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RISING BURDEN OF GENDER BASED VIOLENCE AT WORKPLACE IN THE DIGITAL ERA: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Executive summary

Background

Gender-based violence (GBV) disproportionately affects younger women, Indigenous women, women who are newcomers to Canada, women living with disabilities, and LGBTQ+ individuals. A systematic review was carried out to identify evidence from a global perspective, and the obtained data was then appraised and synthesized to inform the creation of rigorous policies, best practices, and effective interventions to address GBV in the workplace.

Objectives

The objectives of this systematic review are i) to qualitatively identify the prevalence and experience of GBV in virtual work environments, and ii) to evaluate the efficacy of current workplace policies, interventions, or tools to protect against GBV in the workplace.

Methodology

Search methods

To address our research question about the burden of violence and harassment in virtual workplaces, the employment trajectories, and policies to prevent GBV, a comprehensive search was undertaken using a systematic approach following the PRISMA guidelines after registration with PROSPERO (CRD42023399684). A literature search was conducted in PubMed, OVID, Scopus, Web of Science, and CIHHAL databases using search terms related to "Gender", "GBV", "workplace", and "telework".

Selection criteria

All peer-reviewed articles published in the last decade between 2013–2023, written in English, and focusing on working participants between 18-65 years of age from all gender identities, including LGBTQ+.

Data collection

Three authors independently searched and screened studies for eligibility based on the inclusion criteria, followed by screenings of titles and abstracts, and concluded by a thorough assessment of the full texts of the 60 selected articles. Any disagreements over a particular study were resolved through discussion with a fourth reviewer and the entire research team.

Data analysis

A meta-analysis was conducted to extract the evidence from the articles which included representing healthcare, academia, industry, and skilled trades.

Results

There were 60 articles included in this review. Our review incorporated various types of studies from global south and global north covering various forms of workplace GBV across different work environments, including in-person and online/ hybrid work settings. Most of the studies were conducted in global north (North America, Europe) followed by Asia and Africa. The majority of articles included in this study are cross-sectional studies (42, 70%), followed by mixed methods (10, 17%), qualitative (5, 8%), and cohort (3, 5%) studies. This study looked at GBV in different workplace settings globally. As the focus of the study was specifically on healthcare, academia and industry settings, our search results found that the majority of articles came from healthcare (32, 55%), followed by academia (16, 27%), skilled trades (7, 11%) and industry (4, 7%). The results from the healthcare industry demonstrate that females have been a victim to sexual harassment in the workplace and the perpetrators of this gender discrimination and sexual harassment are commonly senior-level workers. In the academia sector, some of the observed or experienced behavioral concerns from the studies include derogatory comments or inappropriate jokes, hostile emails or verbal communication, diminished work productivity for that person or for others in the unit, and angry outbursts. Studies have shown that the experiences of gender discrimination/harassment were independently associated with lower mental health symptoms, job satisfaction, and sense of safety at work, as well as increased turnover intentions in all the workplace settings including academia, industry, and skilled trades.

Key messages

- There must be transparency about how institutions handle reports, and clarity in regard to the mechanisms for supporting survivors and holding perpetrators accountable.
- Organizations must put their efforts into reducing toxic behaviors and explicitly promoting a culture of safety and respect for all employees.
- Companies must create cyberbullying policies, standards, and processes to guarantee that the complaints are handled in a fair, clear, confidential, and transparent manner.
- All employees and supervisors should receive professional training on how to use internet communication tools and social media in the office.

Glossary

Term	Definitions
Gender-based violence	Violence is committed against an individual based on sex or gender. The individual is forced to do something against their will through violence, abuse or harassment[1].
Microaggressions	A "brief and commonplace daily verbal, behavioural, or environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative racial, gender, sexual-orientation, and religious slights and insults to the target person or group"[2]. Microaggression can be commonly found in the workplace but often overlooked in maintaining heterosexist and cissexist norms while excluding other genders (i.e. LGBTQ people)[3].
Sexual and gender discrimination	Defined as unfair treatment in the workplace based on a person's gender or sexual orientation. Gender can be female, male, lesbian, bisexual, transgender and Queer (LGBTQ)[4]. Sexual and gender discrimination in the workplace can be observed in various forms including wage disparities, employment opportunities, hiring processes, and sexual harassment [5].
Workplace bullying	Workplace bullying is a negative treatment experienced by an individual in the workplace for an extended period of time[6]. Targeted individuals are not able to defend themselves in situations such as physical and verbal abuse, abusive supervision, and sexist abuse.

Full report

Background

Intimate partner violence was found to be widespread and prevalent according to the World Health Organization's multi-national study, which included 24,000 women from 10 different countries, representing diverse cultural, geographical, and urban/rural settings, intimate partner violence was found to be widespread and prevalent. The study found that 13–61% of women reported experience of physical violence by a partner; 4–49% reported experience of severe physical violence by a partner; 6–59% reported experience of sexual violence by a partner at some point in their lives; and 20–75% reported experience of at least one emotionally abusive act from a partner in their lifetime[7]. Many Canadians face violence every day because of their gender, gender expression, gender identity or perceived gender[8]. Certain populations are disproportionately affected by gender-based violence (GBV), such as young women, Indigenous women, women living in rural areas, women who are newcomers to Canada, women living with disabilities, and LGBTQ+ individuals[9]. GBV is associated with negative physical (e.g., injuries, infections) and psychological health outcomes (e.g., depression, post-traumatic stress disorder) and can even lead to death.

GBV at work can take on various forms such as physical abuse (e.g., assault, battery, attempt murder), sexual violence, sexual harassment, verbal and sexist abuse, bullying, coercion, psychological abuse (e.g., intimidation, threats of violence), economic and financial abuse (e.g., gender pay gap, inequality of opportunity), and stalking. GBV can also occur in the workplace. Data from the 2004 and 2014 Canadian General Social Surveys indicate high levels of self-reported violent victimization at work with 17% and 27% of all violent victimization incidents occurring in the workplace in 2004 and 2014, respectively[10,11]. For example, individuals who have experienced sexual violence and GBV are more likely to develop co-occurring mental and chronic health conditions. Furthermore, there are social and economic costs as GBV may impact a woman's ability to work, their compensation, their participation in daily living activities, and their ability to care for themselves and their children[7].

Data from Canada's General Social Surveys indicate high substantial levels of self-reported violent victimization at the workplace[9,10]. Understanding the extent to which GBV impacts women

employees has important implications, such as improving women's occupational health and safety. Underreporting of GBV victims prevents policies against GBV from being implemented and enforced effectively. By examining GBV in the education, healthcare, and industry sectors, this systematic review will provide evidence-based strategies and inform policymakers about how GBV takes root in the places we work and study. The synthesized data will provide a clearer understanding of different contexts in which GBV is present in the workplace, with a focus on virtual work environments.

To the best of our knowledge, no study has reviewed the literature on the prevalence of GBV in the workplace and its impact on employment trajectories, focusing on virtual work environments. We hypothesize that the findings of this systematic review will inform a better understanding of the impact of GBV on women in diverse workplace settings such as education (e.g., post-secondary institutions), healthcare (e.g., home care), skilled trades and industry (e.g., information technology) sectors. We anticipate that the findings from this systematic review will help raise awareness of GBV in the workplace and aid in the successful implementation and utilization of GBV policies. The proposed research will also identify factors contributing to GBV in the workplace and provide clear guidance to employers and employees about their responsibilities to prevent, address, and re-dress GBV incidents at work.

Objectives

The COVID-19 pandemic has changed the landscape of workplace settings, with many people continuing to work from home at least part of the time. The virtual working environment can be socially isolating, and the internet may create a space where abuse can proliferate. The objectives of this systematic review are i) to qualitatively identify the prevalence and experience of GBV in virtual work environments and ii) to evaluate the effectiveness of existing workplace policies, interventions, or tools in preventing and addressing GBV in the workplace.

Methods

Our research plan was implemented through five steps: i) Examining Research Question(s) (Month 0); ii) Systematic Literature Search (Months 1 - 2); iii) Initial Selection of Relevant Studies

(Months 1 - 3); iv) Literature Review, Full text screening, and Data Extraction (Months 3 - 5); and v) Data Synthesis, Reporting, and Dissemination (Months 5 - 6).

