Insert Table 3 from Appendix 1 here>

As Model 1 also exhibited a reasonable fit, I conducted a Chi-squared difference test and found X^2_{diff}=838.22 and df_{diff}=3, which gives a highly significant p-value. This indicates that Model 2, with three correlated yet latent factors, is a better fit (Werner & Schermelleh, 2010).

Analysis & Results

Hypotheses 1 and 2 were tested using ordinary least squares regression in IBM SPSS Statistics Version 29 (IBM Corp., 2023), and Hypotheses 3a, 3b, 4a and 4b were tested using ordinary least squares regression analysis with Model 1 of the PROCESS macro (www.afhayes.com; version 4.2).

To test Hypothesis 1, psychological safety (outcome variable) was regressed onto supervisor support (predictor variable). The result of the regression was significant and indicated that supervisor support (β=.80, p<.001) accounted for 55.3% of the variance in perceptions of psychological safety [F(1, 1539)=1898.63, p<.001]. Therefore, Hypothesis 1, which predicted that supervisor support was positively associated with perceptions of psychological safety, was supported.

Hypothesis 2, which predicted that PCC was positively associated with perceptions of psychological safety, was also supported. It was tested by regressing psychological safety (outcome variable) onto PCC (predictor variable). The result of the regression was significant and indicated that PCC (β=.78, p<.001) accounted for 50.3% of the variance in perceptions of psychological safety [F(1, 1539)=1866.41, p<.001].

Hypotheses 3a and 4a were tested by examining the interaction between supervisor support and gender congruence in explaining additional variance in perceptions of

psychological safety over and above the conditional effects of supervisor support and gender congruence. As such, supervisor support was entered as the predictor variable, psychological safety as the criterion variable, and gender congruence as the categorical moderator. Similarly, Hypothesis 3b and 4b were tested by examining the interaction between PCC and gender congruence in explaining additional variance in the perception of psychological safety over and above the conditional effects of PCC and gender congruence. PCC was entered as the predictor variable, psychological safety as the criterion variable, and gender congruence as the categorical moderator. In these analyses, PROCESS automatically recodes the three-level categorical variable (gender congruence) into a two-level dummy variable. The reference category was 'gender congruent' with gender incongruent (males in female industries and females in male industries) compared to this reference category.

Hypothesis 3a predicted that gender congruence moderated the relationship between supervisor support and psychological safety, such that the relationship is stronger for females in male-dominated industries than for individuals in gender-congruent industries. Hypothesis 3a was supported. The interaction between supervisor support and females in male-dominated industries was found to be significant (b = .12, t = 2.1519, p =.0316), as can be seen in Table 4. Therefore, a graph was produced to examine this interaction (See Figure 2). As can be seen from this figure, the relationship between supervisor support and perceptions of psychological safety was contingent on gender congruence. Compared to the gender-congruent group, the relationship between supervisor support and psychological safety was stronger for females who worked in male-dominated industries {CI [0.01, 0.22]}. Conversely, the interaction between supervisor support and males in female dominated industries was not significant (b = .08, t = 1.5294, p =.1264). Therefore, hypothesis 4a was not supported.

<center><Insert Table 4 from Appendix 1 here></center>

<Insert Figure 2 from Appendix 1 here>

Hypotheses 3b and 4b, which predicted that gender congruence moderated the relationship between PCC and psychological safety such that the relationship is stronger for females in male-dominated industries and males in female-dominated industries, were not supported. Neither interaction was significant (females in male-dominated ($b = .07$, $t = 1.1133$, $p = .2658$) nor males in female-dominated industries ($b = .09$, $t = 1.7042$, $p = .0885$)].

Discussion

In this thesis, I used the theory of homophily and drew on the concept of high-quality relationships to understand the relational underpinnings of psychological safety and whether these differ in importance based on the gender congruity with industry an invidiudal experiences. Past research found supervisor support and workplace civility to be two key relational predictors of psychological safety. While these relational variables had been examined previously, they have not been examined according to specific demographics (Edmondson & Bransby, 2023).

