



# A Gendered Emergency Framework: Integrating Sex, Gender, and Equity into Emergency Management

RESEARCH ARTICLE

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## ABSTRACT

As disasters, climate emergencies, public health crises, security threats and conflicts increase in Canada, so do concerns about their inequitable impacts. Canada's 2023 Chief Public Health Officer's Report, *Creating the Conditions for Resilient Communities: A Public Health Approach to Emergencies*, highlighted the unequal impacts of emergencies in Canada and advocated for an improved public health and health promotion response. This article describes the Gendered Emergency Management Framework (GEM-F), developed as a tool to support emergency personnel, planners, and policy makers in integrating sex, gender, trauma and equity-informed considerations across the emergency management continuum, applicable to climate disasters, pandemics or conflict situations. The GEM-F is built on academic evidence, grey literature, and consultations with Canadian and Australian experts, and suggests the integration of a sex and gender-based analysis plus (SGBA+) lens, and trauma-informed, equity-oriented, and gender transformative approaches into all phases of emergency management. The consistent application of the GEM-F in policy, practice and training could improve preparedness and post-event outcomes, along with overall gender and health equity.

**Keywords:** emergency management, gender equity, health equity, disaster management, sex and gender.

## Introduction

The frequency, intensity, and severity of emergencies in Canada is growing, and public health and health promotion initiatives are being called for to build resilience, strengthen collaboration, and respond to inequitable impacts on physical, mental, and community health (Public Health Agency of Canada, 2023). In the years since the 2023 CPHO report, Canada has experienced heightened awareness of all types of emergencies and disasters, as well as increased security threats, leading to the need for more comprehensive preparedness and protection initiatives.

In general, there is a growing call for raising awareness about gender and social vulnerability in federal, provincial, and territorial emergency planning documents (Slick et al., 2022). Gender is a fundamental social determinant that poses differential risks and vulnerabilities for women, men, and gender diverse people (Brabete et al., 2021; Enarson et al., 2018; Erman et al., 2021; Greaves & Poole, 2023; Parkinson et al., 2023; Slick & Hertz, 2024) and intersects with other social, economic, biological, and structural factors to compound risks, exposures, and impacts. Sex-related factors including physiological, anatomical, neurobiological or genetic factors affect female and male bodies' responses to emergencies, pandemics, or disasters differentially. Gender has long been recognized as affecting personal preparedness efforts, risk perception, psychological impacts, roles and expectations during emergencies

and in responses (Enarson, 2008), and resilience during conflict and post conflict recovery (Juncos & Bourbeau, 2022). This article responds to these by suggesting the consideration of sex, gender and equity related factors at every stage of emergency response. Further, aspiring to an intersectional gender transformative approach to emergency management that proactively improves gender equity among all groups, *along with* preparing for and responding to emergencies is essential, and can be taken up by policy makers, emergency management practitioners, educators and researchers in an array of emergent situations. Gender transformative approaches would mean that emergency management not only responds to emergent needs, but also considers its contributions to equity among genders, racial/ethnic, disability, income and age groups.

## Background

Following the United Nations Landmark resolution on Women, Peace, and Security in 2000 (United Nations Security Council, 2000), in 2008, there was a call for gender mainstreaming in emergency management in Canada. This would have integrated considerations of gender into all aspects of emergency management, as per an implementation framework that identified opportunities for fostering resilience through capacity building, communications, monitoring and evaluation, collaborative leadership, and resource allocation (Enarson, 2008). More recently, Canadian research and advocacy has highlighted the differential effects of COVID-19 on women (Gladu, 2021; Robson & Tedds, 2022), the importance of preventing and anticipating the increased risk of gender-based violence (GBV) during emergencies (Brabete et al., 2021; Slick & Hertz, 2024), recognizing anti-violence services an essential (Canadian Women's Foundation, 2022; Canadian Women's Foundation et al., 2020; Valoroso et al., 2023), and understanding impacts on gender diverse populations (Slick & Hertz, 2024). Efforts have been made to integrate gender and women in planning on peace and security in Canada (Government of Canada, 2024a) and in some global efforts in order to improve conflict resilience by involving and empowering more women.

This article outlines the Gendered Emergency Management Framework (GEM-F), a tool that will help planners, managers and policy makers integrate sex, gender and equity into emergency and disaster management, with a particular emphasis on improving women's health and resilience. In addition to incorporating a gender transformative, equity-oriented, approach, it also suggests a trauma-informed approach to developing a more robust and resilient emergency management system in Canada. Trauma-informed approaches assume the universality of some form of trauma among those experiencing emergencies, and therefore incorporates principles of safety, collaboration, choice and strengths based responses, wherever possible (Poole et al., 2013).

## Methods

We conducted a rapid review of evidence on sex, gender, equity and emergencies and a rapid review of reviews of GBV and emergencies. Both of these evidence reviews followed the protocol of Tricco et al, (Tricco et al., 2015).

The first review was based on the overarching research question: "What do we know about sex, gender, ethnicity, age, socioeconomic status and/or disability and impacts of emergencies and emergency interventions?" In our academic search, we utilized definitions of emergencies and disasters based on the 2023 CPHO report, regarding an emergency as a serious event that requires immediate response to mitigate the impacts on health and safety of people and damage to property, whereas a disaster causes significant disruption and exceeds the capacity of the affected area to respond or recover (Public Health Agency of Canada, 2023). The distinction between the two is seen as subjective (Public Health Agency of Canada, 2023). We included emergencies resulting from the following hazard types: geological (e.g., earthquake, landslide, tsunami), biological (e.g., infectious and communicable diseases, food-, vector-, and water-borne illness, zoonotic diseases), and meteorological and hydrological (e.g., drought, flood, heat, hurricane, wildfire) (Public Health Agency of Canada, 2023). After title and abstract screening of 2,548 articles, 336 full-text studies were assessed for eligibility, and 140 studies were included for data extraction and synthesis. In both title and abstract screening and the full-text screening stages, all researchers involved in the screening initially screened a subset of papers and then discussed and resolved any discrepancies. Once consensus was established, the remaining papers were screened independently.

The second rapid review of reviews of GBV and emergencies was based on the research question: "What do we know about gender-based violence and impacts of emergencies and emergency interventions?" After title and abstract screening of 140 articles, and consensus reached among screeners based on a subset, 86 full-text studies were assessed for eligibility, and 52 studies were included.

To be thorough, we broadened the search to include a review of grey literature of gender and emergency resources. In searching grey literature, we included key organizational websites, and undertook advanced Google searching, snowballing and citation chaining, enabling us to find items such as checklists, guidance, government reports, resources, policy statements, handbooks, presentations, speeches, books and some additional articles. We continued to iterate the search after partner meetings and expert consultations, ultimately reviewing 135 items.

Hence, the framework drafting was informed by a total of 327 sources including journal articles and pieces of grey literature. We applied a sex and gender based

