Bridging the health equity gap: examining the effects of water, sanitation and hygiene (WaSH) gender-based violence on health and wellbeing in Ghana.

by

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The following served on the Examining Committee for this thesis. The decision of the Examining Committee is by majority vote.

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Author's Declaration

This thesis consists of material all of which I authored or co-authored: see Statement of Contributions included in the thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Statement of Contributions

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I hereby declare that as lead author on all three manuscripts, I was responsible for the research conceptualization, data collection and analysis. I was also responsible for drafting and submitting all the articles for publication in the respective peer-reviewed journals. I also addressed all the comments from peer reviewers. Dr. Susan Elliott, as the primary supervisor, provided significant direction and editorial assistance.

Abstract

Access to water, sanitation and hygiene (WaSH) is widely recognized as an important pathway to promoting human health and wellbeing. Despite the progress in access to water and sanitation in Low-and Middle-Income Countries (LMIC), there are significant inequalities and disparities across space and place. Inequalities in WaSH access heighten women's vulnerability to violence when meeting their WaSH needs. This represents a significant barrier to achieving the Sustainable Development Goals (SDGs) by 2030. For instance, it will not be possible to achieve health and wellbeing for all (SDG 3) without safe water and sanitation for all (SDG 6), and neither is it possible without empowering women (SDG 5). However, WaSH practitioners and researchers are yet to adequately conceptualize the gendered vulnerability to violence in WaSH for informed policy.

This thesis draws on an integrated theoretical framework to explore the relationships between WaSH access and gendered dimensions of vulnerabilities to violence in LMICs. The research focused on three broad objectives: first, to develop an integrated theoretical framework for framing our understanding of WaSH gender-based violence in Low-and Middle-Income Countries (LMICs); second, to characterize the dimensions of WaSH gender-based violence (WaSH-GBV) in LMICs; and finally, to explore the WaSH-GBV experiences of Ghanaian immigrants in Canada over the life course. A qualitative research approach – involving conceptual review, scoping review, and in-depth interviews –was used in the research.

The conceptual review proposes an integrated theoretical framework for understanding intersectional vulnerabilities such as gender-based violence and water insecurity in LMICs. This framework emphasizes the role of place and scale in the conceptualization of WaSH-GBV in LMICs. It argues that WaSH-GBV is a relational outcome, and our understanding of it is tied to

how individuals, communities and institutions envision place and how their interactions are maintained over time. Results from the scoping review reveal four interrelated dimensions of WaSH-GBV in LMICs, including structural, physical, psychosocial, and sexual violence. Structural violence is mutually constitutive with the other dimensions of violence. Further, the in-depth interviews (n=27; 16 women and 11 men) reveal that individual understanding and perceptions of WaSH-GBV are complex, socially constructed and context-dependent. Participants' narratives indicate that while WaSH-GBV may occur in one place, the psychosocial impacts are not bound to place and time.

This research makes significant contributions to knowledge, policy, and practice. Theoretically, the research demonstrates the utility of incorporating feminist political ecology with political ecology of health to form an integrated theoretical framework – feminist political ecology of health (FPEH) for a broader understanding of the multidimensional nature of WaSH-GBV and how contextual factors produce and reinforce experiences of violence across space and place. The framework is a useful tool for exploring how structural factors at different scales interact to shape gendered WaSH vulnerabilities in LMICs. The framework provides a robust platform for understanding the relationship between health in place and how health outcomes across scales (i.e., micro, meso and macro) are gendered. While the framework focuses on WaSH inequalities and vulnerabilities in LMICS, it is also useful in the context of developed countries and other research areas concerned with exploring health inequalities among populations. Methodologically, the research contributes to the conceptualization of WaSH-GBV in LMICs. The research also highlights the strengths of employing multiple qualitative methods such as scoping reviews and in-depth interviews for a broader understanding of WaSH-GBV in cross-cultural settings. In terms of policy, understanding WaSH-GBV as a relational outcome will facilitate global efforts on

achieving SDGs: 3 – ensure good health and wellbeing for all; 5 – achieve gender equality and empower all women and girls; and 6 – ensure water and sanitation for all. The research also highlights the need for policies that are tailored and integrate community perspectives and experiences for promoting collective social change and community-led mobilization efforts that promote gender equality.