This study investigated supervisor support and PCC as predictors of psychological safety, with both relationships being moderated by gender congruence. Initial results supported the hypotheses that a positive relationship would exist between supervisor support and psychological safety, as well as between PCC and psychological safety, which aligns with past research (Halliday et al., 2022; Arnetz et al., 2018). This study adds value to the literature by examining how these relationships vary with gender congruence, specifically gender composition of different industries compared with individual gender. The moderation hypothesis that the relationship between supervisor support and psychological safety would be stronger for individuals in gender-incongruent industries was supported in the case of females in male-dominated industries but not in the case of males in female-dominated

26

industries. The second moderation hypothesis indicating a stronger relationship between PCC and psychological support for gender-incongruent industries was not supported.

These findings have three main implications. Firstly, when individuals report feeling supported by their supervisor, they also report greater psychological safety perceptions. Secondly, when individuals report perceptions of a civil culture with their peers at work, they also report feeling more psychologically safe. Importantly, though, the relationship between supervisory support and psychological safety was moderated by gender congruence. Compared to people in gender-congruent industries and males in female-dominated industries, the relationship between supportive supervision and psychological safety was strongest for females in male-dominated industries. This indicates that supervisor support may be more critical for women in male-dominated environments to feel psychologically safe. In other words, supervisory support and PCC are important predictors of psychological safety for all men and women in all industries. However, supervisory support may hold greater importance for women in male-dominated industries in terms of reported psychological safety. We might speculate that this could be the case because supportive supervision might counteract some of the other negative effects found in previous research (as described above). A supportive supervisor might be able to encourage and mentor, inspire confidence, and go to bat for female employees, all of which could embolden a minority female employee to take greater risks at work.

The second moderation hypothesis suggesting PCC would be a bigger contributor to psychological safety for gender-incongruent employees was not supported. While speculative, it could be simply that a civil work environment might have a universally positive relationship to psychological safety regardless of gender congruence. Everyone feels psychologically safer when interactions are characterized by civility. Interestingly, a supportive supervisor can also help an employee experiencing incivility from their co-

workers. Lin (1999) suggests that people who exhibit incivility believe that minority employees are handicapped by their disadvantaged position and would be unable to defend themselves or report the incivility fearing a lack of support. Yao et al. (2022) build on this and find that perceived leader support (and social support in general) is positively associated with incivility being reported which in turn reduces the instances of incivility. Future research could focus on providing more detailed explanations for this finding.

Limitations

First, as with any study utilizing archival data, I was limited to the sampling strategy used by MHRC. However, access to such a large sample collected from across professions and Canadian provinces was an advantage. A large sample size such as this has been known to provide increased precision in estimating population parameters as well as enhance the statistical power for testing hypotheses (Andrade, 2020).

A second limitation arising from the archival nature of the data is that the questions included in the survey were not derived from validated measures. Therefore, I needed to utilize measures that had not been previously validated in the literature. While truncated measures like these are often an issue when using archival data, I tried to counter this issue by examining the items used to ensure that the measures demonstrated face validity. In addition, all measures were highly reliable and distinguishable from one another (as shown in the results section).

A third limitation is the use of two- and three-item measures. Because these are short measures, they might not be able to capture the entire scope of the constructs of interest. For example, the PCC scale used is almost exclusively focused on respectful interactions, while other dimensions of civility, such as conflict resolution and antidiscrimination (Osatuke et al., 2009), were not included. Replicating this study and the findings related to gender congruence with validated measures would be of value.

A fourth limitation is that no attention-check questions were included in the survey. Attention check questions enable researchers to identify careless responders (Abbey & Meloy, 2017). The time it took each participant to complete the survey was also not specified, which could have further helped to filter out low-quality responses. Therefore, I had to rely on other ways to identify and retain high-quality responses (Rodd, 2024). For example, calculating the standard deviation of the responses and deleting all with SD=0.