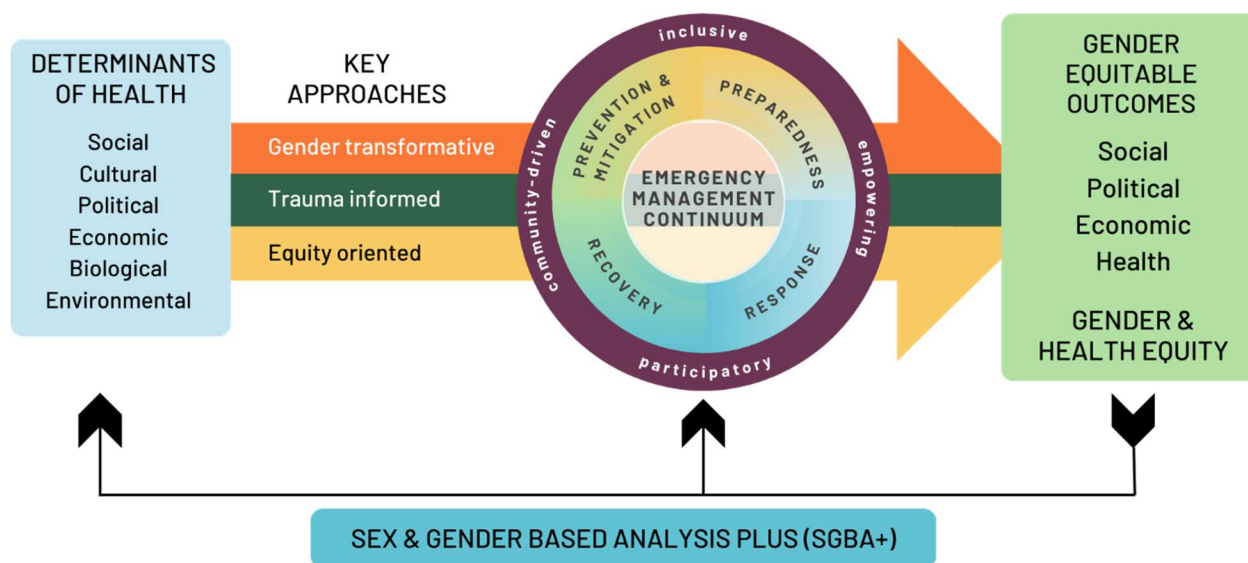
analysis plus (SGBA+) (Centre of Excellence for Women's Health, 2024) to both the academic and grey materials to highlight key evidence and expertise from this wide range of sources. SGBA+ is a method useful for identifying and assessing the sex/gender/equity related content in the materials and analyzing its potential impact. In this way, we identified examples, approaches and indicators, reflecting domestic and international work that could advance research, policy, and practice enhancing gender and equity in emergency management. We created narrative summaries of the articles included in the rapid review and the GBV review of reviews, as well as narrative reports of the grey literature.

After analyzing these data, we drafted key elements of the framework, based on evidence and examples of

how sex and gender-based factors and examples affect emergency management. In collaboration with experts specializing in gender equity, emergency response, and disaster management, including Gender and Disaster Australia, a world leader ([www.genderanddisaster.com.au](http://www.genderanddisaster.com.au)) and our Canadian partners, we iteratively developed the draft framework diagram, and in that process were referred to additional examples, and sources. Using the third draft as a basis we held two consultations with 17 experts and organizations, representing a range of knowledge and experience, from emergency management, education, research, aid agencies, women's health and leadership, and national and provincial organizations. Ultimately, we developed a final version (Figure 1) supported by key examples and considerations for inclusion in the GEM-F materials.

Figure 1

*The Gendered Emergency Management Framework (GEM-F).*



Note. The Gendered Emergency Management Framework (GEM-F) facilitates gender equitable planning and evaluation of emergency management responses.

### Using the GEM-F

The GEM-F diagram illustrates a multi-faceted and multi-step process for assessing planning, policy and evaluation of emergency management. The diagram first draws attention to the overarching impact of biological, social and economic determinants on individual and collective health, including in all kinds of emergency situations.

The diagram is encircled by a sex and gender-based analysis plus (SGBA+) underlining the impact of both sex and gender on the experiences and outcomes of

diverse groups in emergencies. In addition to being a research tool, SGBA+ is also a lens that is applied to all health-related initiatives in the federal government when assessing issues, policy and practice in a wide range of topics (Health Canada, 2023). In the GEM-F this ensures that data and information pertaining to emergency management is analyzed for differential impacts on women, men and gender diverse people. This lens is useful in practice, as all data collected to support emergency responses ought to be sex and gender disaggregated, ideally by age, race/ethnicity, ability, and socioeconomic status, and that these analyses underpin emergency management.

SGBA+ processes when applied to planning, are iterative, incorporating and building upon emerging evidence and practice, and also encouraging prediction of, and speculation about, future impacts of events and responses on men, women, and gender diverse populations (Centre of Excellence for Women's Health, 2024). SGBA+ is a process that can be integrated with workforce training, and that could build improved emergency management and quality improvement with continued usage. Related to this is the requirement of the Canadian Institutes for Health Research (CIHR) to integrate sex and gender into all research (Canadian Institutes of Health Research, 2021) in order to produce more differentiated and accurate evidence. Without building evidence, and collecting and analyzing disaggregated data and information, it is more difficult to carry out SGBA+ and to build better emergency management systems.

The SGBA+ element surrounding the GEM-F suggests that an understanding of both sex and gender-related mechanisms and factors as they affect the outcomes of emergencies is a key requirement in emergency management. This includes acknowledging the impact of sex-related factors, such as hormones, genes, neurobiology, physiology, and anatomy. For example, disparities in mortality from respiratory and cardiovascular outcomes, that can vary by age, disaster type, and context (Abadi et al., 2022; Figgs, 2020; Jia Coco et al., 2017; Lawrence et al., 2019; Salvati et al., 2018). Sex-related factors are also key in biological emergencies such as the COVID-19 pandemic, where research points to sex-related differences in immune responses and morbidity among males and females (Mauvais-Jarvis, 2020). Some studies on maternal exposure and child health show that experiencing disasters during pregnancy can, in some cases, lead to maternal physical and mental health issues, adverse birth outcomes (Afzal et al., 2024; Evans et al., 2022; Huang et al., 2023; Zhang et al., 2024), and sex-specific changes in children's genetic expression, hormones, neurodevelopment, and behavior (Cao-Lei et al., 2021; Laplante et al., 2019; Li et al., 2024; Nomura et al., 2021; Yong Ping et al., 2020). In general, females are more affected by disaster-related trauma, although some studies report exceptions or comparable effects in males (Lai et al., 2021; Le Roux & Cobham, 2022; Meltzer et al., 2021; Orengo-Aguayo et al., 2019; Rezayat et al., 2020; Rossi et al., 2022; Shepard et al., 2017; Turan et al., 2022; Witt et al., 2024).

Gender-related factors, such as roles, relations, identities and institutional practices, also affect people's experiences in emergencies. For example, traditional gender roles are often reinforced during disasters (Cocina Diaz et al., 2024), resulting in increased caregiving responsibilities and losses in employment or education (Ayittey et al., 2020; Christie et al., 2022; Flor et al., 2022; Green et al., 2021; Trentin et al., 2023) that affect women disproportionately (Ayittey et al., 2020; Connor et al., 2020). Traditional

ideas of masculinity and men as 'heroes and protectors' are often reinforced, defining roles and expectations in emergency response and recovery (Slick & Hertz, 2024), and creating barriers to accessing emotional and mental health support (Gender and Disaster Australia, 2023b). There is also usually a rise in GBV during emergencies (Agrawal et al., 2023; Bell & Folkerth, 2016; Logie et al., 2024; Murphy et al., 2023), including intimate partner violence (IPV) and coercive control (Bhuptani et al., 2023; Brabete et al., 2021; Kim & Royle, 2024; Medzhitova et al., 2023; Trentin et al., 2023).

Sex and gender interact to produce real life experiences in emergencies and conflicts, but major research gaps remain in understanding how they influence differential mortality and physical and mental health outcomes, either separately or together, and what exact tailored responses are needed. For example, disruptions in accessing sexual and reproductive care, such as antenatal and postnatal care, contraception, and safe abortion (Afzal et al., 2024; Hine et al., 2024; Jeffers et al., 2022; Mukherjee et al., 2021; Ratnayake Mudiyansele et al., 2022; Tolu et al., 2021; Welton et al., 2020) often occur in emergencies, reflecting sex-related factors and gendered attitudes and decisions. However, sex/gender sensitive community integration (Bell & Folkerth, 2016; Jeffers et al., 2022), innovative healthcare delivery (Tolu et al., 2021), and gender-informed policies and interventions (Medzhitova et al., 2023) can address these challenges during recovery. Despite remaining evidence gaps, applying a solid and iterative SGBA+ to available evidence and data, is essential to identifying what causes or is associated with differential impacts and continuing to learn what each sector can do in response.

## Improving the Management of Emergencies

The horizontal arrow in the GEM-F embeds three important approaches to be applied continuously throughout the emergency management continuum and in all types of emergencies/disasters. *Gender transformative* approaches combine the dual goals of improving emergency management while simultaneously improving gender equity (Greaves et al., 2014). This ensures that emergency responses do not diminish existing gender equity, and indeed, actively work to generate improved equity. For example, gender stereotypes, such as 'men are strong' and 'women are nurturing', can be actively countered (Gender and Disaster Australia, 2023c), and skill, interest and aspiration used to determine roles in emergencies, shifting gendered assumptions that may result in women automatically making food and men automatically clearing debris, to more balanced assignments. Gendered structural determinants such as poverty can be actively improved by creating environments and focused programs that protect and improve women's food, housing and job security during recovery, and improve women's agency, thereby

embedding gender equity in emergency management and post emergency outcomes (Simons et al., 2022).