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To my family, particularly Maalo Nunbogu, Meyiri Nunbogu, and Eunice Puodong, I say a very big thank you for your love, support, and patience.

Dedication

This work is dedicated to Nma Juliana Bampirah

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Chapter 1: Introduction

1.1 Research Problem

Access to safe water, sanitation and hygiene (WaSH) has significantly improved over the past decades. Despite the progress made, many people are still left behind (World Health Organization - WHO & United Nations Children's Fund – UNICEF, 2021). In 2021, the Joint Monitoring Program (WHO & UNICEF, 2021) reported that about 2 billion people still lack safely managed drinking water, 3.6 billion people are without safely managed sanitation and 2.6 billion lack basic handwashing facilities at home. At the current rates of progress, there are marked inequalities and spatial disparities across world regions regarding access. For example, only about 30% of the population in sub-Saharan Africa (SSA) had access to safely managed water, and 21% had access to safely managed sanitation services in 2020. Further, eight out of ten people who lacked basic access to water and about two-thirds of people without basic sanitation lived in rural areas (WHO & UNICEF, 2021).

In recent years, researchers – with significant contributions by geographers – have paid critical attention to the relationalities in WaSH (Van Aken & Donato, 2018; Linton & Budds, 2014; Jepson et al. 2017). WaSH access is conceptualized as a relational and dynamic process embedded in socio-cultural, political and institutional networks across space and scales (Van Aken & Donato, 2018; Linton & Budds, 2014; Jepson et al. 2017). These discussions put social relations at the heart of how WaSH inequalities are spatially produced and socially embodied (Truelove, 2011; Mehta et al., 2014; O'Reilly et al., 2017). WaSH insecurity, then, is a social outcome and a state of being that is (re)produced in place. WaSH insecurity is a major global health and wellbeing challenge (WHO, 2012). Recent studies have expanded the WaSH and health nexus beyond biomedical concerns and draw attention to the embedded gendered violence associated with access to and use of WaSH infrastructure and services (Datta & Ahmed, 2020; Truelove, 2011; Pommells et al.,

2018; Sahoo et al., 2015). However, little is known about the dimensions of gender-based violence in WaSH and how these dimensions evolve in place – a knowledge gap that limits policy design and interventions for ensuring good health and wellbeing for all (SDG3), promoting gender equality and eliminating all forms of violence (SDG 5), and ensuring no one is left behind regarding access to water and sanitation by 2030 (SGD6). Leaving no one behind requires a deeper, more nuanced understanding of the gendered geography of everyday violence in WaSH for evidence informed policy responses.

Also of critical importance is the construction of gender based violence (GBV) in place and the role of theory in framing these discussions (Little, 2017; Tyner & Inwood; 2014). As Tyner and Inwood (2014) observed, researchers must focus on the social conditions that produced violence both through time and space. Also, Little (2017) argued that the construction of violence should be situated within scalar interactions and the multiple ways power plays out from the micro (i.e., individual, body) to the macro (i.e., institutional processes) scales. The take home message is that research on WaSH-GBV should be situated in context for a deeper understanding of the complex ways violence is constituted through multiple scales and temporalities. A more critical and theoretical led approach is needed to study how people negotiate WaSH access, experience and respond to gendered violence in their everyday spaces. For example, health geographers have drawn insights from feminist, social justice, and conflict theories – a critique of social, economic and power arrangement in society – to discuss many complex issues including the social construction of WaSH access, political ecology of WaSH (O'Reilly, 2016), power relations, WaSH politics and women's marginalization (Sultana, 2007; 2011; Truelove, 2011; Sahoo et al., 2015). However, the theoretical framing and the role of WaSH-GBV as a significant health challenge in Low and Middle-Income Countries (LMICs) has received limited attention over the years. This

may be partly due to the multifaceted nature of WaSH-GBV and difficulties in conceptualizing gendered violence in different cultural and resource settings (Sommer et al., 2015; Jewitt & Ryler, 2014;). To address this knowledge gap, this dissertation integrates feminist political ecology with political ecology of health to explore the relationships between WaSH access and gendered dimensions of vulnerabilities to violence in LMICs.