This review aimed to address the following questions: 1) How prevalent are violence and harassment in virtual workplaces? 2) Are there any policies or tools in these environments that can effectively protect against GBV? and 3) How do victimization and the experience of GBV impact employment trajectories and gender-related pay gaps in virtual work environments?

Search methods (design and strategy)

To address our research question about the burden of violence and harassment in virtual workplaces, the employment trajectories and policies to prevent GBV, a comprehensive search was undertaken using a systematic approach following the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines[12]. Prior to this, the systematic review was registered with PROSPERO (CRD42023399684). A Literature search was conducted in PubMed, OVID, Scopus, Web of Science, and CIHHAL databases for relevant studies. We used the study's research questions to guide the search terms related to "gender", "GBV", "workplace" and "telework". Multiple, independent searches were completed by three of our multi-disciplinary team members.

The search was done with the following keywords and Boolean operators in all the major databases mentioned above. An example of the search strategy for the PubMed database is shown below.
("university"[Title/Abstract] OR "academia"[Title/Abstract] OR "college"[Title/Abstract] OR "healthcare"[Title/Abstract] OR "skilled trades"[Title/Abstract] OR "industry"[Title/Abstract]) AND ("gender based violence"[Title/Abstract] OR "GBV"[Title/Abstract] OR "Harassing"[Title/Abstract] OR "Harassment"[Title/Abstract] OR "Cyberbullying"[Title/Abstract] OR "Cyberhate"[Title/Abstract] OR "Cyberharassment"[Title/Abstract] OR "gender discrimination"[Title/Abstract] OR "violence victim"[Title/Abstract] OR "exploitation"[Title/Abstract] OR "bullying"[Title/Abstract] OR "intimidation"[Title/Abstract]) AND (("Virtual"[Title/Abstract] OR "web"[Title/Abstract] OR "Online"[Title/Abstract] OR "Remote"[Title/Abstract] OR "Digital"[Title/Abstract] OR

"Internet"[Title/Abstract] OR "telecommuting"[Title/Abstract] OR "teleworking"[Title/Abstract])
AND ("work"[Title/Abstract] OR "employment"[Title/Abstract] OR "labour"[Title/Abstract] OR
"workplace"[Title/Abstract]))

The results from other databases are listed in **Appendix 1.**

Selection criteria and eligibility

        The study's eligibility criteria were formulated a priori, utilizing the PICO (population, intervention, comparisons, outcomes) framework, and content validity was examined and approved by members of the research team (BNK, VKC, AH & ABF).

Populations referred to studies that included gender-based violence in any forms (in person or virtual or hybrid work environments) in any of the workplaces investigated (healthcare, academia, industry, and skilled trades).

Outcomes were any reported incidents/ prevalence of different forms of gender-based violence (verbal, sexual harassments, bullying etc.)

Time: All peer-reviewed journal articles published between January 2013 – February 2023

Setting: There was no limitation based on the geography, type of study, or specific target population.

Inclusion criteria:

- Articles reported in English language;
- Working participants aged 18-65 years;
- All genders including LGBTQ+ community;
- In-person or virtual work environment;
- Any type of GBV or gender discrimination;

Exclusion criteria:

- Non-peer-reviewed articles;
- Articles published outside the specified year range;
- Articles not reported in English language;
- Participants under the age of 18, or over the age of 65 years;
- Unemployed participants;

- GBV experienced outside of the work environment (i.e., domestic violence, spousal violence, violence by live-in partners);

The search strategy was conducted in accordance with the Peer Review of Electronic Search Strategies (PRESS) statement[13]. Three authors independently searched and screened studies for eligibility based on the inclusion criteria, screened the titles and abstracts and concluded by assessing the full texts of the 60 articles.

Articles retrieved from the search that meet our established inclusion criteria were uploaded simultaneously and stored in Covidence to be compiled, organized, and evaluated. The title and abstract screening process was completed independently by three team members and one senior member of the multi-disciplinary team. The senior member was consulted to validate the screening process to ensure the quality of included studies. Any conflicts with the screening process were discussed among the four-member team (JL, SJ, MY and VKC) and if consensus was not reached, the senior investigators made the final decision after a full-text review. After the title and abstract screening, the studies underwent full-text review to ensure that the inclusion criteria were met.

Figure 1: PRISMA chart showing the studies included
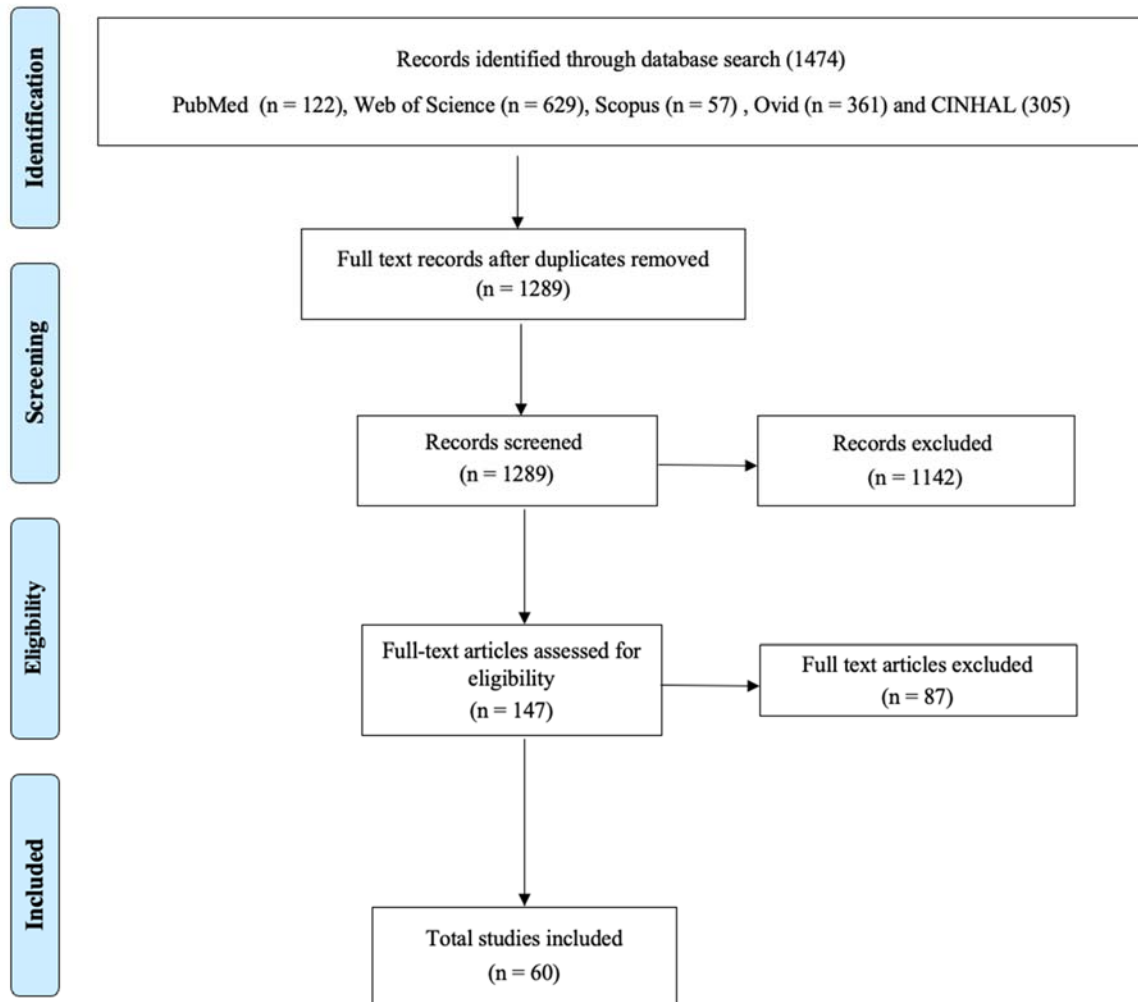
Data Collection

        The full-text screening and synthesis of information was done as part of the meta-analysis. The information included details about study characteristics, participants, setting (workplace), the prevalence of GBV, forms of GBV and findings related to the outcomes of interest. Title and abstract screening, as well as full-text screening and cross-validation were conducted by two review authors (VKC & BNK) independently based on the aforementioned inclusion criteria. Any disagreements over a particular study were resolved through discussion with a senior member of the reviewing team (VKC). Subsequently, 87 articles were eliminated, resulting in the final sample of 60 studies. We used the PRISMA flow chart to document and summarize the identification, screening, eligibility, and selection processes. Finally, all 60 articles were independently reviewed

by three members (JL, SJ & MY) followed by the confirmation and validation by a senior member (VKC) until 100% agreement was achieved.