Most emergencies, disasters and conflicts have short- and long-term impacts on mental and physical health, socioeconomic status, and community stability. Hence, it is recommended that all responses also be *trauma-informed* (Bloom & Farragher, 2013; Wathen & Varcoe, 2023). This approach assumes that trauma has occurred and impacted all and embeds a universal approach accordingly. A trauma-informed approach does not rest on disclosures, narratives, behaviours or diagnoses, but rather applies to *all* individuals, groups and communities using the principles of choice and collaboration, connection, safety and trustworthiness, and strengths based and skill building (Centre of Excellence for Women's Health, 2017; Poole et al., 2013). Taking a trauma informed approach would ensure that emergency management is grounded in trauma-informed principles, underpinning all procedures, planning, policies and actions. For example, all evacuees would ideally have some element of choice in accommodations or visiting disaster sites, and remediation planning would ensure connection and building upon community strengths as a starting point.

Finally, utilizing an *equity-oriented* approach prioritizes those most affected by a disaster, actively ensuring that disparities are acknowledged and factored into emergency management, through constructing tailored programs or policies. Further, emergency

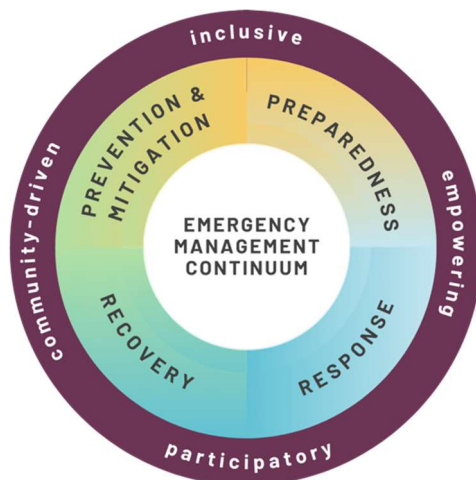
resources are allocated proportionately, reflecting the needs of those most affected and the size of the population of those in most need. Ensuring such responsive resource allocation requires conscious planning. For example, equitable approaches to evacuation would provide separate emergency evacuation processes for residents of women's shelters who have experienced intimate partner violence to ensure that they do not encounter their perpetrators as they relocate. Re-housing evacuees or survivors would involve prioritizing those with fewest resources and those who are most physically, mentally, or intellectually challenged. The development of these processes and responses requires the advice and active engagement of those with lived experience and knowledge and the organizations serving them.

### Applying these approaches to the Emergency Management Continuum

Applying an ongoing SGBA+ and integrating all three approaches—gender transformative, trauma informed, and equity informed—can enhance standard emergency management phases such as preparedness, response, recovery and prevention and mitigation efforts (See Figure 2). Each of these phases includes activities ranging from awareness and networking, planning, implementation to monitoring activities.

Figure 2

*The Emergency Management Continuum*



Note. The engagement circle is added to this depiction of the emergency management continuum adapted from the Chief Public Health Officer of Canada's Report on the State of Public Health in Canada 2023: Creating the Conditions for Resilient Communities: A Public Health Approach to Emergencies (2023).

Figure 2 depicts the central circle of the GEM-F, illustrating the phases of emergency management as

overlapping and iterative, and surrounded by a circle articulating engagement processes. Community



engagement in emergency management is key to accurate, timely, and appropriate emergency responses that are well-received and have positive impacts. Meaningful collaboration with individuals, communities, groups, and services is important. It ensures that lessons are learned from each emergency, people are empowered via participation, adjustments and tailored responses are made, and stronger foundations are created for community-driven initiatives. Diverse, experience-based viewpoints, including locally and community-based perspectives, are essential in producing effective and sensitive equity, trauma and gender informed responses. Without clear engagement, it is easy for responses to be misinformed or inappropriate, or even increase risks for some, as the actions of emergency managers may not align with local and group-specific needs.

### Preparedness

Preparedness includes activities such as hazard, risk and vulnerability assessments and development of preparedness and response plans, as well as the resourcing and testing of these plans. Filtering and checking preparedness planning by using the GEM-F will immediately surface issues in preparedness related to social vulnerability and inequity.

The Canadian Centre for Safer Communities and the Canadian Women's Foundation developed a [toolkit for applying GBA+ to Hazard, Risk and Vulnerability Analyses \(HRVAs\)](#). The toolkit provides guidance, templates, and actionable steps for assessing risk, identifying vulnerability, and strengthening community resilience through an intersectional gender lens. Applying this lens to HRVAs can bring greater understanding to how gender and factors such as race, age, income, and ability impact risks, vulnerability, and resilience in disasters (Canadian Women's Foundation, 2024).

Preparedness also includes assessing gender and risk reduction activities for specific groups, such as the approximately 15% of the population with disabilities. Employing a disability inclusive disaster risk reduction approach (Crawford, 2023) to reduce disproportionate impacts on those with disabilities is both possible and essential. According to the United Nations Office for Disaster Risk Reduction's 2023 Global Survey Report on Persons with Disabilities and Disaster, 84% of people with disabilities reported that they did not have a disaster preparedness plan, a reduction from the 2013 report, and only 8% reported that local disaster risk reduction plans addressed the specific needs of people with disabilities (United Nations Office for Disaster Risk Reduction, 2023). Recommendations include using technology, peer and social support, and taking a strengths-based, capabilities approach (Crawford, 2023) to reduce these risks.

Integrating a SGBA+ into such a disability framework could create even more meaningful preparedness actions tailored to men and women, girls and boys, and

sexual and gender minorities with disabilities that preserve social care connections, offer participatory planning opportunities and consider specific physical and environmental accommodations. Research suggests that this is needed, as women with disabilities are less likely to engage in preparedness due to a set of intersecting factors including poverty, stigma, lack of political power, caregiving, and marginalization (Gartrell et al., 2020) and sheltering plans for people with disabilities during active conflicts are often overlooked.

Such complex vulnerabilities may be addressed using disaggregated data. The [Inclusive Resilience project](#) undertaken by the Canadian Red Cross conducted a risk assessment to understand where disproportionate vulnerability exists in order to target disaster risk reduction activities and strengthen flood resilience among specific communities at increased risk. To do this, they combined socio-economic vulnerability data with flood exposure risk analyses to map areas of convergence and create an index. In analyzing vulnerability, detailed social, cultural, demographic and economic factors such as family structure, proportion of single mothers and mode of transportation were combined with data on infrastructure and the built environment. While it is necessary to be mindful of privacy concerns in small or remote communities, the tool supports tailored and targeted disaster risk reduction outreach to vulnerable communities by mapping socio-economic risk and vulnerability to floods, (Partners for Action, 2024). These are all examples of integrating an intersectional SGBA+ into preparedness.

### Response

Emergency response activities include all actions taken during (or immediately before or after) an emergency or disaster such as implementing emergency response plans, conducting emergency communications, coordinating resources, and working to minimize suffering and loss (Public Health Agency of Canada, 2023). All of these activities can easily incorporate a SGBA+ lens, resulting in effective tailored communications that eliminate gender stereotyping and acknowledge the importance of sex/gender and equity considerations. For example, Australia's [National Gender and Emergency Management \(GEM\) Guidelines](#) identify the creation of gender sensitive communication and messages as one of three key areas of focus in disaster management (Gender and Disaster Australia, 2023c). Harmful gender stereotypes are avoided or actively challenged, ensuring that men are not portrayed solely as risk-takers or heroes, nor women only as caregivers.

Similarly, information on the specific sex/gender impacts of disasters, along with information on anti-violence services, maternal, sexual, and reproductive healthcare, mental health support, and gender-specific substance use services need to be made readily available. During the Fort McMurray wildfires, [Safely](#)

[Fed Canada](#) worked with a local government to offer a separate space within evacuation facilities for parents and children, called the Baby and Child Unit, which offered supports related to feeding, play, sleep, and hygiene, as well as emotional support for caregivers. This illustrates how evacuation facilities can ameliorate the disproportionate burden on women as caregivers and reduce maternal stress during disasters, thereby improving maternal, fetal, and child health (Gribble et al., 2023). Importantly, during the response phase, anti-violence organizations must be supported as essential services (National Academies of Sciences Engineering and Medicine, 2024), and outreach workers who work with people experiencing houselessness are supported to continue to provide assistance (Sundareswaran et al., 2015).