A fifth limitation is that MHRC's data is cross-sectional and entirely self-reported, which introduces concerns about the common method variance (Podsakoff et al., 2003). The major concern with measuring different constructs with the same method is the danger that at least some of the observed covariation between them may be due to the fact that they share the same method of measurement (Podsakoff et al., 2011). However, Podsakoff et al. (2024) also argues that once the common method variance is identified and the parameter estimates remain significant with the method factor included, it can be concluded that the structural relationships are supported. This suggests that the significant moderation found in this study is unlikely to be due to common method variance and the cross-sectional nature of the data.

A sixth limitation is that 'sex' and 'gender' are not the same and shouldn't be used interchangeably (Prince, 2005). When establishing congruence, however, the individual responses were those of their own 'gender identity' while the industry classification obtained from Statistics Canada was likely done by using 'assigned sex'. While not the same, the variables of 'sex' and 'gender' are very highly correlated (Money, 2008).

Lastly, I only had access to industry-specific data, which may not be the most appropriate level at which to measure gender congruence when studying perceptions of psychological safety. As psychological safety is an individual's perception, it might be most affected by the immediate people one works with. Therefore, it would be important in future studies to measure it at a more proximal level, such as a workgroup or team level, because

those are the people an employee interacts with the most. However, the industry-level data was helpful in identifying possible situations where gender incongruence would be an essential consideration in moderating the relationships in this study and other studies have found effects of being a gender minority within an industry (Germain et al., 2012).

Implications for Scholars and Practitioners

The results of this study suggest several avenues for future research. Future research can look at other antecedents of psychological safety and how these relationships with psychological safety might change with gender demographics across industries. This type of research would lend itself to quantitative, qualitative as well as mixed-method studies. However, as specified earlier, the analysis might compare the more distal vantage point of industry with the more proximal notion of team or work-group level gender congruence.

Future research can also be carried out with different demographic groups such as race, LGBTQIA+ identity, neurodiversity, age, level of education, etc. It would be really interesting to see what antecedents are the most critical for various demographic groups. For instance, organizational culture might be a more important predictor than civility or supportive supervision of whether a sexual or gender minority employee feels psychologically safe. While EDI legislation and initiatives can ensure equitable hiring, if the culture within the organization allows homophobia or transphobia, the minority employee may feel psychologically unsafe. In such a situation, it might be even more difficult for them to ask for accommodations, such as gender-neutral bathrooms, that could help them feel comfortable. In addition, while I investigated gender congruence as a moderator, other moderators might be important for different demographic groups. In this example perhaps whether the individual has disclosed their sexual orientation (i.e., is 'out') would be a moderator that might change the relationship between various predictors with psychological

30

safety. It would be interesting for future research to compare predictors and potential moderators of relationships with psychological safety for different demographic groups.

Along this vein, intersectionality, the framework describing someone belonging to multiple minority groups (Cho et al., 2013), like an Asian trans man or a Hispanic autistic woman, could be the focus of future work. It would be intriguing to see what might change in terms of prediction of psychological safety with an intersectional approach. A qualitative study conducting in-depth interviews with multiple individuals who belong to multiple disadvantaged groups could help uncover what factors contribute to their psychological safety.

In practice, the current research could benefit industries that are, for the most part, dominated by one gender but are trying to have a more diverse workforce. Supervisors who have female direct reports can make additional efforts to meet with them more frequently to discuss issues they have encountered while also providing further guidance to enhance their skills and boost their confidence (i.e., provide them with more supervisor support). Upper management within male-dominated organizations can also design policies that allow for more flexible work hours to reduce work-family conflict, which enables women to have a career and a family without compromising on either. Such organizations can also incentivize women in more senior roles to mentor younger female employees, providing advice about how best to navigate the issues plaguing the industry in order to have a fulfilling and successful career. Adopting a more proactive approach that incorporates different streams of research could enhance organizations' understanding of how best to hire as well as retain top female talent in male-dominated industries worldwide.