Data Analysis and Quality Assessment

Four reviewers (JL, SJ, MY & VKC) conducted the qualitative assessment using various critical appraisal tools as per the typology of the study. For cross-sectional studies, the *Risk of Bias Instrument for Cross-sectional Surveys of Attitudes and Practices* by McMaster University was used to screen all the 42 studies included in this systematic review and meta-analysis. *Critical appraisal of Qualitative studies* developed by the Center for Evidence Based Medicine at the University of the Oxford was used for qualitative studies. This checklist was applied for all the five (5) qualitative studies included in this study. *Critical Appraisal Skills Program* was used for cohort studies. This checklist has 12 questions in three sections looking at the validity of results, precision of results, and their usefulness for the local context. All the included studies were critically appraised using these tools after resolving the disagreements through discussion and consensus among the reviewers.

Results

Descriptive Findings

After removing the duplicates, 1290 records were identified. Following the title and abstract screening, we removed 1142 papers and accessed the eligibility of 134 full texts. A total of 60 articles were included in this review. Our review included diverse range of studies from both the global south and global north covering various forms of workplace GBV in different settings, including in-person and online/hybrid work environments. The following is a summary of the total included studies in this review (**Table 1**).

Table 1: Summary of the included full-texts as per the eligibility criteria (n=60)

First author	Year	Country	Target Population
Health care			
Al Omar et al.	2019	Saudi Arabia	Healthcare practitioners
Ayton et al.	2022	Australia	HCWs
Barnes et al.	2019	United States	Surgical trainees
Can et al.	2022	Germany	Healthcare professionals
da Silva Jr. et al.	2023	Brazil	Healthcare professionals

Dettmer et al.	2021	Germany	Medical doctors in cardiology
Difazio et al.	2018	Russia	Nurses
El Ghaziri et al.	2019	United States	Registered nurses
Elamin et al.	2021	Sudan	Doctors
El-Zoghby et al.	2022	Egypt	Medical residents
Eyigör et al.	2020	Turkey	Female otorhinolaryngologists
Forsythe et al.	2023	Europe	Medical practitioners
Güney et al.	2022	Turkey	General surgeons
Hennein et al.	2023	United States	HCWs
Iida et al.	2022	Japan	HCWs
Iqbal et al.	2020	Pakistan	Doctors
Jain et al.	2019	Australia and New Zealand	Ophthalmologists
Keynejad et al.	2018	United Kingdom	Workers in global health
La Torre et al. (1)	2022	Italy	HCWs
La Torre et al. (2)	2022	Italy	HCWs
Malik et al.	2021	Pakistan	Female surgeons
Ng et al.	2022	Australia	Nurses
Parini et al.	2021	Italy	Female surgeons
Parke et al.	2022	Australia and New Zealand	ICU nurses
Pitot et al.	2022	United States	Radiologists
Power et al.	2020	Ireland	Physicians in neuro-intervention
Richard et al.	2020	Canada	Massage therapists
Scruggs et al.	2020	United States	Ophthalmology residents and fellows
Syed et al.	2022	Saudi Arabia	HCWs
Ünal et al.	2022	Turkey	HCWs
Venkatesh et al.	2016	Australia and New Zealand	Fellows and trainees
Yaghmour et al.	2022	Saudi Arabia	Resident trainees
Yolci et al.	2022	Germany	Physicians and nursing staff
Academia			
Banner et al.	2022	United States	University staff
Barr-walker et al.	2021	United States	University library staff
Berlingo et al.	2018	France	Postgraduate trainees in obstetrics and gynaecology
Conco et al.	2021	South Africa	University academic staff
de Freitas Oleto & Palhares	2022	Brazil	Professors
Górska et al.	2020	Poland	Academics
Gosse et al.	2021	Canada	Scholars and academics
Lipton	2020	Australia	Academics
Martinez et al.	2017	United States	Academicians
Mawere & Seroto	2022	Zimbabwe	University students
Moutier et al.	2016	United States	Health science faculty

Muhonen	2016	Sweden	University teachers
Oksanen et al.	2021	Finland	University Research & teaching staff
Sougou et al.	2022	Senegal	Health researchers
Vargas et al.	2020	United States	Medical school faculty
Vargas et al.	2021	United States	Medical school faculty and students
Skilled trades			
Bardekjian et al.	2019	Canada	Women in urban forestry and arboriculture
Bowen et al.	2013	South Africa	Construction professions
Park et al.	2020	Korea	Health managers in construction
Rubin et al.	2017	Australia	Women miners
Rubin et al.	2019	Australia	Women in trades
Stratton et al.	2020	Australia	Mining company
Sunindijo et al.	2017	Australia	Professionals in construction industry
Industry			
Blumell	2018	United Kingdom	Political online reporters
Ineson et al.	2013	United Kingdom	Hospitality management students
Loh & Snyman	2020	Australia	White collar employees
Oksanen et al.	2021	Finland	Finnish workers

Geographical representation of the included studies

Most of the studies were conducted in global north followed by Asia and Africa. **Table 2** and **Picture 1** shows the countries in which these studies were conducted.

Table 2: Distribution of studies according to the country of origin

S. No	Country	No. of Studies
1	United States	11
2	Australia	8
3	Australia & New Zealand	3
4	Canada	3
5	Italy	3
6	Saudi Arabia	3
7	Turkey	3
8	United Kingdom	3
9	Brazil	2
10	Finland	2
11	Germany	2
12	Pakistan	2
13	South Africa	2
14	Egypt	1
15	Europe*	1

| 16	France	1
17	Ireland	1
18	Japan	1
19	Poland	1
20	Russia	1
21	Senegal	1
22	South Korea	1
23	Sweden	1
24	Sudan	1
25	Zimbabwe	1

* This total consists of 28 different countries in Europe.

Picture 1: World map showing the included GBV studies from various countries

When the studies are classified based on the continents, as highlighted above, Europe (19, 32%) contributes to the highest followed by North America (14, 23%) and Oceania (11, 18%). Asia, Africa, and South America had eight, six, and two studies respectively (**Figure 2**).

Figure 2: Continental distribution of Gender-based violence (GBV) studies
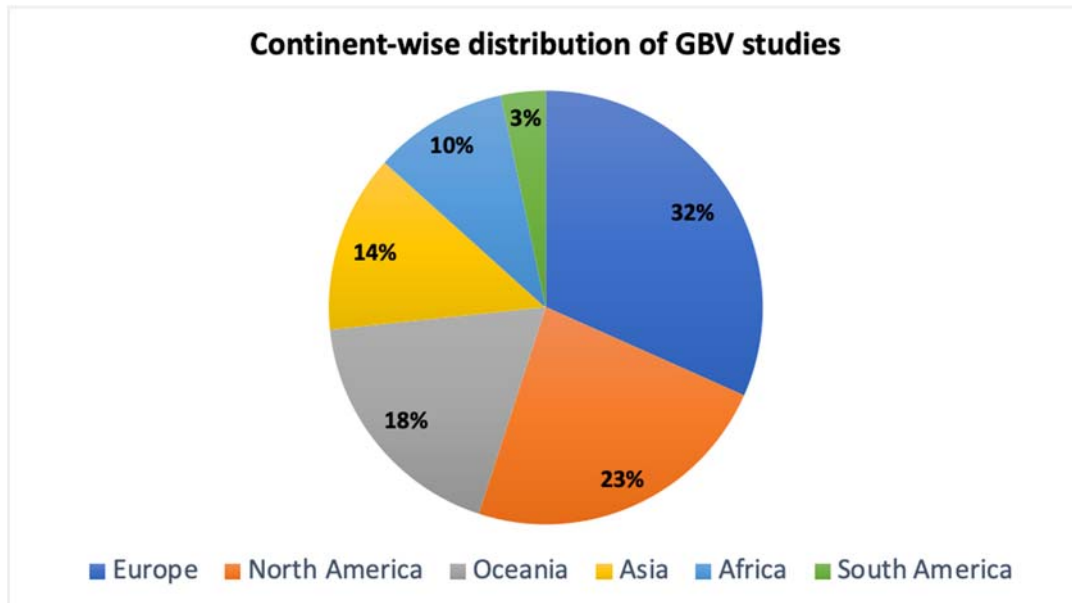
Typology of included studies

Most of the articles included in this study are cross-sectional studies (42, 70%), followed by mixed methods (10, 17%), qualitative (5, 8%), and cohort (3, 5%) studies. The following pie-chart shows the typology of various study results (**Figure 3**).