The **objectives** of this research were to:

1) develop an integrated theoretical framework for framing our understanding of WaSH-GBV in Low-and Middle-Income Countries.
2) characterize the dimensions of WaSH-GBV in Low-and Middle-Income Countries.
3) explore the WaSH-GBV experiences of Ghanaian immigrants in Canada over the life course.

1.2 Geographies of violence: GBV in space and place

Violence is everywhere and manifests in different forms (Tyner, 2012). Geographers have increasingly discussed violence across multiple streams. For example; the interrelations between capitalism and violence (Schetter & Müller-Koné, 2021), dynamics of climate change on violence (Spiegel, 2021), migration and violence (Jacobsen, 2022; Kreichauf, 2021; Dempsey, 2020), racism (Clayton et al., 2021), and gendered dimensions of violence (Fluri, 2009; Massey, 2013; Brickell, & Maddrell, 2016), to mention but a few. Insights from each of these streams reflect the geographical and socio-spatial dimensions of violence (Blomley, 2003). These works have showcased not only how violence shapes space and place but have also addressed how space and place shape violence beyond the interpersonal by focusing on how structural factors produce collective violence (Marcatelli & Buscher, 2019; Anwar et al., 2020). This points to the intersection between violence and geography and essentially, the spatiality of violence. As Springer (2011:90) noted 'violence sits in places' and fundamentally, violence is a socio-spatial

and temporal experience maintained socio-culturally, economically, and structurally (Little, 2017; Fluri, 2009; Springer & Billon, 2016). Understanding violence as a social outcome also provides insight into the support systems available and the challenges victims encounter when attempting to seek support.

These discussions and conceptualization of violence have been situated within relational connections and scalar interactions (Little, 2017; Tyner, 2012; Pain, 2014). In this way, violence is conceived as a continuous and unfolding process rather than an act or an outcome (Tyner, 2012; DeVerteuil, 2015). This opens up space for a deeper understanding of people's encounters with place, and how they negotiate their everyday spaces. By focusing on scalar relations, scholars have exposed the various ways macro structural conditions engineer spaces of marginalization at the meso scale and how state and institutional processes are inserted into people's lives and, significantly, on individual bodies (Mazur, 2021; Forde, 2022; Mustafa et al., 2019; Marcatelli & Buscher, 2019; Truelove, 2011). For example, in South Africa, Marcatelli and Buscher (2019) illustrate how neoliberal water policies coupled with unequal power relations and micro politics dispossessed marginalized populations of water, causing systemic harm to their bodies. Mustafa and colleagues (2019) also demonstrated the multiple ways global and national geopolitics shape the everyday violence among marginalized Pashtun and Bengali Rohingya communities.

Feminist discourses on GBV have burgeoned over the past decades and have drawn attention to the gendered landscape of violence. The arguments in this stream of research highlight the importance of the 'body' in everyday violence (Mayer, 2004; Massey, 2013; Fluri, 2009). These studies further argue that gender is a social construction and call for a scalar analysis of violence. As such, feminist researchers have explored the everyday scales of oppression and resistance to power relations as important sites for understanding gendered violence (Truelove,

2011). This focus on the relationship between scalar interaction and gender emphasizes the contextual (re)production of gendered violence (Springer, 2011; Pain, 2014). Feminist scholars explored GBV in relation to hegemonic masculinity (Dery, 2019; Massey, 2013). This school of researchers argues that when gender norms support the dominant position of men and relegate women to subordinate positions, they turn to perpetuate GBV (Massey, 2013; WHO, 2012; Tyner, 2012; Dery, 2019). Also, the feminization of household labour further confines women to relatively isolated positions where they are subject to the power of their husbands (Dery, 2019; Pommells et al., 2018). Relatedly, several studies have established a direct relationship between toxic masculinity and physical and psychosocial violence against women (Shakya et al., 2016; 2019; Dery, 2019; Pommells et al., 2018). For example, Little (2017), in her study of the spatiality of domestic violence in rural spaces, showed how constructions of rural masculinity and femininity shape people's experiences of and responses to violence.