The GEM-F helps us understand how to better respond in emergencies. When gender issues are ignored, inequities and harm can result. For example, emergency housing aid based on head-of-household registries in the USA forced some women fleeing violence to cohabit with an abusive partner (Medzhitova et al., 2023). Similarly, in Canada and other countries, during the COVID-19 lockdowns, women faced disproportionate job losses due to overrepresentation in part-time and informal work and caregiving responsibilities at home (Ayithey et al., 2020; Christie et al., 2022; Connor et al., 2020; Flor et al., 2022; Gladu, 2021; Green et al., 2021; Mūrage et al., 2024; Robson & Tedds, 2022; Trentin et al., 2023). Using the GEM-F can directly ameliorate some of these results.

### Recovery

The 2023 CPHO report notes that recovery “is seen as a time to return to, or improve upon, the way things were before an emergency” (Public Health Agency of Canada, 2023, p. 69). Recovery includes a wide range of activities from infrastructure, roads and housing reconstruction, support for continuity of health and education services, and restoration of water and sanitation services. According to the Asian Development Bank, “Best practice planning for restoration and reconstruction of lifeline community infrastructures takes into account the specific needs of both women and men. Restoring infrastructure supports women’s economic empowerment through increased access to income generating activities, strengthened mobility, and access to a variety of services” (Asian Development Bank, 2014, p. 7). A strong SGBA+ is essential to all of these, often long-term efforts, and can also directly address sex and gender specific needs and underlying causes of and contributing factors to gender inequality and overall inequity.

Disaggregated data collection is essential as a basis for shaping recovery plans that consider a wide range of sex, gender and equity factors and identify gender transformative recovery priorities. Recovery means looking ahead to create information and

communication that highlights the gendered impact of the emergency and actively plans for gender sensitive recovery initiatives that improve gender equity. Collaboration across sectors can be fostered to achieve progress on policy goals and the building of resilience in this phase, where women are key members of developing networks. Ongoing recovery can utilize the community networks that pre-existed or spring up post disaster, to help prepare officials to make necessary adjustments.

Equitable recovery is when policies, practices, communications, and distribution of resources are impartial, fair, just, and proportionately responsive to the needs of all impacted community members. Local officials, community leaders, and partners can achieve equitable recovery by addressing systematic recovery barriers and ensuring that all groups in the community can meaningfully participate in and benefit from recovery planning processes, projects, and decision-making (Federal Emergency Management Agency, 2023, p. 1).

A gender transformative approach to recovery directly and explicitly considers improving gender equity in the course of recovery decision-making. For example, services such as childcare can be prioritized as essential and critical to restore, freeing up mothers to participate fully in recovery action. A report examining principles of the Women, Peace, and Security framework (WPS) in disaster response notes that re-entry to communities is often focused on infrastructure and safety – not on access to essential services – which causes gaps in critical services (Fleming et al., 2024). Ensuring future responses are improving gender equity along with ameliorating emergencies depends on the quality and depth of recovery planning, such as economic recovery programs that recognize women’s unpaid, caregiving and informal care work and account for disaster-related job loss or precarious employment (Scott, 2023; Sultana & Ravanera, 2020). The distribution of relief and recovery programs and services should also ensure that women and girls are directly reached and the long-term impacts of disasters on them are monitored.

Achieving gender transformative resilience and recovery is a challenge. There is much scope for resilience building and recovery efforts to become gender transformative, where initiatives upend ‘business as usual’, question gender roles, or the systemic nature of gendered power especially in conflict situations (Juncos & Bourbeau, 2022).

### Prevention and Mitigation

Strategies and activities to prevent a disaster or emergency, or reduce its impact, are important for long-term resilience building and community protection. In this phase, actions aimed at the drivers and root causes of inequity and direct action on the determinants of health are important. It is a chance to align emergency management activities with broader

community, population, and national-level strategies to reduce health inequities.

The [Gender Action Plan to Support Implementation of the Sendai Framework for Disaster Risk Reduction 2015–2030](#) is a stellar example of such an approach. It aims to increase gender-responsive approaches to disaster risk reduction, noting “women’s organizations and other gender equality and inclusion stakeholders play a pivotal role in disaster resilience, advocating for gender equality and localizing efforts” (United Nations Office for Disaster Risk Reduction et al., 2024, p. 1). This clear and compelling international guidance offers several key objectives for integrating a gender lens, and key actions for integrating gender into policy and practice. Again, of foremost importance is collecting sex/gender/equity/age/ability/race/income disaggregated data in systems and carefully using such data for risk assessment and risk reduction, without violating the privacy of small sub-groups. This includes engagement, indicator development, and gendered budgeting in accordance with risk, as well as ensuring access to sexual and reproductive health care and violence services (United Nations Office for Disaster Risk Reduction et al., 2024).

Prevention can be aimed at specific issues, such as gender-based violence. The Canadian Women’s Foundation convened women’s and GBV sectors to identify priorities to “[Shockproof communities against GBV during emergencies](#).” Eight priority areas were identified that include strengthening food and housing and income security, enhancing system navigation and infrastructure, and integrating GBA+ in emergency management planning. Addressing these basic social determinants of health, in the context of GBV establishes important groundwork for improving overall gender equity (Canadian Women’s Foundation, 2022).

The prevention and mitigation phase offers an opportunity to strengthen and innovate. Prevention efforts can minimize impacts of disasters and reduce their impact. For example, the [Build Change](#) initiative develops disaster resistant housing to equalize resilience by developing housing based on micro financing and cultivating investors. The Build Change initiative was founded by a [woman](#) in the USA who is a skilled brick, block, and stone mason to initiate building resilient housing with specific emphasis on the disproportionate impact of disasters on women. This initiative involves women directly and engages with skill development to offer gender transformative solutions in disaster preparedness and resilience.

Training and education for public health and emergency management professionals is a critical component of prevention and mitigation. This is an opportunity to highlight differential impacts of emergencies reflecting sex, gender, and equity factors that affect exposure and harm. It is also an opportunity to bring different sectors together, in a non-emergency setting, to plan and exchange knowledge and wisdom.

Standards can be developed together, and progress measured against other major priorities. In Canada, for example, the *10-year National Action Plan to End Gender-Based Violence and Calls for Justice from the National Inquiry into Missing and Murdered Indigenous Women and Girls* are examples of overarching strategies on which to draw.

## Discussion

Sex and gender related factors interact in shaping the impacts of emergencies, disasters, and conflicts, and intersect with factors such as age, disability, race, income, and housing status. Integrating these factors in planning and policy will improve all phases of emergency management and contribute to more equitable impacts and improved resilience. While acting on these issues in practical and emergent situations is a challenge, the GEM-F raises awareness of the need to shift thinking and introduce more sensitive approaches to all phases of emergency responses.

Some practical tools have been developed to further these approaches over the last decade by [Gender and Disaster Australia](#) (GADAus), a global leader in bringing awareness to how gender and intersecting factors contribute to inequitable impacts of emergencies. GADAus has developed national guidelines for gender and emergency management (Gender and Disaster Australia, 2023c) with an actionable checklist (Gender and Disaster Australia, 2023a) and have trained national emergency management personnel on the integration of gender and equity into their work (Gender and Disaster Australia, 2025). They have conducted evidence reviews on women, men and masculinities, GBV in the context of disasters, long-term resilience building, Indigenous approaches, and women’s leadership. Such coordinated initiatives by a permanent organization have drawn sectors together and sparked a national model for change that could be emulated in Canada.

On a global level, various aid organizations have integrated gender into peace building and security initiatives, conflict preparedness and protection and continue to view resilience through a gender lens. The WPS framework has been utilized in developing cross-border disaster response scenarios in Canada (earthquakes in BC) and Mexico (hurricane at the USA-Mexico border) with a view to integrating WPS principles into emergency response systems. The principles outlined in Canada’s framework for WPS (Government of Canada, 2024b) can be easily combined with official emergency planning documents, policies and standards.