Figure 3: Distribution of included studies as per the Typology.
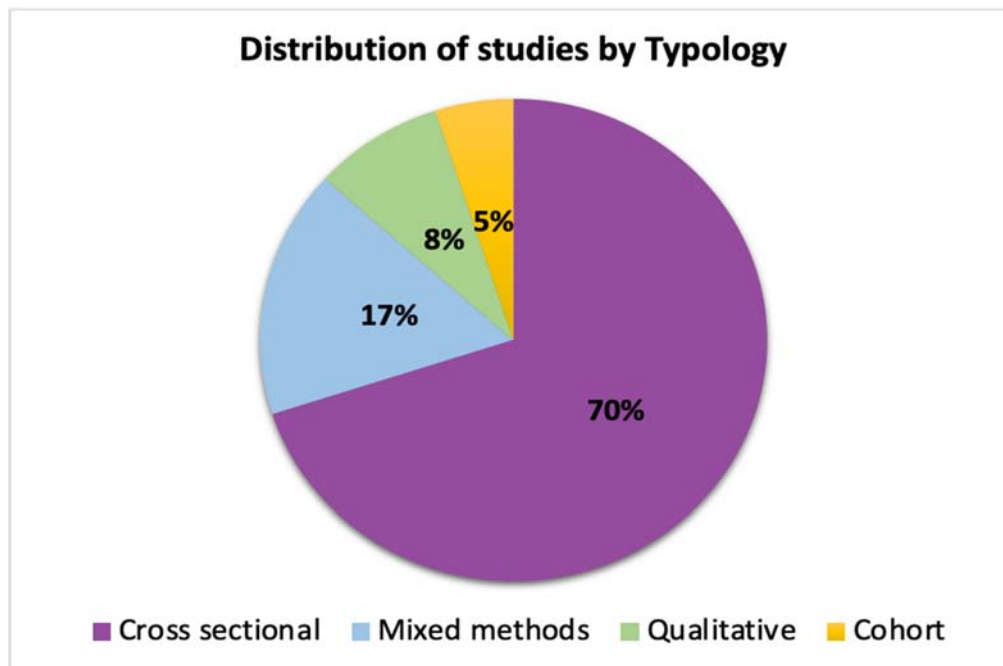
Type of Workplace settings

      The study looked at GBV in different workplace settings globally. As the focus of study was specifically on healthcare, academia, skilled trades and industry settings, our search results found that the majority of articles come from healthcare[14–46] (32, 55%), followed by academia[47–62] (16, 27%), skilled trades[63–69] (7, 11%), and industry[70–73] (4, 7%). The following diagram shows the distribution of the included research studies according to the type of workplace settings (**Figure 4**).

Figure 4: Distribution of included studies according to workplace setting
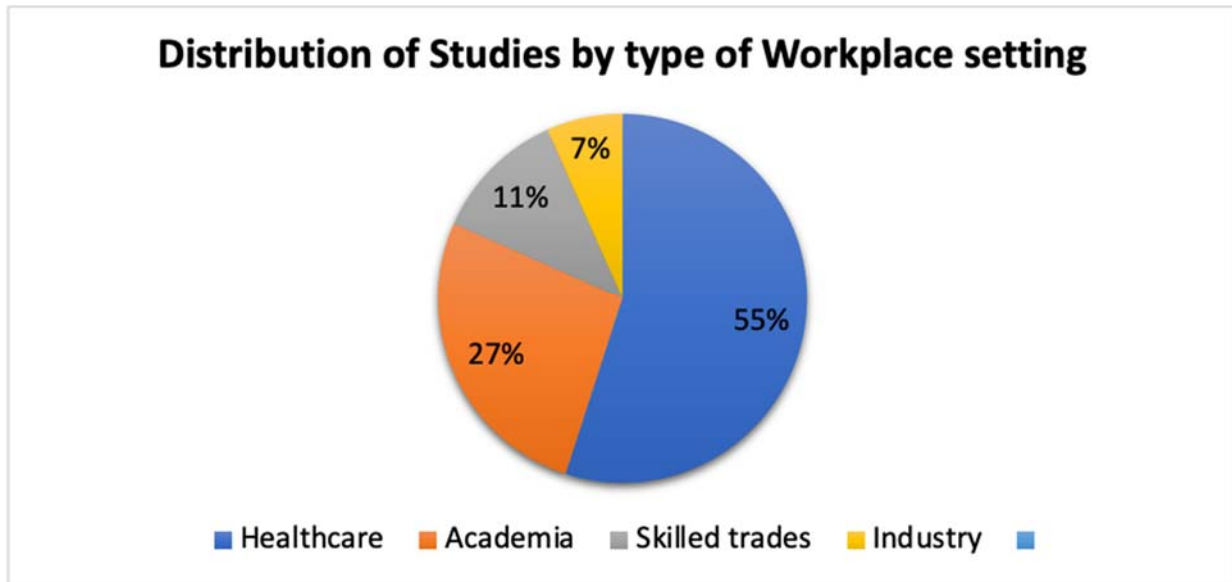
Typology of Healthcare industry workers and GBV

Our review found that out of 33 studies from healthcare domain, a majority of studies reported GBV among healthcare workers (12, 36%), followed by physicians (6, 18%), surgeons (4, 12%), nurses (4, 12%) and other specialists such as radiologists, ophthalmologists, neurologists, cardiologists and massage therapists with one each. However, it is clear that there are many studies conducted among physician communities compared to nurses or other technicians and allied staff. The following figure shows the distribution of GBV studies among various healthcare professionals (Figure 5).

Figure 5: Distribution of GBV studies conducted among various healthcare professionals
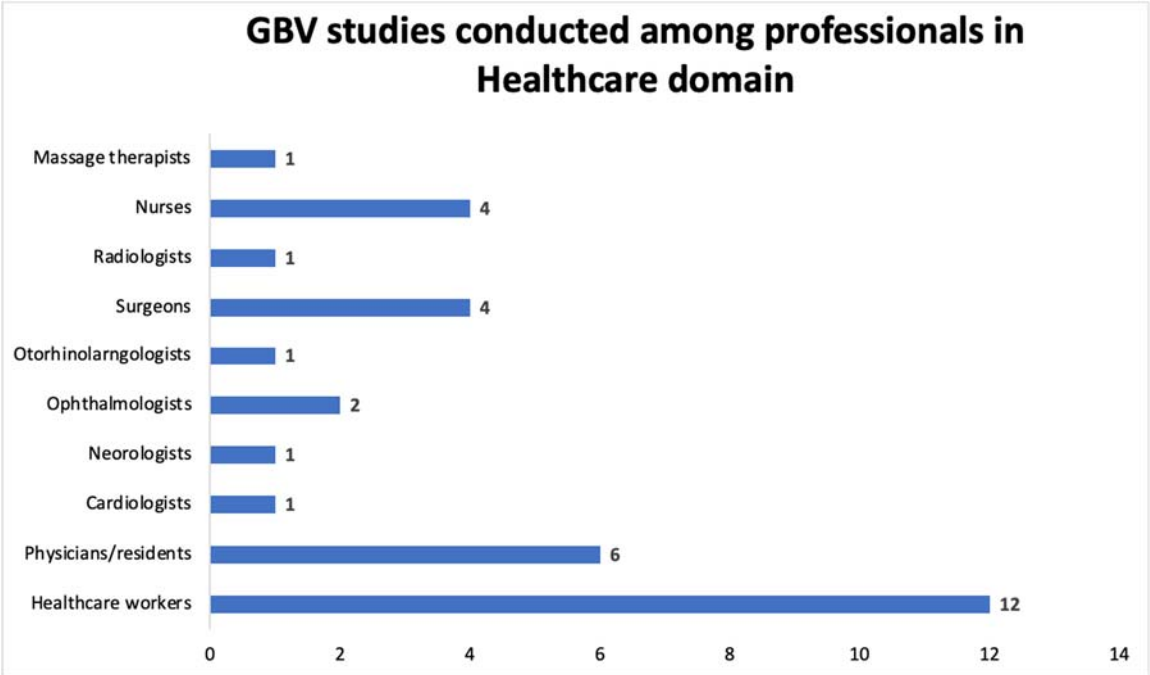
Academia and GBV

Of the total 16 reported studies on GBV in academia, the majority of the studies are from USA (6, 38%), followed by Canada, France, Poland, Finland, Sweden, Senegal, Australia, South Africa, Zimbabwe and Brazil with one each. The distribution of these studies are shown below (**Figure 5**).