Geographers have also examined GBV in the context of WaSH (Pommells et al., 2018; Nunbogu & Elliott, 2022), although this stream of research is in infancy. Some of these research works emphasize the links between structural and institutional processes and GBV, showing how structural processes on WaSH make some 'bodies' disproportionately vulnerable (Truelove, 2011; Mehta, 2014). Others suggest that household WaSH access and use are determined by gender, social network, social class, and power relations (Gimelli et al., 2018; Nunbogu et al., 2019; Harris et al., 2017). Therefore, individual vulnerability and exposure to GBV is closely tied to how they navigate these structures to access WaSH. Sahoo et al. (2015) showed the various ways socio-cultural and power relations determine women's access to sanitation and exposure to violence in Odisha, India, showing how women across life stages differently embody GBV. Truelove (2011) reinforces the connections between socio-power relations and WaSH-GBV by demonstrating how

multiple inequalities are (re)produced in water distribution and the consequent impacts on women's bodies. Collectively, these researchers conclude with a common narrative: where the violence happened influences its framing as violence and determines individual and collective perceptions and responses to such violence.

1.3 Study context

This research is situated within the broader literature on gender and WaSH access, use and control in LMICs. While the emerging studies that comprise this literature are diverse, the dominant messages are: 1) broader structural processes and historical context intersect with social relations and interactions within the household and the community to determine patterns of WaSH access, use and control (Datta & Ahmed, 2020; Truelove, 2011; Marcatelli & Buscher, 2019); 2) socio-cultural norms and gender expectations placed the responsibility of water collection, storage, and domestic hygiene maintenance on women (Dery, 2019; Collins et al., 2019); 3) linked to gendered responsibility of WaSH provision, unequal social relations – such as gender inequality intersecting with social class and caste – breeds spaces of inequality and marginalization that expose women to multiple forms of violence (Truelove, 2011; Sahoo et al., 2012). Following these discussions, this research began on a broader scope to examine how WaSH access and gender-based violence are mutually constitutive. In doing so, it draws together studies on gender and WaSH to conceptualize the dimensions of WaSH related GBV in LMICs. On the other hand, the research narrowed the discussions on WaSH-GBV to examine how place-based factors breed violence. In this way, I draw upon the wider manifestation of WaSH-GBV in the Upper West Region (UWR) of Ghana that extends from intimate spaces (i.e. the household) to the multiscalar networks of power relations in the community.

From the 2021 Joint Monitoring Program report (WHO & UNICEF, 2021), 59% of households in Ghana lack access to safely managed water, whilst about 87% do not have access to safely managed sanitation. Spatial disparities in WaSH access exist within the country. For example, open defecation practice among households varies from 52% in Upper West Region (UWR) to a low of 6.8% in Eastern Region (GSS, 2018). Despite the general poor WaSH access in the UWR, socio-cultural, economic, political and environmental factors create inequalities in households access (Fielmua & Dongzagla, 2020).

In the UWR, gender norms and cultural traditions disproportionately favour men, limiting women's access to resource use and control, and opportunities and power (Dery, 2019). These gendered behaviours are deeply embedded in the socio-cultural structures, which ensure social ordering, define sanctions for deviance, and consequently shape violent landscapes (Dery, 2019, Dery & Diedong, 2014). For instance, hegemonic masculinity mandates a husband to 'discipline' his wife if she transgresses her 'place' or fails to perform her socially assigned roles (e.g., fetching water, cooking, collecting firewood and caring for children and sick family members) (Dery, 2019). The feminization of household labour confines women to relatively isolated positions where they are subject to the power of men.