Applying the GEM-F in Canada while deriving plans, evaluating outcomes, or undertaking preparedness and mitigation can similarly focus thinking on ameliorating gender and health inequities in a wide range of situations. While research gaps persist in understanding the full scope of these impacts, initial



moves have been made to consider these differential impacts by groups and exposure levels, and the direct implications for emergency preparedness, response, and recovery strategies. Expanding this perspective in Canada is both overdue and pressing and will directly contribute to responding to the 2023 CPHO report on emergencies, inequities and resilience.

The GEM-F can assist with filtering plans and policies for these issues, as well as identifying issues of risk. For example, disaster-related IPV risk factors such as housing displacement, loss of services and weakened social networks, can be repaired by sensitive disaster responder training, and improved planning and housing policies (Medzhitova et al., 2023). Efforts to employ women and sexual and gender minority individuals and increase the overall diversity of staff and leadership at the organizational level are also important, as reducing the 'masculinization' of emergency management is critical (Gender and Disaster Australia, 2023b; Melgar, 2020). The GEM-F can help to surface all related issues, risks and potential ameliorations, and is relevant in emergencies, disasters, and conflict situations. Underscored by an ongoing SGBA+ that invites consideration of, and speculation about, differential impacts, the GEM-F can also spur new ideas and solutions in response to such inequities.

## Conclusion

The GEM-F is a tool for assessing and ameliorating the sex/gender/equity related impacts of emergencies and emergency management in Canada. It embeds three key approaches to not only enhance emergency management but also improve post emergency experiences. It can support emergency management personnel working on the ground in analyzing existing plans and policies and designing improved emergency management approaches. It can also be used by policy makers, educators, trainers, and researchers to address the underlying gender inequities related to emergencies and conflict situations, and to focus on shifting larger systemic and societal forces to ameliorate their impact. It can be used to pinpoint data disaggregation needs, create standards and tailored indicators, improve training programs, and generate new research questions.

However, the full engagement of those who are most vulnerable and experiencing the most inequities is key, and best accomplished through participatory engagement processes that increase individual and collective agency and transform gender systems. Working in coalitions with equity serving organizations and groups will pave the way for reducing many of the gendered, social and economic inequities currently associated with disasters and improving emergency management.

## References

- Abadi, A. M., Gwon, Y., Gribble, M. O., Berman, J. D., Bilotta, R., Hobbins, M., & Bell, J. E. (2022). Drought and all-cause mortality in Nebraska from 1980 to 2014: Time-series analyses by age, sex, race, urbanicity and drought severity. *Science of the Total Environment*, 840, 156660. <https://doi.org/https://dx.doi.org/10.1016/j.scitotenv.2022.156660>
- Afzal, F., Das, A., & Chatterjee, S. (2024). Drawing the Linkage Between Women's Reproductive Health, Climate Change, Natural Disaster, and Climate-driven Migration: Focusing on Low- and Middle-income Countries - A Systematic Overview. *Indian Journal of Community Medicine*, 49(1), 28-38. <https://doi.org/10.4103/ijcm.ijcm.165.23>
- Agrawal, P., Post, L. A., Glover, J., Hersey, D., Oberoi, P., & Biroscak, B. (2023). The interrelationship between food security, climate change, and gender-based violence: A scoping review with system dynamics modeling. *PLOS Global Public Health*, 3(2), e0000300. <https://doi.org/https://dx.doi.org/10.1371/journal.pgph.000300>
- Asian Development Bank. (2014). *Gender-Inclusive Disaster Risk Management - Tip Sheet*. <https://www.adb.org/sites/default/files/institutional-document/34130/files/gender-inclusive-disaster-risk-management-0.pdf>
- Ayittey, F. K., Dhar, B. K., Anani, G., & Chiwero, N. B. (2020). Gendered burdens and impacts of SARS-CoV-2: a review. *Health Care for Women International*, 41(11/12), 1210-1225. <https://doi.org/10.1080/07399332.2020.1809664>
- Bell, S. A., & Folkerth, L. A. (2016). Women's Mental Health and Intimate Partner Violence Following Natural Disaster: A Scoping Review. *Prehospital & Disaster Medicine*, 31(6), 648-657. <https://doi.org/10.1017/S1049023X16000911>
- Bhuptani, P. H., Hunter, J., Goodwin, C., Millman, C., & Orchowski, L. M. (2023). Characterizing Intimate Partner Violence in the United States During the COVID-19 Pandemic: A Systematic Review. *Trauma Violence & Abuse*, 24(5), 3220-3235. <https://doi.org/https://dx.doi.org/10.1177/15248380221126187>
- Bloom, S. L., & Farragher, B. (2013). *Restoring Sanctuary: A New Operating System for Trauma-Informed Systems of Care*. Oxford University Press.
- Brabete, A. C., Wolfson, L., Stinson, J., Poole, N., Allen, S., & Greaves, L. (2021). Exploring the Linkages between Substance Use, Natural Disasters, Pandemics, and Intimate Partner Violence against Women: A Rapid Review in the Context of COVID-19. *Sexes*, 2(4), 509-522. <https://doi.org/https://doi.org/10.3390/sexes2040040>
- Canadian Institutes of Health Research. (2021). *Sex and Gender in Health Research*. <https://cihr-irsc.gc.ca/e/50833.html>
- Canadian Women's Foundation. (2022). *Insights from the Gender Justice Labs on Emergency Preparedness*. <https://canadianwomen.org/wp-content/uploads/2022/06/Gender-Justice-Labs-Final-Report-EN.pdf>
- Canadian Women's Foundation. (2024). *A Toolkit for Equitable Emergency Management*. <https://ccfsc-cccs.ca/what-we-are-working-on/>
- Canadian Women's Foundation, Women's Shelters Canada, Pauktuutit Inuit Women of Canada, Olsen Harper, A., & Abbas, J. (2020). *Resetting Normal: Systemic Gender-Based Violence and the Pandemic*. [https://canadianwomen.org/wp-content/uploads/2020/12/20-08-CWF-ResettingNormal-Report3\\_v5.pdf](https://canadianwomen.org/wp-content/uploads/2020/12/20-08-CWF-ResettingNormal-Report3_v5.pdf)
- Cao-Lei, L., Yogendran, S., Dufoix, R., Elgbeili, G., Laplante, D. P., & King, S. (2021). Prenatal maternal stress from a natural disaster and hippocampal volumes: Gene-by-environment interactions in young adolescents from project ice storm.