Conclusion

In this study I found that both supervisor support and PCC positively predict psychological safety in both gender-congruent as well as gender-incongruent situations with

the relationship between supervisor support and psychological safety being the strongest for women working in male-dominated industries. This means that women who work in male-dominated industries can benefit more from supportive supervision in terms of higher perceptions of psychological safety than males who work in female-dominated sectors or those who work in gender-congruent industries. From a theoretical perspective, these findings are in line with both gender homophily and person-environment fit. In addition, this finding supports previous empirical studies of the challenges women face in male-dominated industries versus the seeming benefits men in female-dominated industries experience. It underlines the crucial importance of supervisor support for women in male dominated industries to feel that they can take risks to contribute fully to innovation and change within organizational contexts.

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33

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Appendix 1: Tables and Figures

Table 1 – Industry Classification with the number of participants in each

	Industry	Frequency
Female-dominated	Health and patient care	445
	Education and Childcare	433
Male-dominated	Manufacturing – Food	29
	Manufacturing - Other	186
	Mining, quarrying, and oil and gas extraction	50
	Transportation	135
	Warehousing	40
	Utilities	82
	Construction	139

Table 2 – Means, standard deviations, Cronbach's alpha, and zero-order correlations between study variables

Variable	M	SD	α	1.	2.	3.	4.
1. Supervisor Support	5.26	1.48	.89				
2. Perceived Civility Climate	5.26	1.38	.90	.68**			
3. Psychological Safety	5.01	1.55	.87	.74**	.71**		
4. Gender Congruence[1]	-	-	-	.03	.02	.02	

Note: N=1539, **correlation is significant at .01 (2-tailed)
1. Spearman Correlation calculated due to the categorical nature of this variable

Table 3 – Fit indices for the two measurement models

Model	χ^2	*df*	CFI	RMSEA	SRMR
Model 1	974.74	20	0.90	0.18	0.05
Model 2	136.52	17	0.99	0.07	0.02

Note: N=1539. The three measures included civility (2 items), supervisor support (3 items), and psychological safety (3 items).
Model 1: One Latent Factor (all eight items reflect one common latent factor);
Model 2: Three Correlated Latent Factors (items reflect their own latent factor)

Table 4 – Ordinary least squares regression analysis using PROCESS Model 1 using Gender

Congruence as the moderator

	b	SE	t	p
Constant	5.02	.03	158.2704	.0000
Supervisor Support	.75	.02	35.2916	.0000
Females in MDI	-.04	.08	-.4768	.6336
Males in FDI	-.00	.07	-.0514	.9590
Interaction 1	.12	.05	2.1519	.0316
Interaction 2	.07	.05	1.5294	.1264