Figure 5: Distribution of GBV studies in academia according to the country of origin
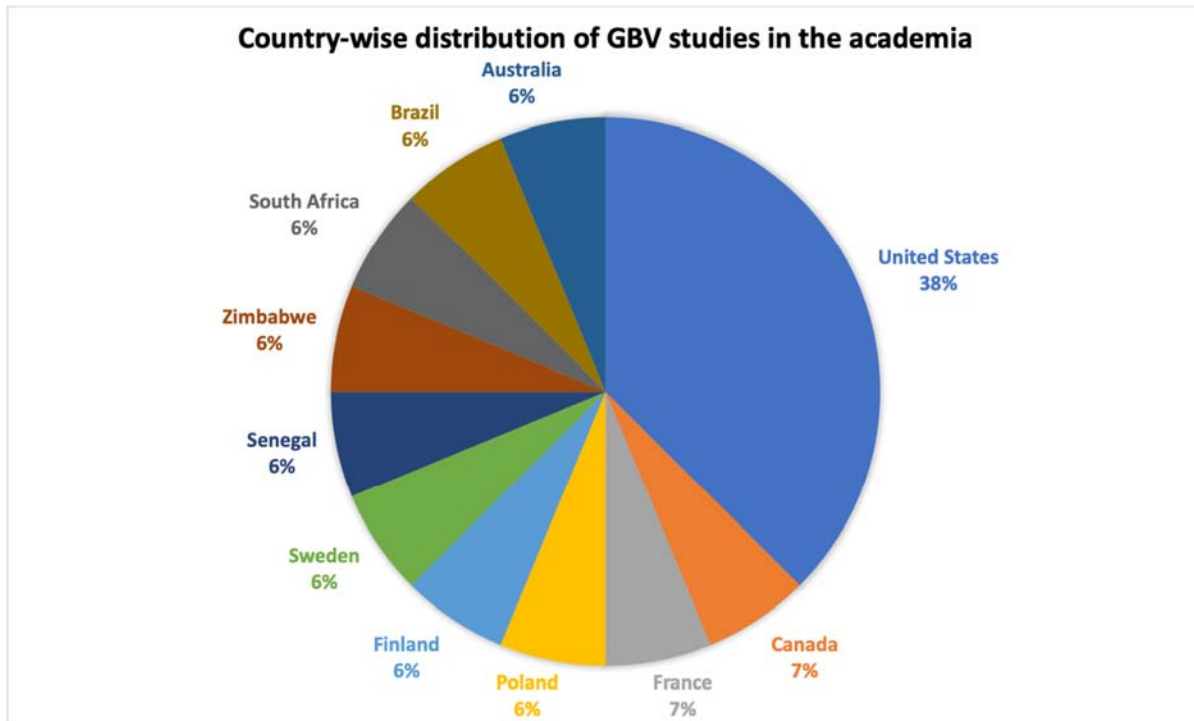
Skilled Trades and GBV

Out of the seven studies included in this category, a majority of four studies are from Australia followed by Canada, South Africa, and South Korea with one each (**Table 1**). The GBV was reported from mining, construction, urban forestry, and arboriculture. Nearly half (3) of the studies included GBV among women working in these trades (construction, mining, and forestry).

Industry and GBV

Our review included only four studies that represented industry sector such as information technology, social media, white collar jobs and the hospitality sector with one study each. These studies are conducted in the United Kingdom (2), Finland (1) and Australia (1) (Table 1).

Qualitative Findings

GBV in Healthcare settings

There are 32 studies that discuss GBV in healthcare settings. Of the 32 studies, 26 are cross-sectional studies, four (4) are mixed methods studies, and two (2) are cohort studies. The articles include experiences of workplace bullying (e.g., physical and verbal abuse, abusive

supervision, and sexist abuse), sexual and physical harassment, gender-based harassment, physical violence, sexual and gender discrimination, and microaggressions. Studies looked at these behaviours between co-workers, supervisors, patients, and patient families. The included studies reported that the perpetrators are most likely to be patients/clients[27,40,41,46], colleagues[27,32,37], and supervisors/superiors[18,25,44]. A study by El Ghaziri et al. (2019) looked at outcomes among nurses in correctional settings[21]. The authors report that 96% of participants have experiences workplace violence and bullying by an inmate. In a study focusing on massage therapists by Richard et al. (2020), almost 75% of participants indicated that they experienced sexual harassment in their practice from a client or clients[40].

Although most of the studies report women experiencing workplace bullying, harassment, and violence at a higher rate than men, a few studies have noted that age also plays a role. A study by Hennien et al. (2023) found that younger age was associated with worse gender discrimination among a group of women healthcare workers[27]. Another study by Al Omar et al. (2019) found that younger health practitioners reported higher levels of worry about workplace bullying[14]. To add, La Torre et al. (2022) found that the healthcare worker group that is most affected by sexual harassment in the past 12 months is women between the ages of 20 and 24 years[33]. Venkatesh and colleagues (2016) support these findings as experiences of sexual harassment were more prevalent among female respondents and younger fellows and trainees[44]. Two studies also categorize gender differently as one study includes non-male gender participants, while the other study looks at gender identity. Foresythe et al. (2023) found that non-male gender (which includes women, transgender, and non-binary individuals) was associated with bullying, undermining, and harassment experiences (except when working as a fellow or international fellow)[25]. The study by El Ghaziri et al. (2019) uses gender identity to categorize participants (feminine, masculine, androgenous, and undifferentiated). The results indicate significant gender role differences in bullying exposure as androgynous nurses reported more occasional bullying[21].

A notable study within our search was Jain and colleagues (2019)[30]. The study, surveyed Australian ophthalmologists, indicated four major obstacles impeding female career advancement namely difficulty in receiving mentorship (57%), difficulty in conducting work-related traveling (59%), in experiencing discrimination (31%), and in facing rigid timelines for promotion and

tenure (38%) [30]. Females are receiving less opportunities, endure greater hardships in the workplace, and are pressured by social and cultural forces to act and behave in a certain way. These themes are prevalent through our search. This is echoed by Malik and colleagues (2019), with which 72% of 218 surgeons surveyed experienced difficulty in receiving mentorship, and varying levels of discrimination such as inappropriate verbal exchanges (70.2%), salary disparities (51.4%), lack of respect from colleagues (76.4%) [34]. This is supported by Eyigör et al. (2020) and Elamin et al. (2021), where the former found that gender discrimination was 2.5 fold higher in departments where there were no female faculty members, and the latter concluded female doctors were more likely to experience violence by peers and patients[22,24]. Power et al. (2021) reports work comparisons and perceptions between women and men working in neurointervention[39]. In this study, there are gender differences in the workplace. A significantly greater proportion of women had experienced sexual harassment at work (35% vs. 5%) and felt they had been discriminated against because of their gender (52% vs 5%).