- Frontiers in Behavioral Neuroscience*, 15.  
<https://doi.org/10.3389/fnbeh.2021.706660>
- Centre of Excellence for Women's Health. (2017). *Trauma-Informed Practice Principles: Reflective Questions*.  
<https://cewh.ca/wp-content/uploads/2017/05/TIP-principles-Reflective-questions-2017.pdf>
- Centre of Excellence for Women's Health. (2024). *Sex- and Gender-Based Analysis Plus*. <https://cewh.ca/wp-content/uploads/2024/09/Mapping-the-landscape-of-sex-gender-and-health.pdf>
- Christie, H., Hiscox, L. V., Halligan, S. L., & Creswell, C. (2022). Examining harmful impacts of the COVID-19 pandemic and school closures on parents and carers in the United Kingdom: A rapid review. *JCPP advances*, 2(3), e12095-n/a. <https://doi.org/10.1002/jcv2.12095>
- Cocina Diaz, V., Dema Moreno, S., & Llorente, M. (2024). Reproduction of and alterations in gender roles in the rescue of material goods after the 2011 earthquake in Lorca (Spain). *Journal of Gender Studies*, 33(2), 160-173. <https://doi.org/10.1080/09589236.2022.2115022>
- Connor, J., Madhavan, S., Mokashi, M., Amanuel, H., Johnson, N. R., Pace, L. E., & Bartz, D. (2020). Health risks and outcomes that disproportionately affect women during the Covid-19 pandemic: A review. *Social Science and Medicine*, 266. <https://doi.org/10.1016/j.socscimed.2020.113364>
- Crawford, T., Chang, K-Y. J., Nila, F., Subramaniam, P., Villeneuve, M. (2023). *The intersectionality of gender, sexual identity, and disability in Disaster Risk Reduction in OECD countries: A rapid scoping review*. <https://genderanddisaster.com.au/wp-content/uploads/2023/10/GADAus-Disability-and-Disaster-Risk-Reduction-Literature-Review.pdf>
- Enarson, E. (2008). *Gender Mainstreaming in Emergency Management: Opportunities for Building Community Resilience in Canada*. Applied Disaster and Emergency Studies Brandon University.
- Enarson, E., Fothergill, A., & Peek, L. (2018). Gender and Disaster: Foundations and New Directions for Research and Practice. In H. Rodríguez, W. Donner, & J. E. Trainor (Eds.), *Handbook of Disaster Research* (Second Edition ed.). Springer, Cham. [https://doi.org/https://doi.org/10.1007/978-3-319-63254-4\\_11](https://doi.org/https://doi.org/10.1007/978-3-319-63254-4_11)
- Erman, A., De Vries Robbe, S. A., Thies, S. F., Kabir, K., & Maruo, M. (2021). *Gender dimensions of disaster risk and resilience: Existing evidence*. <https://openknowledge.worldbank.org/server/api/core/bits/treams/80f2e78e-f04f-5a59-86a6-9cfe6bcd7b87/content>
- Evans, J., Bansal, A., Schoenaker, D. A. J. M., Cherbuin, N., Peek, M. J., & Davis, D. L. (2022). Birth Outcomes, Health, and Health Care Needs of Childbearing Women following Wildfire Disasters: An Integrative, State-of-the-Science Review. *Environmental Health Perspectives*, 130(8), 086001-086001. <https://doi.org/10.1289/EHP10544>
- Federal Emergency Management Agency. (2023). *Achieving Equitable Recovery: A Post-Disaster Guide for Local Officials and Leaders*. <https://recovery.preventionweb.net/publication/achieving-equitable-recovery-post-disaster-guide-local-officials-and-leaders>
- Figgs, L. W. (2020). Elevated chronic bronchitis diagnosis risk among women in a local emergency department patient population associated with the 2012 heatwave and drought in Douglas county, NE USA. *Heart & Lung*, 49(6), 934-939. <https://doi.org/10.1016/j.hrtlng.2020.03.022>
- Fleming, J., Chindea, I. A., Smith, V. M., & Thompson, N. (2024). *Applying Women, Peace, and Security Considerations to Cross-Border Disaster Response: British Columbia Earthquake Case Study*. [https://www.rand.org/pubs/research\\_reports/RRA1944-1.html](https://www.rand.org/pubs/research_reports/RRA1944-1.html)
- Flor, L. S., Friedman, J., Spencer, C. N., Cagney, J., Arrieta, A., Herbert, M. E., Stein, C., Mullany, E. C., Hon, J., Patwardhan, V., Barber, R. M., Collins, J. K., Hay, S. I., Lim, S. S., Lozano, R., Mokdad, A. H., Murray, C. J. L., Reiner, R. C., Jr., Sorensen, R. J. D., . . . Gakidou, E. (2022). Quantifying the effects of the COVID-19 pandemic on gender equality on health, social, and economic indicators: a comprehensive review of data from March, 2020, to September, 2021. *Lancet*, 399(10344), 2381-2397. [https://doi.org/https://dx.doi.org/10.1016/S0140-6736\(22\)00008-3](https://doi.org/https://dx.doi.org/10.1016/S0140-6736(22)00008-3)
- Gartrell, A., Calgaro, E., Goddard, G., & Saorath, N. (2020). Disaster experiences of women with disabilities: Barriers and opportunities for disability inclusive disaster risk reduction in Cambodia. *Global Environmental Change*, 64, 102134. <https://doi.org/https://doi.org/10.1016/j.gloenvcha.2020.102134>
- Gender and Disaster Australia. (2023a). *Gender and Emergency Management Action Checklist*. [https://genderanddisaster.com.au/wp-content/uploads/2024/02/1B\\_GEM-Guidelines-CHECKLIST-December-2023.pdf](https://genderanddisaster.com.au/wp-content/uploads/2024/02/1B_GEM-Guidelines-CHECKLIST-December-2023.pdf)
- Gender and Disaster Australia. (2023b). *Men, Masculinities and Disaster: A Literature Review Australia and New Zealand 2013-2023*. <https://genderanddisaster.com.au/wp-content/uploads/2023/10/GADAus-Men-Masculinities-and-Disaster-Literature-Review-.pdf>
- Gender and Disaster Australia. (2023c). *National Gender and Emergency Management (GEM) Guidelines*. [https://genderanddisaster.com.au/wp-content/uploads/2024/02/1\\_GEM-Guidelines-December-2023.pdf](https://genderanddisaster.com.au/wp-content/uploads/2024/02/1_GEM-Guidelines-December-2023.pdf)
- Gender and Disaster Australia. (2025). *Gender & Disaster Australia Organisational CV*. [https://genderanddisaster.com.au/wp-content/uploads/2025/01/GADAus-Organisational-CV\\_January-2025.pdf](https://genderanddisaster.com.au/wp-content/uploads/2025/01/GADAus-Organisational-CV_January-2025.pdf)
- Gladu, M. (2021). *Impacts of the COVID-19 pandemic on women: Report of the Standing Committee on the Status of Women*. Government of Canada House of Commons
- Government of Canada. (2024a). *Canada's National Action Plan on Women, Peace and Security*. Retrieved from [https://www.international.gc.ca/world-monde/issues\\_developpement-enjeux\\_developpement/gender\\_equality-egalite\\_des\\_genres/cnap\\_wps-pnac\\_fps.aspx?lang=eng&ga=2.164545849.726283951.1744673247-1283762156.1744673245](https://www.international.gc.ca/world-monde/issues_developpement-enjeux_developpement/gender_equality-egalite_des_genres/cnap_wps-pnac_fps.aspx?lang=eng&ga=2.164545849.726283951.1744673247-1283762156.1744673245)
- Government of Canada. (2024b). *Women, peace and security*. Retrieved from [https://www.international.gc.ca/world-monde/issues\\_developpement-enjeux\\_developpement/gender\\_equality-egalite\\_des\\_genres/women\\_peace\\_security-femmes\\_paix\\_securite.aspx?lang=eng](https://www.international.gc.ca/world-monde/issues_developpement-enjeux_developpement/gender_equality-egalite_des_genres/women_peace_security-femmes_paix_securite.aspx?lang=eng)
- Greaves, L., Pederson, A., & Poole, N. (2014). *Making It Better: Gender-Transformative Health Promotion* (1 ed.). Women's Press.
- Greaves, L., & Poole, N. (2023). *Report on Gender and Disaster for Gender Disaster Australia*.
- Green, H., Fernandez, R., & MacPhail, C. (2021). The social determinants of health and health outcomes among adults during the COVID-19 pandemic: A systematic review. *Public Health Nursing*, 38(6), 942-952. <https://doi.org/10.1111/phn.12959>
- Gribble, K., Hamrosi, M., & Tawia, S. (2023). 'Want to help the children? Help the parents': Challenges and solutions from the Babies and Young Children in the Black Summer (BiBS) Study. Western Sydney University & Australian Breastfeeding Association. <https://doi.org/10.26183/ggeh-p937>
- Health Canada. (2023). *Health Portfolio Sex- and Gender-Based Analysis Plus Policy: Advancing Equity, Diversity and Inclusion*. Health Canada. <https://www.canada.ca/en/health-canada/corporate/transparency/health-portfolio-sex-gender-based-analysis-policy.html>