Note: MDI= Male-dominated industries; FDI= Female-dominated industries;
Interaction 1=Supervisor Support X Females in Male-dominated industries;
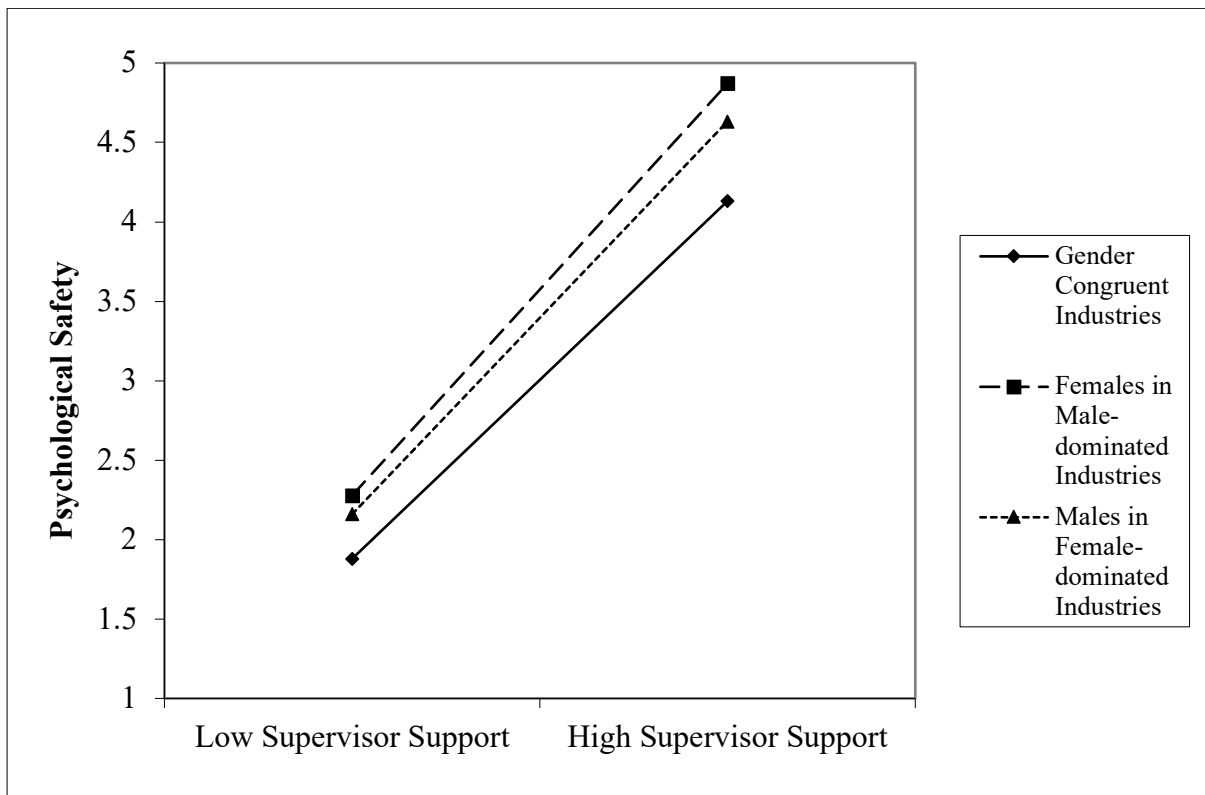Interaction 2 = Supervisor Support X Males in Female-dominated industries

Figure 1: All hypothesized relationships between the study variables
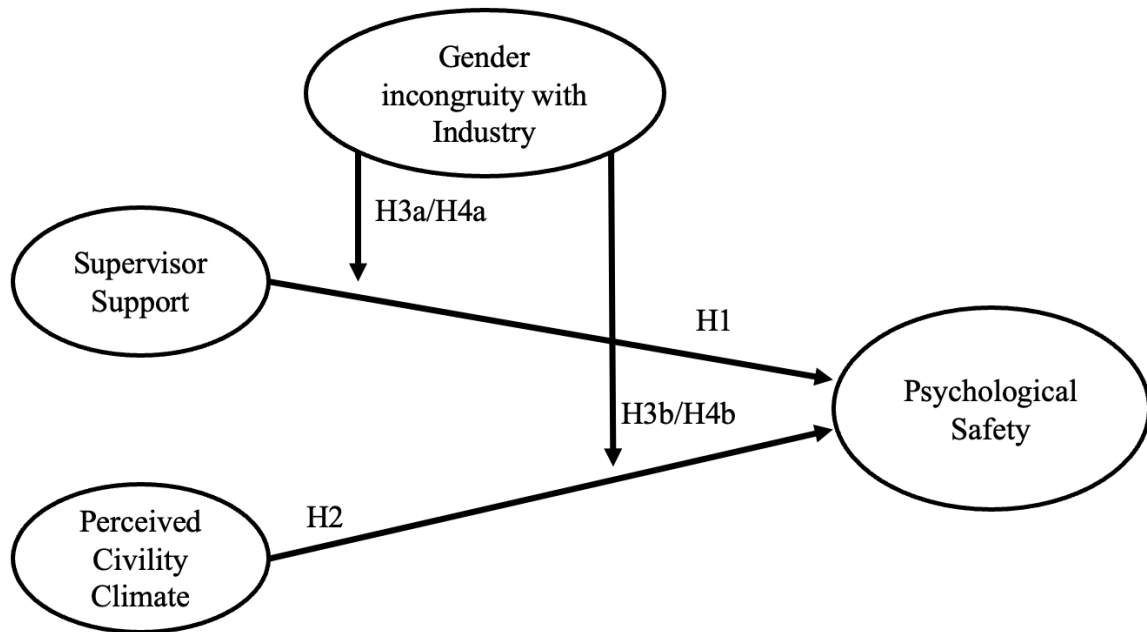
Figure 2: The moderating effect of gender congruence on the relationship between supervisor support and psychological safety