Embedded in a culture of inequality, marginalized women have limited agency to influence, negotiate and hold other actors accountable to promote their wellbeing (Bawa & Sanyare, 2013). Given their lack of power and voice in decision making, they are often unable to take advantage of opportunities to expand their agency. Women, as reported by Ghana Statistical Service (GSS) (2018), even justify as appropriate violence against them by domestic partners. While it remains critical to mitigate men's violence, the limited presence and weak capacity of state institutions hinders the government's efforts to create institutional mechanisms for women's

welfare and their sustained inclusion and participation in governance (Dogoli, 2021; Bawa & Sanyare, 2013).

Public policies and programs in UWR have also created some forms of social suffering – structural violence. With regard to water, this includes the institutionalized forces that indirectly prevent people from meeting their basic water needs. Water rationing and allocation is shaped by politics and power, and access is usually mediated through institutions (Jambadu et al., 2022). Furthermore, public piped water services are usually accessible to rich and middle-class neighbourhoods, while households in poor settlements are left to secure water by informal means (Jamdadu et al., 2022). These procedural injustices expose women and girls to a series of violence, which, unfortunately, are hegemonized.

1.4 WaSH-GBV, health and wellbeing nexus

GBV is a major public health issue and the most prevalent human right violation (WHO, 2021). The UN (1993) defines GBV as "harmful acts directed at an individual based on their gender. It is rooted gender inequality, the abuse of power and harmful norms". In the context of WaSH, GBV encompasses the physical, psychosocial structural, and sexual violence individuals experience in meeting their everyday WaSH needs (Nunbogu & Elliott, 2022). These definitions of GBV situate it within the multiple determinants of health as "not the absence of disease but as the complete physical, social, emotional and mental wellbeing" (WHO, 1957). Health is viewed as a resource for everyday living which allows individuals to manage, cope with, and change their environment for desired life chances (WHO, 1986). Health has also been conceptualized as a set of basic capabilities (Sen 1993; Nussbaum, 2006). Much of Sen's (1993) discussion around human capability and health revolves around 'being' and 'doing' – which encompasses the opportunities

offered by the social context as well by individuals' capabilities (Venkatapuram, 2011; Law & Widdow, 2008). Following the capability approach, health has been conceptualized as what a person is able to be and do, determined by the social context, the individual endowments and opportunities, and life choices afforded to the individual (Law & Widdow, 2008).

Health geographic research has explored the links between WaSH access and psychosocial health outcomes of women and girls. In Usoma, Kenya Bisung and Elliott (2016) reported that water insecurity resulted in feelings of embarrassment, frustration, and marginalization among women. Women's inability to keep themselves and their children clean due to the lack of water, accusations of water theft by neighbours, fighting each other in water queues and fear of spousal violence contributed to social shaming, worry, anger, frustration and negative self-identity (Collins et al., 2019; Pommells et al., 2018; Cooper-Vince et al., 2018). Other researchers have reported on the anxiety and stress women and girls experience when going for open defecation due to fear of being abused and the associated embarrassment and shame (Sahoo et al., 2015; Kulkarni et al., 2017; Nallari, 2015). Also, WaSH insecurity inhibits women and girls from practicing safe menstrual hygiene which influences their social engagement and psychosocial health (Jewitt & Ryley, 2014; Sahoo et al., 2015).

Research has documented the impacts of WaSH-GBV on health beyond the psychosocial constructions, particularly for women and girls in Low- and Middle-Income Countries (LMICs) (Sclar et al., 2018; Cooper-Vince et al., 2018; Collins et al., 2019). WaSH-GBV disempowers women and girls, leading to negative wellbeing (Jewittt & Ryley, 2014; Krenz & Strulik, 2019). Wellbeing here refers to all things that are good for a person and society, that make for a good life (Deaton, 2013). The absence of adequate WaSH for menstrual hygiene increased women's work absenteeism (Krenz & Strulik, 2019) and girls' educational engagement (Jewittt & Ryley, 2014;

Crankshaw et al., 2020). Also, as Wutich, (2009) and Bisung & Elliott (2016) reported, the time spent on water collection limits women's economic engagements and income earning. Drawing on Sen's capability approach, which theorized health as human flourishing, WaSH-GBV is a form of health denial as it limits individuals' basic capabilities to 'be' and 'do' and their collective freedom to engage with social and political policies which promote greater or lesser freedoms (Sen, 1993; Alkire, 2002).