- Hine, R. H., Mitchell, E., Whitehead-Annett, L., Duncan, Z., & McArdle, A. (2024). Natural disasters and perinatal mental health: what are the impacts on perinatal women and the service system? *Journal of Public Health* (09431853), 32(5), 805-812. <https://doi.org/10.1007/s10389-023-01855-y>
- Huang, W., Gao, Y., Xu, R., Yang, Z., Yu, P., Ye, T., Ritchie, E. A., Li, S., & Guo, Y. (2023). Health Effects of Cyclones: A Systematic Review and Meta-Analysis of Epidemiological Studies. *Environmental Health Perspectives*, 131(8), 86001-86001. <https://doi.org/10.1289/EHP12158>
- Jeffers, N. K., Wilson, D., Tappis, H., Bertrand, D., Veenema, T., & Glass, N. (2022). Experiences of pregnant women exposed to Hurricanes Irma and Maria in the US Virgin Islands: a qualitative study. *BMC Pregnancy & Childbirth*, 22(1), 1-13. <https://doi.org/10.1186/s12884-022-05232-7>
- Jia Coco, L., Wilson, A., Mickley, L. J., Keita, E., Sulprizio, M. P., Yun, W., Peng, R. D., Xu, Y., Dominici, F., & Bell, M. L. (2017). Who Among the Elderly Is Most Vulnerable to Exposure to and Health Risks of Fine Particulate Matter From Wildfire Smoke? *American Journal of Epidemiology*, 186(6), 730-735. <https://doi.org/10.1093/aje/kwx141>
- Juncos, A. E., & Bourbeau, P. (2022). Resilience, gender, and conflict: thinking about resilience in a multidimensional way. *Journal of International Relations and Development*, 25, 861-878. <https://doi.org/https://doi.org/10.1057/s41268-022-00279-7>
- Kim, B., & Royle, M. (2024). Domestic violence in the context of the COVID-19 pandemic: A synthesis of systematic reviews. *Trauma, Violence, & Abuse*, 25(1), 476-493. <https://doi.org/10.1177/15248380231155530>
- Lai, B. S., La Greca, A. M., Brincks, A., Colgan, C. A., D'Amico, M. P., Lowe, S., & Kelley, M. L. (2021). Trajectories of Posttraumatic Stress in Youths After Natural Disasters. *JAMA Network Open*, 4(2), e2036682-e2036682. <https://doi.org/10.1001/jamanetworkopen.2020.36682>
- Laplante, D. P., Simcock, G., Cao-Lei, L., Mouallem, M., Elgbeili, G., Brunet, A., Cobham, V., Kildea, S., & King, S. (2019). The 5-HTTLPR polymorphism of the serotonin transporter gene and child's sex moderate the relationship between disaster-related prenatal maternal stress and autism spectrum disorder traits: The QF2011 Queensland flood study. *Development and Psychopathology*, 31(4), 1395-1409. <https://doi.org/10.1017/S0954579418000871>
- Lawrence, W. R., Lin, Z., Lipton, E. A., Birkhead, G., Primeau, M., Dong, G. H., & Lin, S. (2019). After the Storm: Short-term and Long-term Health Effects Following Superstorm Sandy among the Elderly. *Disaster Medicine & Public Health Preparedness*, 13(1), 28-32. <https://doi.org/https://dx.doi.org/10.1017/dmp.2018.152>
- Le Roux, I. H., & Cobham, V. E. (2022). Psychological interventions for children experiencing PTSD after exposure to a natural disaster: A scoping review. *Clinical Child and Family Psychology Review*, 25(2), 249-282. <https://doi.org/10.1007/s10567-021-00373-1>
- Li, X., Naveed Iqbal Qureshi, M., Laplante, D. P., Elgbeili, G., Paquin, V., Lee Jones, S., King, S., & Rosa-Neto, P. (2024). Decreased amygdala-sensorimotor connectivity mediates the association between prenatal stress and broad autism phenotype in young adults: Project Ice Storm. *Stress*, 27(1), 2293698. <https://doi.org/https://dx.doi.org/10.1080/10253890.2023.2293698>
- Logie, C. H., Toccalino, D., MacKenzie, F., Hasham, A., Narasimhan, M., Donkers, H., Lorimer, N., & Malama, K. (2024). Associations between climate change-related factors and sexual health: A scoping review. *Global Public Health*, 19(1), 2299718. <https://doi.org/https://dx.doi.org/10.1080/17441692.2023.2299718>
- Mauvais-Jarvis, F. (2020). Aging, Male Sex, Obesity, and Metabolic Inflammation Create the Perfect Storm for COVID-19. *Diabetes*, 69(9), 1857-1863. <https://doi.org/10.2337/dbi19-0023>
- Medzhitova, Y., Lai, B. S., Killenberg, P., Riobueno-Naylor, A., & Goodman, L. A. (2023). Risk Factors for Intimate Partner Violence in the Context of Disasters: A Systematic Review. *Trauma, Violence & Abuse*, 24(4), 2265-2281. <https://doi.org/10.1177/15248380221093688>
- Melgar, H. (2020). *The Gender Landscape of Canada's Non-Profit Disaster Response Sector* [York University]. Toronto, Ontario. <https://www.yorku.ca/laps/sas/wp-content/uploads/sites/202/2020/11/Hurania-Melgar.pdf>
- Meltzer, G. Y., Zacher, M., Merdjanoff, A., Do, M. P., & Pham, N. K. (2021). The effects of cumulative natural disaster exposure on adolescent psychological distress. *Journal of Applied Research on Children*, 12(1), 1-20. <https://doi.org/10.58464/2155-5834.1454>
- Mukherjee, T. I., Khan, A. G., Dasgupta, A., & Samari, G. (2021). Reproductive justice in the time of COVID-19: a systematic review of the indirect impacts of COVID-19 on sexual and reproductive health. *Reproductive Health*, 18(1), 252. <https://doi.org/10.1186/s12978-021-01286-6>
- Mürage, A., Machado, S., Alexandra Selinger, Travis, M., & Smith, J. (2024). A paradox in COVID-19 pandemic recovery: Increased precarity of women hotel workers in British Columbia.
- Murphy, M., Ellsberg, M., Balogun, A., & Garcia-Moreno, C. (2023). Risk and protective factors for violence against women and girls living in conflict and natural disaster-affected settings: A systematic review. *Trauma, Violence, & Abuse*, 24(5), 3328-3345. <https://doi.org/10.1177/15248380221129303>
- National Academies of Sciences Engineering and Medicine. (2024). *Essential health care services addressing intimate partner violence*. Washington, DC: The National Academies Press. Retrieved from <https://doi.org/10.17226/27425>
- Nomura, Y., Rompala, G., Pritchett, L., Aushev, V., Chen, J., & Hurd, Y. L. (2021). Natural disaster stress during pregnancy is linked to reprogramming of the placenta transcriptome in relation to anxiety and stress hormones in young offspring. *Molecular Psychiatry*, 26(11), 6520-6530. <https://doi.org/10.1038/s41380-021-01123-z>
- Orengo-Aguayo, R., Stewart, R. W., de Arellano, M. A., Suárez-Kindy, J. L., & Young, J. (2019). Disaster Exposure and Mental Health Among Puerto Rican Youths After Hurricane Maria. *JAMA Network Open*, 2(4), e192619-e192619. <https://doi.org/10.1001/jamanetworkopen.2019.2619>
- Parkinson, D., Duncan, A., Joyce, K., Jeffrey, J., Archer, F., Weiss, C., Gorman-Murray, A., McKinnon, S., & Dominey-Howes, D. (2023). *Gender and Emergency Management (GEM) Guidelines: A literature review*. [https://genderanddisaster.com.au/wp-content/uploads/2024/02/1A\\_GEM-Guidelines-LITERATURE-REVIEW-December-2023.pdf](https://genderanddisaster.com.au/wp-content/uploads/2024/02/1A_GEM-Guidelines-LITERATURE-REVIEW-December-2023.pdf)
- Partners for Action. (2024). *Inclusive resilience: A socio-economic vulnerability index (SoVI) to map flood risk for targeted communications and disaster risk reduction*. [https://uwaterloo.ca/inclusive-resilience/sites/default/files/uploads/documents/june-2024\\_p4a-sovi-report\\_en\\_final.pdf](https://uwaterloo.ca/inclusive-resilience/sites/default/files/uploads/documents/june-2024_p4a-sovi-report_en_final.pdf)
- Poole, N., Urquhart, C., Jasiura, F., Smylie, D., Schmidt, R., & T-I Advisory Group. (2013). *Trauma Informed Practice Guide* [https://cewh.ca/wp-content/uploads/2022/01/2013\\_TIP-Guide.pdf](https://cewh.ca/wp-content/uploads/2022/01/2013_TIP-Guide.pdf)
- Public Health Agency of Canada. (2023). *Chief Public Health Officer of Canada's Report on the State of Public Health in Canada 2023: Creating the Conditions for Resilient Communities: A Public Health Approach to Emergencies*. <https://www.canada.ca/en/public-health/corporate/publications/chief-public-health-officer-reports-state-public-health-canada/state-public-health-canada-2023/report.html>
- Ratnayake Mudiyanse, S., Davis, D., Kurz, E., & Atchan, M. (2022). Infant and young child feeding during natural disasters: A systematic integrative literature review. *Women & Birth*, 35(6), 524-531. <https://doi.org/10.1016/j.wombi.2021.12.006>