In terms of opportunities, men reported performing more complex and a larger variety of neurointerventional cases compared to women. Women were also less likely to hold supervisory roles, even when adjusted for age. Almost half (49%) of women felt a lack of recognition for the same work done by their male counterparts. A mixed method study by Barnes and colleagues (2019) highlights four major themes regarding discrimination faced by female surgical trainees; exclusion, adaption, increased effort, and development of resilience. Moreover, the authors found microaggression, in forms of gender overcompensation, to be prevalent in the workplace[16]. Emulating this notion, Parini and colleagues (2021), in a study of 1,833 female surgeons in Italy, revealed that despite being satisfied with their jobs, many female surgeons are experiencing gender discrimination in the forms of microaggressions in regards to their role contribution, gender balance, expectations by colleagues and superiors, and even sexual harassment[36]. These studies all highlight the appalling conditions the female faces in the workplace and the evolving covert nature of GBV in forms of microaggressions. El-Zoghby et al. (2022) highlights that should such workplace violence persist, it may have detrimental impact on ones sleep quality and rising risk of generalized anxiety disorder[23]. Yolci et al. (2022) examines personal and institutional discrimination amongst physicians and nursing staff. The findings show a relationship between

gender and profession group, as male nurses and female physicians reported higher rates of discrimination compared to female nurses and male physicians[46].

Another study attempted to illuminate career advancement and hiatus phenomena amongst women in cardiology. The cross-sectional study sampled 567 clinical doctors and revealed that child-rearing and low job satisfaction were the forefront cause of career interruptions for females. 91.7% of females were taking an average career break of 15.8 months as a result of child rearing and many were dissatisfied with their job due to reduced opportunities and sexual harassment. The authors conject that the exacerbated phenomena is a result of the homosociality within the medical workplace[19]. In a broader view, a study by Iqbal and colleagues (2020), highlights the prevalence of workplace bullying behaviour amongst a sample of 139 surgeons, with 68% reported having been bullied, 47.6% reported being frequent and recent victims of bullying, all with which the victims are predominantly females [29]. Contrastingly, one study examined the facilitators and barriers of workplace integration by healthcare professionals in Germany. Of the three groups sampled, clinical, scientific, and non-scientific staff, the authors' inquiry interestingly highlighted that around two-thirds of workplace discrimination experienced were driven by factors other than gender, such as ethnicity, language, and nationality. However, amongst those who did experience gender discrimination, they were predominantly clinical and scientific staff[17].

A cross-sectional study was conducted by El Ghaziri et al. (2019) to investigate the sex and gender role differences among correctional nurses[21]. With a primarily female sample, there were more reports of workplace violence (WPV) and workplace bullying (WPB). Female nurses reported lower rates of civility norms than their male counterparts. To evaluate the characteristics of such WPV and WPB, in addition to undermining and harassment, Forsythe and colleagues (2023) conducted an international survey in the vascular workplace[25]. Bullying, undermining, and harassment (BUH) are most likely to be experienced by women, minority groups, and homosexuals. It was identified that the common reason for experiencing BUH was related to academic training, academic knowledge, and academic level. Güney and colleagues (2022) evaluated the perceptions of WPV among general surgeons in Turkey[26]. Despite the low composition of females within the sample, they reported a 90% rate of violence exposure in the

workplace. The study results also demonstrated that as workload increases the rate of violence exposure increases as well.

Although, there is a high prevalence of female healthcare workers being exposed to WPV, La Torre and colleagues (2022) found that being a male was a risk factor of being exposed to WPV[32]. Additionally, verbal aggression was the most common form of WPV found in this study. In assessing the prevalence of bullying, discrimination, and sexual harassment among intensive care unit nurses, researchers found that these forms of WPV and WPB were also reported outside of the workplace as there is a common belief that it would not be addressed[37]. Due to frequency of negligence of WPV and WPB reports, of healthcare staff that experience WPV or WPB, only 2.7 - 30.4% of workers report these incidents. To examine the degree of gender discrimination and sexual harassment experienced by female radiologists, Pitot and colleagues (2021) conducted a cross-sectional study[38]. The results of the study demonstrate that 60% of the female respondents have been a victim to sexual harassment in the workplace. Additionally, the perpetrators of gender discrimination and sexual harassment are commonly seniors.

Impacts of bullying, harassment and discrimination

Five studies report the impact of bullying, harassment, and discrimination experiences. A study by Ng et al. (2022) found that nurses that were experiencing abusive supervision reported lower job satisfaction levels, which then has an effect on one's motivation to serve the public good[35]. Similarly, a study by Syed et al. (2022) also found a relationship between lower job satisfaction levels and experiencing higher levels of bullying among healthcare workers[42]. Moreover, the study reports a significant decrease in worker's mental health associated with increase in bullying levels. This is also supported by the findings from a study by DiFazio et al. (2019), where 73.5% of the nurses reported moderate to severe distress due to bullying behaviour[20]. Additionally, 33.8% experienced long-term problems after the bullying behaviours. El Ghaziri et al. (2019) found that 50% nurses in correctional settings were concerned about their safety at work, with a majority of these concerns being report by women compared to men[21]. Yaghmour et al. (2021) examined both the behavioural and psychological effects of gender discrimination among resident trainees [45]. Fifty-three percent of the trainees reported experiencing

depression. Additionally, excessive emotional stress was related to feeling discouragement regarding their career and specialty.

Covid-19

A study by Iida and colleagues (2022) investigated the prevalence of COVID-19 related workplace bullying and harassment[28]. For healthcare workers, workplace bullying has doubled from 5% to 10% during the span of the pandemic, however, no gendered tendency was observed. The authors concluded that COVID-19 may be an important external stressor and such increase in harassment may continue to be prevalent for healthcare workers in general. To examine the experience with personal protective equipment (PPE) during the pandemic, Ayton and colleagues (2020) conducted a cross-sectional study with Australian healthcare workers (HCWs)[15]. Despite the crucial and required knowledge and training of PPE, it was reported that 47% of respondents did not receive any form of training. The sample consisted of 80% females, suggesting feminization within this industry. As women are disproportionately at the center of healthcare during the pandemic, they must experience the effects of Covid-19 both at work and home. Women as HCWs are impacted by the direct and indirect effects of Covid-19, such as infection, discomfort, bullying and discrimination and financial costs. Unfortunately, workplace violence (WPV) is quite prevalent within the healthcare industry, but how has the pandemic affected the rate of WPV against HCWs? To investigate this, a cross-sectional study compared the WPV rates in the pre-pandemic and post-pandemic periods[43]. Results indicated decreased rates of WPV during the pandemic (24.3%) than pre-pandemic rates (54.1%). However, WPV was more likely to be experienced during the pandemic by female HCWs. Additionally, the study examined the reasons for low WPV reports despite the high prevalence, factors include belief no action would be taken, guilt, and fear of negative consequences. This not only demonstrates the immediate action needed to reduce the prevalence of WPV but also the need for reporting protocols. As women comprise of 70% of global HCWs, da Silva Jr and colleagues (2023) evaluated the bullying experiences by these women during the Covid-19 pandemic[18]. This mixed-method study found that women in healthcare experienced an increase in mental harassment and psychological violence. Experience of distressing work was common due to inaccessibility to PPE, inadequate pay, fear of being infected, and lack of training in such conditions. While investigating the experience of gender discrimination among women in the healthcare sector during Covid-19, the factors associated with

reports of gender discrimination were young age, minority groups, greater social support and childcare needs, and certain occupations[27]. The results of the study demonstrate the various forms of gender discrimination that can be experienced, its severe effects during the pandemic, increasing fear and isolation. Women from the study have reported an increase in mental health outcomes (e.g., anxiety and depression), low job satisfaction, less respect from patients and supervisors, and an increase in racial discrimination.

Current policies and practices in the literature

A study by Parke et al. (2023) found that of nurses that were bullied, discriminated against, or sexually harassed, 66% did not report these behaviours as they felt the issue would not be resolved or addressed[37]. Another study by Pitot et al. (2022) discusses similar findings as almost 80% respondents (female radiologists) who had experienced sexual harassment did not officially report the event[38]. Out of those who did report the incident, 65% stated that the problem was not resolved to their satisfaction as 75% of the time, the perpetrator was not punished. Almost half of the participants (48%) were unaware of their institutional policies that address sexual harassment. Being aware of these policies was associated with more optimism about achieving gender parity in the workplace. The study did report the presence of institutional policies such as special training on sexual harassment for relevant departments. Scruggs et al. (2020) surveyed ophthalmology residents and fellows and found that only 40% of participants rated their institution's sexual harassment training as helpful for addressing harassment[41]. Eight percent of participants have reported sexual harassment and 34% did not know what to do in the moment. A study by Kenejad et al. (2018) summarizes the opinions of global health workers on policy and practices regarding gender inequality[31]. Participants suggested interventions such as raising community awareness about gender equality, proportional leadership, wider engagement of gender-focused research, and institutional actions to address current workplace barriers for women (e.g., gender pay gaps, bullying). Current positive practices include the improvements in prejudice against women in the workplace and employer initiatives (e.g., paid maternity leave, female leaders).