Structural violence breeds embedded social inequalities that shape population health and wellbeing. Structural violence is a form of socio-political arrangement that put some particular people in harm's way (Farmer, 1996). Farmer (1996) has extensively discussed structural violence as a form of health denial. Scholars have employed various terms such as 'slow violence' (Nixon, 2011), liquid violence (Marcatelli & Buscher, 2019); and infrastructure violence (Rodgers & O'neill, 2012). Collectively, these scholars describe the inequality in WaSH (i.e distribution, access, use and control) that is gradual, invisible and dispersed across time and space. Health geographers have discussed the implications of inequality on health. For instance, Marmot and Wilkinson (2005) have explored the psychosocial health perspectives of inequality. Wilkinson and Pickett (2010) noted that inequality 'gets under the skin' as it disintegrates social relations and reduces societal commitment to work together for greater wellbeing. In the context of WaSH, Deitz and Meehan (2019) used the term plumbing poverty to illustrate how social inequality is institutionalized in space and fundamentally exposed racialized populations to meagre life chances and health conditions. DeVerteuil (2022) in his commentary on Case and Deaton's (2020) book, *Deaths of Despair and the Future of Capitalism*, categorically described these embedded social inequalities as forms of health denials that undermine individuals' opportunity to achieve good health and freedom to escape from morbidity and avoidable mortality.

1.5 Outline of dissertation

This dissertation is organized as a collection of published manuscripts. Though the manuscripts together form a conceptual whole, the objectives and methods employed for each paper are unique. Chapter 2 of the thesis provides a detailed description of the research design and methods. Chapter 3 addresses the first research objective and presents an integrated theoretical framework for understanding the relationship between WaSH access and GBV in LMICs context. Chapter 4 addresses the second research objective and characterizes the dimensions of WaSH-GBV in LMICs. The chapter draws from studies across various socio-cultural contexts for a broader understanding of WaSH vulnerabilities and marginalization in place. Chapter 5 explores the WaSH experiences of Ghanaian immigrants in Canada, highlighting multiple ways GBV is produced and maintained in place, and how communities perceive and respond to it. Together, chapters 3, 4, and 5 consist of manuscripts published or submitted for publication in peer reviewed journals and form the substantive chapters of the thesis. Chapter 6 summarizes the main findings across the three manuscripts and provides a discussion of the broader implication for policy and practice. It also highlights the contributions of the research and concludes with directions for future research.

Chapter 2: Research Design

2.1 Introduction

This thesis aimed to explore the dimensions of gender-based violence in WaSH using an integrated theoretical framework – feminist political ecology of health. The thesis employed a qualitative research design – scoping review and in-depth interviews. This chapter describes and justifies the research design, methods, and techniques. The chapter also provides a consolidated methodology and data collection process for the entire research project. Further details of the research design are presented in the main manuscripts in chapters 5 and 6.

2.2 Approaches to research in health Geography

Over the past two decades, the role of theory in guiding health research has become increasingly important (Kearns, 1993; Dorn & Laws, 1994; Litva & Eyles, 1995; Krieger, 2011; Rosenberg, 2014; Elliott, 2018). Krieger emphatically asserted that "Without theory, observation is blind and explanation is impossible" (Krieger, 2011:10) and has underscored three main priorities associated with using explicit theoretical approaches to guide research. First, without an explicit engagement with theory, health researchers are likely to pose poorly conceived questions and potentially generate wrong answers (Krieger, 2011). Second, theory provides a lens for observation and by extension, the whole enterprise of research (Litva & Eyles, 1995; Krieger, 2011). Third, an explicit engagement with philosophical and theoretical underpinnings assists in identifying silences (Krieger, 2011) – that is, what is included or omitted to judge the strengths and weaknesses of that theory.