- Rezayat, A. A., Sahebdeh, S., Jafari, S., Kabirian, A., Rahnejat, A. M., Farahani, R. H., Mosaed, R., & Nour, M. G. (2020). Evaluating the prevalence of PTSD among children and adolescents after earthquakes and floods: A systematic review and meta-analysis. *Psychiatric Quarterly*, 91(4), 1265-1290. <https://doi.org/10.1007/s1126-020-09840-4>
- Robson, J., & Tedds, L. M. (2022). *Impacts of the COVID-19 Pandemic on Women in Canada*. Royal Society of Canada. [https://rsc-src.ca/sites/default/files/pdf/Women%20PB\\_EN.pdf](https://rsc-src.ca/sites/default/files/pdf/Women%20PB_EN.pdf)
- Rossi, R., Socci, V., Pacitti, F., Carmassi, C., Rossi, A., Di Lorenzo, G., & Hyland, P. (2022). The Italian version of the International Trauma Questionnaire: Symptom and network structure of Post-Traumatic Stress Disorder and complex post-traumatic stress disorder in a sample of late adolescents exposed to a natural disaster. *Frontiers in Psychiatry*, 13. <https://doi.org/10.3389/fpsy.2022.859877>
- Salvati, P., Petrucci, O., Rossi, M., Bianchi, C., Pasqua, A. A., & Guzzetti, F. (2018). Gender, age and circumstances analysis of flood and landslide fatalities in Italy. *Science of the Total Environment*, 610-611, 867-879. <https://doi.org/https://dx.doi.org/10.1016/j.scitotenv.2017.08.064>
- Scott, K. (2023). *Canada's gender pandemic response: Did it measure up?* Canada Centre for Policy Alternatives. <https://www.policyalternatives.ca/wp-content/uploads/2024/01/canadas-gender-pandemic-response.pdf>
- Shepard, B., Kulig, J., & Botey, A. P. (2017). Counselling children after wildfires: A school-based approach. *Canadian Journal of Counselling and Psychotherapy*, 51(1), 61-80. <https://search.ebscohost.com/login.aspx?direct=true&AuthType=shib&db=psyh&AN=2017-11803-004&site=ehost-live&scope=site&custid=s5672194>
- Simons, K., Novales, C., & Osude, O. (2022). *Frequently Asked Questions: Gender Transformative Change in Emergencies*. Plan International. <https://plan-international.org/uploads/2022/08/GLO-FAQ-Gender-Transformative-Change-in-Emergencies-Final-ENG-Jul22.pdf>
- Slick, J., & Hertz, G. (2024). Gender and gender-based violence in disaster contexts in Canada: A systematic review of the literature. *International Journal of Disaster Risk Reduction*, 108. <https://doi.org/10.1016/j.ijdr.2024.104529>
- Slick, J., Parker, C., & Valoroso, A. (2022). *Research Snapshot - Recognition of the Gendered Impacts of Disasters: A Missing Dimension in Canadian Emergency Management and Pandemic Plans*. <https://canadianwomen.org/wp-content/uploads/2023/03/Recognition-of-the-Gendered-Impacts-of-Disasters-EN-1.pdf>
- Sultana, A., & Ravanera, C. (2020). *A Feminist Economic Recovery Plan for Canada: Making the Economy Work for Everyone*. The Institute for Gender and the Economy (GATE) & YWCA Canada. <https://static1.squarespace.com/static/5f0cd2090f50a31a91b37ff7/t/5f205a15b1b7191d12282bf5/1595955746613/Feminist+Economy+Recovery+Plan+for+Canada.pdf>
- Sundareswaran, M., Ghazzawi, A., & O'Sullivan, T. L. (2015). Upstream Disaster Management to Support People Experiencing Homelessness. *PLOS Currents Disasters*, 1. <https://doi.org/10.1371/currents.dis.95f6b76789ce910bae08b6dc1f252c7d>
- Tolu, L. B., Feyissa, G. T., & Jeldu, W. G. (2021). Guidelines and best practice recommendations on reproductive health services provision amid COVID-19 pandemic: scoping review. *BMC Public Health*, 21(1), 276. <https://doi.org/https://dx.doi.org/10.1186/s12889-021-10346-2>
- Trentin, M., Rubini, E., Bahattab, A., Loddo, M., Della Corte, F., Ragazzoni, L., & Valente, M. (2023). Vulnerability of migrant women during disasters: a scoping review of the literature. *International Journal for Equity in Health*, 22(1), 135. <https://doi.org/https://dx.doi.org/10.1186/s12939-023-01951-1>
- Tricco, A. C., Antony, J., Zarin, W., Striffler, L., Ghassemi, M., Ivory, J., Perrier, L., Hutton, B., Moher, D., & Straus, S. E. (2015). A scoping review of rapid review methods. *BMC Medicine*, 13(1), 224. <https://doi.org/10.1186/s12916-015-0465-6>
- Turan, N., Yilmaz, D. Y., & Ertekin, K. (2022). The relationship between posttraumatic stress disorder, posttraumatic growth, and rumination in adolescents after earthquake: A systematic review. *Journal of Child & Adolescent Psychiatric Nursing*, 35(3), 267-276. <https://doi.org/https://dx.doi.org/10.1111/jcap.12374>
- United Nations Office for Disaster Risk Reduction. (2023). 2023 Global Survey Report on Persons with Disabilities and Disasters. <https://doi.org/https://www.undrr.org/media/90432/download?startDownload=20250417>
- United Nations Office for Disaster Risk Reduction, United Nations Population Fund, & United Nations Entity for Gender Equality and the Empowerment of Women. (2024). *Gender Action Plan to Support Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030*. <https://www.preventionweb.net/sendai-framework/sendai-framework-for-disaster-risk-reduction/SendaiGAP>
- United Nations Security Council. (2000). Resolution 1325 (2000) on women and peace and security. (S/RES/1325). [https://docs.un.org/en/S/RES/1325\(2000\)](https://docs.un.org/en/S/RES/1325(2000))
- Valoroso, A., O'Neal, C., & Sulzycki, M. (2023). *Service Continuity Guidelines for the Gender-Based Violence Sector*. Canadian Women's Foundation. <https://canadianwomen.org/wp-content/uploads/2023/06/Service-Continuity-Guidelines-for-the-GBV-Sector-EN.pdf>
- Wathen, C. N., & Varcoe, C. (Eds.). (2023). *Implementing Trauma- and Violence-Informed Care: A Handbook*. University of Toronto Press.
- Welton, M., Velez Vega, C. M., Murphy, C. B., Rosario, Z., Torres, H., Russell, E., Brown, P., Huerta-Montanez, G., Watkins, D., Meeker, J. D., Alshawabkeh, A., & Cordero, J. F. (2020). Impact of hurricanes Irma and Maria on Puerto Rico maternal and child health research programs. *Maternal and Child Health Journal*, 24(1), 22-29. <https://doi.org/10.1007/s10995-019-02824-2>
- Witt, A., Sachser, C., & Fegert, J. M. (2024). Scoping review on trauma and recovery in youth after natural disasters: what Europe can learn from natural disasters around the world. *European Child & Adolescent Psychiatry*, 33(3), 651-665. <https://doi.org/10.1007/s00787-022-01983-y>
- Yong Ping, E., Laplante, D. P., Elgbeili, G., Jones, S. L., Brunet, A., & King, S. (2020). Disaster-related prenatal maternal stress predicts HPA reactivity and psychopathology in adolescent offspring: Project Ice Storm. *Psychoneuroendocrinology*, 117. <https://doi.org/10.1016/j.psyneuen.2020.104697>
- Zhang, Y., Tingting, Y., Huang, W., Yu, P., Chen, G., Xu, R., Song, J., Guo, Y., & Li, S. (2024). Health Impacts of Wildfire Smoke on Children and Adolescents: A Systematic Review and Meta-analysis. *Current Environmental Health Reports*, 11(1), 46-60. <https://doi.org/https://dx.doi.org/10.1007/s40572-023-00420-9>