GBV in Academia

There are eight (8) cross-sectional studies, five (5) qualitative studies and three (3) mixed methods studies included in this sub-group analysis of GBV in academia. A study by Banner et al.

(2022) in the United States highlights that experiences of harassment and inappropriate behavior were common with 43% experienced a workplace incident and 42% have experienced one yellow zone incidents (e.g., inappropriate jokes, derogatory comments, hostile emails) while working for the university[47]. The study further highlighted that 28% reported that they had been in a situation where someone made a sexually offensive comment, 23% reporting that they had been in a situation where someone had brought up sexual topics that made the respondent uncomfortable, and 19% reporting having been subjected to inappropriate comments about their body or appearance. The study indicated a significant need to address yellow zone forms of harassment at the institutional level[47]. In a previous study from New York, by Moutier et al. (2016) among the university faculty found concerning rates of other disruptive behaviors: derogatory comments (29 %), anger outbursts (25%), and hostile communication (25 %) and some levels of sexual harassment (7%) indicating a need for enhancing a culture of respect in the learning environment to address disruptive behavior[48].

Another Michigan study in a large sample of faculty and residents reported that women were significantly more likely to experience Gender Policing Harassment (GPH) from both sources (staff & patient's relatives) than men, and LGBTQ+ individuals were more likely to face Heterosexist Harassment (HH) from both sources than cisgender heterosexual participants. Besides, underrepresented minorities, Asian/Asian American, and female participants had higher rates of Racialized Sexual Harassment (RSH) perpetrated by insiders. The study concluded that identity-based harassment should be investigated further to gain a comprehensive understanding of its impact within academic medicine[62]. The same authors in a previous study examined the prevalence and impact of sexual harassment among the medical reported that 82.5% of women and 65.1% of men, reported at least one incident of sexual harassment from insiders in the past year; 64.4% of women and 44.1% of men reported harassment from patients and patients' families. The study further concludes that experiences of harassment were independently associated with lower mental health symptoms, job satisfaction, and sense of safety at work, as well as increased turnover intentions[61].

A Brazilian study by de Freitas Oleto & Palhares (2022) have assessed how gay professors experience heterosexist harassment and found that violence being more explicit when the professor

is more effeminate[59]. Research by Lipton (2021) from an Australian university highlights that double standards imposed on women in an equity and diversity-laden environment force the women to adhere to the 'empowered women' trope[54]. Bar-Walker et al. (2021) have conducted their first study of sexual harassment among the library employees in California and found that 54% of employees have experienced or observed sexual harassment at work[49].

Similarly, a South African study by Conco et al. (2021) examined the prevalence and the factors associated with bullying among university students found that bullying was experienced by 58% of respondents and 44% experienced more than once. Being a female increased the odds of workplace bullying[51]. Sougou et al. (2022) explored the barriers to professional advancement of women researchers in West Africa and found that factors such as gender insensitive organizational culture, institutional policies, and deepened gender disparities made women more challenging to achieve the leadership positions in Senegal[60]. A study from Zimbabwe by Mawere & Seroto (2022) investigated to find contrapower sexual harassment whether female students harassed male lecturers and confirmed its existence in the universities and stressed that universities should build a culture of respect in which students and lecturers interact without fear of harassment[56]. Another US study in academia by Martinez et al. (2017) highlights that female academicians have reported experiencing more gender discrimination and harassment than the male counterparts[55].

A Polish study by Górska et al. (2021) highlights the deepening inequalities amidst the COVID-19 pandemic and reveals the invisible academic work is done mostly by the females which goes unrecognized and not rewarded for their efforts leading to lack of progress in their careers[52]. A French study by Berlingo et al. (2019) explored the relation between gender and career advance in academic medicine and found that 40% of men and only 3% of men reported to have experienced gender discrimination among the obstetrics and gynecology residents[50]. Similarly another Swedish study reported by Muhonen (2016) highlighted that gender harassment was more prevalent among women among university teachers and researchers[57].

In regards to online harassment, a Canadian study by Gosse et al. (2021) have highlighted that the online harassment scholars experience is compounded by factors such as gender and

physical appearance and recommended that universities should broaden their scope of workplace safety to include online environments[53]. Another Finnish study by Oksanen and colleagues (2021) have highlighted that 30% of the respondents belonging to minority groups have experienced online harassments leading to psychological distress and generalized distrust[73]. Some of the observed or experienced behavioral concerns reported from these studies in the academia sector include- derogatory comments or inappropriate jokes, hostile email or verbal communication, diminished work productivity for that person or for others in the unit and anger outburst.

GBV in Skilled Trades

Our review explored seven studies on GBV conducted among employees of skilled trades of which most of them (4) are from Australia. The majority of the studies (5) were cross-sectional followed by cohort and mixed methods with one each. The longitudinal study by Stratton et al (2020) among the Australian mining employees estimated the prevalence of discrimination and bullying, associated factors, and impact on mental health among the female workers found that discrimination was the main reason for higher depression, anxiety and suicidal ideation, and lower well-being. Besides the study underscores that discrimination has a negative influence on mental health in male-dominated businesses, highlighting the need to address discrimination before bullying in such industries[68]. These findings are in line with study findings of Sunindijo et al. (2017) where women professionals experience more discrimination, bullying, and sexual harassment in construction industry in Australia[69].

Another study by Rubin et al. (2017) in mining employees examined gender-based challenges at work were linked to the mental health and job satisfaction of female miners[66]. The study concluded that organizational and interpersonal sexism were independent positive indicators of mental health and job satisfaction. Besides the study also demonstrated that organizational sexism can harm women's mental health and satisfaction with by reducing their sense of belonging in the workplace. The same team of researchers in 2019 looked at the function of sense of belonging as a moderator in the relationships between workplace sexism and (a) mental health and (b) job satisfaction. In this study, they found that a sense of belonging is not the sole mediator between sexism and mental health and work happiness. Other mediators were the perceived need

to diminish femininity at work, women's position in the sector, and work-life balance[67].

Another Korean study by Park et al. (2022) among the construction workers investigated the exposure of health managers to the work place violence (WPV) at the construction sites reported that though there was little physical violence (5%), there was a high proportion of inappropriate work orders (83.5%) and sexual harassment (52.9%), with women experiencing sexual harassment much more than males[65]. Similarly, a South African study by Bowen et al. (2013), concluded that harassment and discrimination on the basis of ethnicity and gender constitute significant stressors for many construction professionals. The study also found that architects reported incidents of sexual harassment and gender-based discrimination more often than other professionals[64].

GBV in Industry settings

Our review included four studies in this category, two from the United Kingdom. For example, Blumell et al. (2020) aimed to detect degrees of sexism using the Ambivalent Sexism Inventory (ASI) and its predictive variables in online news & media. When analyzing sexism in news, the study emphasizes the significance of not only gender but also the political affiliation of the news organization and its individual political ideology. Thus, the study using ASI illustrates that different varieties of sexism manifest in various ways[70]. Ineson et al. (2013) reported on the sexual discrimination (SD) and sexual harassment (SH) in the hospitality industry where they noted critical incidents of homophobic harassment and/or sexual discrimination. The study found that both homosexual male and female workers had encountered SD and SH in their hospitality work environments due to male colleagues' and clients' ignorance, ego defensiveness, and sexism. Besides, the psychological distortion (sleazy and perverse conduct) of SH offenders' motivations to harass has been shown this study[71].