Appendix 2: ICEHR regarding Ethics approval

From: **Kara Arnold** arnoldk@mun.ca 🖇
Subject: Fwd: Question regarding ethics approval for the use of secondary data for Masters thesis and other project(s)
Date: 2 August 2023 at 3:17 AM
To: Ana Askari aaskari@mun.ca

So good news! See below response from the Chair of ICEHR, no ethics required for the use of the psychological safety data.

Kara

> Begin forwarded message:
>
> From: "Kelly Blidook (ICEHR)" <icehrchair@mun.ca>
> Subject: **Re: Question regarding ethics approval for the use of secondary data for Masters thesis and other project(s)**
> Date: August 1, 2023 at 12:13:23 PM PDT
> To: "Arnold, Kara" <arnoldk@mun.ca>
> Cc: "Heath, Theresa" <theath@mun.ca>
>
> Hi Kara,
>
> My apologies for taking this long to respond.
>
> My interpretation of the TCPS2 on this matter is that you do not require REB review. As a quick explanation, the TCPS2 is a bit unclear to me on the distinction for why review is required for "non-identifiable" information, but not for anonymous information. My reading of the relevant sections suggests that if your data had unique identifier codes that could potentially be linked to identities (even though you, yourself, do not have that information), then REB review is required. However, the fact that it simply has case numbers (these are common in many anonymous datasets – they are not a means of linking the case to the participant's identity) leads me to believe that an application is not necessary & the data you have can be considered anonymous.
>
> The first 3 postal code numbers are also not a means of identifying individuals.
>
> Thanks for clarifying all this & best of luck to your student with their research.
>
> Kelly

53

Appendix 3: Measures in the 2021 Guarding Minds at Work survey used in this study

Gender:

Please indicate which gender you most identify with:

{1, Woman}
{2, Man}
{3, Another gender identity}
{4, Don't know/unsure}

Industry:

And which one of the following sectors do you primarily work in?

{1, Health and patient care}
{2, EMT}
{3, Police}
{4, Fire}
{5, Group Home}
{6, Accommodations (i.e. Hotel)}
{7, Restaurant & Food Service}
{8, Grocery Stores}
{9, Administrative and support, waste management and remediation services}
{10, Agriculture, forestry, fishing and hunting}
{11, Arts, entertainment and recreation}
{13, Education and Childcare}
{14, Finance, Legal and Insurance}
{15, Information and cultural industries}
{16, Management of companies and enterprises}
{17, Manufacturing - Food}
{18, Manufacturing - Other}
{19, Mining, quarrying, and oil and gas extraction}
{20, Other services (except public administration)}
{21, Professional, scientific and technical services}
{22, Public administration}
{23, Real estate and rental and leasing}
{24, Retail trade}
{25, Transportation}
{26, Warehousing}
{27, Utilities}
{28, Wholesale trade}
{29, Another sector}
{99, Prefer not to say}

Study measures:

Response format:

> {0, NEVER HAPPENS}
> {1}
> {2}
> {3}
> {4}
> {5}
> {6, ALWAYS HAPPENS}
> {99, NOT APPLICABLE}

For each of the following statements, please indicate how frequently this occurs in your workplace:

1. People treat each other with consideration and respect in the workplace.

2. People at work show sincere respect for others' ideas, values and beliefs.

3. My immediate supervisor appreciates my work.

4. My supervisor supports me to do my job successfully.

5. I can talk to my supervisor about the amount of work I have to do.

6. I would describe my workplace as being psychologically safe.

7. I am able to raise concerns about psychological safety in my workplace.

8. People in my workplace understand the importance of protecting psychological health and safety.