Another Australian study by Loh et al. (2020) examined the perception of stress, the experience of cyberbullying, and work satisfaction among Australian employees concluded that cyber-bullying resulted in perceived stress and job dissatisfaction among the employees. Besides, the study found that the impact of stress and job dissatisfaction was severe among females compared to males. The study concludes that workplace cyberbullying can be a gendered

phenomenon[72]. Among all these studies reported from the industry sector, the researchers found that due to discrimination and harassment, it resulted in job dissatisfaction, low-performance, a negative work environment and psychological health outcomes (e.g., stress) among women. A Finnish longitudinal study by Oksanen et al. (2021), estimated the potential stress effects of social media communication at work during COVID-19 pandemic among a nationally representative sample of 1308 and found technostress, work exhaustion, and cyberbullying at work[73].

Implications

Policy

- There must be transparency about how institution(s) handle reports of GBV, and clarity in regard to the mechanisms for supporting survivors and holding perpetrators accountable.
- Companies must create cyberbullying policies, standards, and processes to guarantee that the complaints are handled in a fair, clear, confidential, and transparent manner.
- To handle sexual harassment, clear reporting procedures, leadership support, consequences for harassers, and culture change are all recommended.

Practice

- Organizations must put their efforts in reducing toxic behaviors and explicitly promoting a culture of safety and respect for all employees. Organizations must also promote gender mainstreaming while eliminating gender inequity.
- All employees and supervisors should receive professional workplace mental health training on how to use internet communication tools and social media in the office.
- Employees and supervisors must also be educated and empowered to recognize workplace cyberbullying and what employees should do if they experience such detrimental workplace practices.
- Hostile and harassing behaviour has become a mainstream and widespread phenomena on social media such as Facebook and Twitter, with serious implications for democracy and freedom of speech. Therefore, service providers and their legal action team has to ensure such harassments not to happen through swift enforcement of GBV centric policies.

Research

- Gaining a comprehensive understanding of harassment is essential to ensure optimal organizational effectiveness.

- The impact of intersectionality and broader social determinants of psychosocial health (e.g., socio-economic status) on workplace GBV prevention strategies and interventions should be further examined. Supporting the need for impartial assessment and management of workplace discrimination and bullying, as well as actions to eliminate a broader variety of negative interpersonal behaviours.

- Future study should look on interventions that might minimize both organizational and interpersonal sexism. In this regard, increasing gender equality in the workplace is likely to be the most successful way to address the issue.

Conclusion

- Our review has given a comprehensive overview of GBV from global settings highlighting the main workplace settings such as healthcare, academia, industry, and skilled trades which indicated the presence of various GBV in these settings ranging from mild forms to sexual harassment.

- Further research should explore how the implementation of different policies impacts the rates of sexual harassment over the long-term, to inform continuing improvement in the workplace setting.

- Organizational investment in annual workplace mental health initiatives (e.g., group workshops and training) to improve psychoeducation, commitment to gender mainstreaming, and awareness of the transgressions of GBV in the workplace.

- Development of a scalable, accessible, brief, and easily administrated mental health intervention that targets transdiagnostic symptoms and trauma experienced by GBV victims and perpetrators in the workplace.

- For construction industry, to reduce the workplace violence among the female workers, there is a great need to increase their rate of regular employment and provide training and practical education on preventing sexual harassment.

- Academic institutions may prevent losing brilliant academics who may be dissatisfied by paying greater attention to harassment/discrimination and other parts of the job when there are differences between men and women.

- It is necessary to provide focused help to people who report prejudice and to improve organizational culture, particularly between managers and their staff.

Knowledge mobilization activities

We will take an intersectional and integrated knowledge translation (KT) approach[74,75], ensuring the study findings are translated into the real world[76]. We will conduct awareness and sensitization workshops on GBV in workplace settings at various industrial partners (e.g., gender considerations in the skilled trades, lunch and learns with health care providers). Furthermore, we will create awareness about recognizing behaviors in the yellow zone which create difficulties regarding whether and where to disclose an incident.

Our findings will also help in establishing connections and nurturing future collaborations. We will work closely with our community partners, including associations, unions and professional associations and work closely with employers in developing strategies to address harassment and discrimination in workplace settings.

Diversity, Equity and Inclusion Considerations

Diversity, Equity and Inclusive (DEI) tenets create safe and productive workplaces, respecting everyone's unique qualities and attributes with a particular focus on underrepresented groups. A positive work environment is a strong social determinant of an individual's health and well-being, with positive work experiences affecting individuals' mental, physical, financial, and social health[77,78]. DEI should be at the cornerstone of employer policies and respecting everyone's unique qualities and attributes with a particular focus on underrepresented groups in the workplace. In turn, these strategies will help in mitigating GBV in the workplace. By implementing such strategies, organizations can contribute to the prevention and mitigation of GBV in the workplace.

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Appendices

Appendix 1 - Databases and search results

CINAHL – 305 articles

1. (Gender-based violence or GBV or Harassing or Harassment or Cyberbullying or Cyberhate or Cyberharassment or Gender discrimination or violence victim or exploitation or bullying or intimidation)
2. ((Virtual or web or Online or Remote or Digital or Internet or telecommuting or teleworking)) AND ((work or employment or labour or workplace))
3. (university or academia or college or healthcare or Skilled trades or industry)
4. S1 AND S2
5. S3 AND S4

OVID – 361 articles

1. (Gender-based violence or GBV or Harassing or Harassment or Cyberbullying or Cyberhate or Cyberharassment or Gender discrimination or violence victim or exploitation or bullying or intimidation).tw,kf.
2. ((Virtual or web or Online or Remote or Digital or Internet or telecommuting or teleworking) adj2 (work or employment or labour or workplace)).tw,kf.
3. (university or academia or college or healthcare or Skilled trades or industry).tw,kf.
4. 1 and 2
5. 3 and 4

PubMed – 122 articles

("university"[Title/Abstract] OR "academia"[Title/Abstract] OR "college"[Title/Abstract] OR "healthcare"[Title/Abstract] OR "skilled trades"[Title/Abstract] OR "industry"[Title/Abstract]) AND ("gender based violence"[Title/Abstract] OR "GBV"[Title/Abstract] OR "Harassing"[Title/Abstract] OR "Harassment"[Title/Abstract] OR "Cyberbullying"[Title/Abstract] OR "Cyberhate"[Title/Abstract] OR "Cyberharassment"[Title/Abstract] OR "gender discrimination"[Title/Abstract] OR "violence victim"[Title/Abstract] OR "exploitation"[Title/Abstract] OR "bullying"[Title/Abstract] OR "intimidation"[Title/Abstract]) AND (("Virtual"[Title/Abstract] OR "web"[Title/Abstract] OR

"Online"[Title/Abstract] OR "Remote"[Title/Abstract] OR "Digital"[Title/Abstract] OR "Internet"[Title/Abstract] OR "telecommuting"[Title/Abstract] OR "teleworking"[Title/Abstract]) AND ("work"[Title/Abstract] OR "employment"[Title/Abstract] OR "labour"[Title/Abstract] OR "workplace"[Title/Abstract]))

Scopus - 57 articles

((TITLE-ABS-KEY ("gender-based violence" OR gbv OR harassing OR harassment OR cyberbullying OR cyberhate OR cyberharassment OR "gender discrimination" OR "violence victim" OR exploitation OR bullying OR intimidation)) AND (TITLE-ABS-KEY (virtual OR web OR online OR remote OR digital OR internet OR telecommuting OR teleworking W/2 work OR employment OR labour OR workplace))) AND (TITLE-ABS-KEY (university OR academia OR college OR healthcare OR "Skilled trades" OR industry))

AND (LIMIT-TO (PUBYEAR , 2023) OR LIMIT-TO (PUBYEAR , 2022) OR LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015) OR LIMIT-TO (PUBYEAR , 2014) OR LIMIT-TO (PUBYEAR , 2013))

Web of science – 629 articles

1. TS=(Gender-based violence or GBV or Harassing or Harassment or Cyberbullying or Cyberhate or Cyberharassment or Gender discrimination or violence victim or exploitation or bullying or intimidation)
2. TS=(Virtual or web or Online or Remote or Digital or Internet or telecommuting or teleworking) AND (work or employment or labour or workplace)
3. TS=(university or academia or college or healthcare or Skilled trades or industry)
4. #1 AND #2
5. #3 AND #4