Health geographers' engagement with critical theory facilitated the development of new ideas that hold the potential for understanding gender sensitivity to health and wellbeing. Critical health geographers have employed feminist scholarship to examine concerns of women's health, seeking to understand how gender constitutes a major determinant of health in different

environmental and cultural contexts (Moss & Dyck, 2001; Dyck, 2001). Litva et al., (2001) building on the earlier efforts of Massey (2013), explicitly revealed how webs of masculinity and femininity shape socio-political structures and attendant social life and health in different contexts. These diverse conversations framed the sub-discipline's current engagement with theory and different methodological approaches in understanding how gender and power intersect to produce varied gendered health inequalities.

Health Geographers have used feminist approaches to inform broader research questions on gendered health inequities (Nyantakyi-Frimpong, 2017). Feminist approaches to research are concerned primarily with power differentials, situate gender at the centre of inquiry and are grounded in theoretical frameworks that prioritize women's issues, voices and experiences (Westmarland & Bows, 2019). Feminist approaches are useful in contemporary health research as they extend beyond gender to analyze how structural processes and power hierarchies create spaces of oppression. Feminist thinking shapes both questions and methods that seek to unravel embedded inequalities that continue to marginalize women (Westmarland & Bows, 2019; Hesse-Biber, 2013). These approaches create opportunities to employ multiple methodologies such as interviews, focus groups and art-based methods (including photovoice, poetry, songs, stories and pottery) to study gender violence (Westmarland & Bows, 2019).

2.3 Research Design

This research is set within the broader framework of social constructionist and feminist perspectives to explore the gendered dimensions of violence in WaSH using Ghana as a case study. The research used qualitative research approaches through which the collection and analyses of both secondary and primary data were prioritized. The research data collection and analysis was

done in two phases. In the first phase, secondary data collection and analyses were done to gain a broader understanding of WaSH-GBV. For objective 1, I used a conceptual review to demonstrate the utility of an integrated theoretical framework for understanding WaSH-GBV in LMICs. Conceptual reviews "present theoretical syntheses (e.g., theoretical reviews, integrative frameworks), develop completely new ideas (e.g., novel theories, propositional inventories, analytical models of unexplored phenomena), or direct attention to substantive domains that have not yet received adequate attention" (Yadav 2010:5). I used the conceptual review approach to help develop an integrated theoretical framework – Feminist political ecology of health – drawing from feminist political ecology and political ecology of health frameworks. For objective 2, I conducted a scoping review to conceptualize the dimensions of WaSH-GBV in LMICs (with reference to the World Bank 2020 classification of countries by their Gross National Income – GNI). Scoping reviews are a useful tool for mapping existing knowledge gaps and key concepts in a given area of research (Munn et al., 2018).

In the second phase of the research, I used a case oriented approach to explore how WaSH insecurity and gender violence are embodied, expressed and experienced across time and place (objective 3). Case studies allow for an in-depth and multi-faceted investigation of complex phenomenon such as GBV in a specific context (McManners, 2016). Case study research in GBV studies extends beyond the description of violence to examine the multiple influences of violence in context and over time (Flyvbjerg, 2006). Qualitative interviews were the main primary data in this phase of the research. These interviews created room for reflexive and reciprocal dialogue that prioritized the lived experiences of participants (Westmarland & Bows, 2019). The use of both primary and secondary data collection methods in gender and violence studies allowed for data triangulation and provided a robust platform of complementarity among data sources to produce a

rigorous and nuanced understanding of WaSH-GBV (Westmarland & Bows, 2019). A mixture of qualitative approaches is therefore well suited for examining how WaSH insecurity intersects with gender and other dimensions of inequities to expose women to various forms of violence and the related health and wellbeing outcomes, and how these experiences within the case can be transferred to similar setting as lessons (Warshawsky, 2014). Figure 2.1 shows a general framework and flow of data collection and analysis. The rest of this chapter outlines the data collection and analysis procedures.

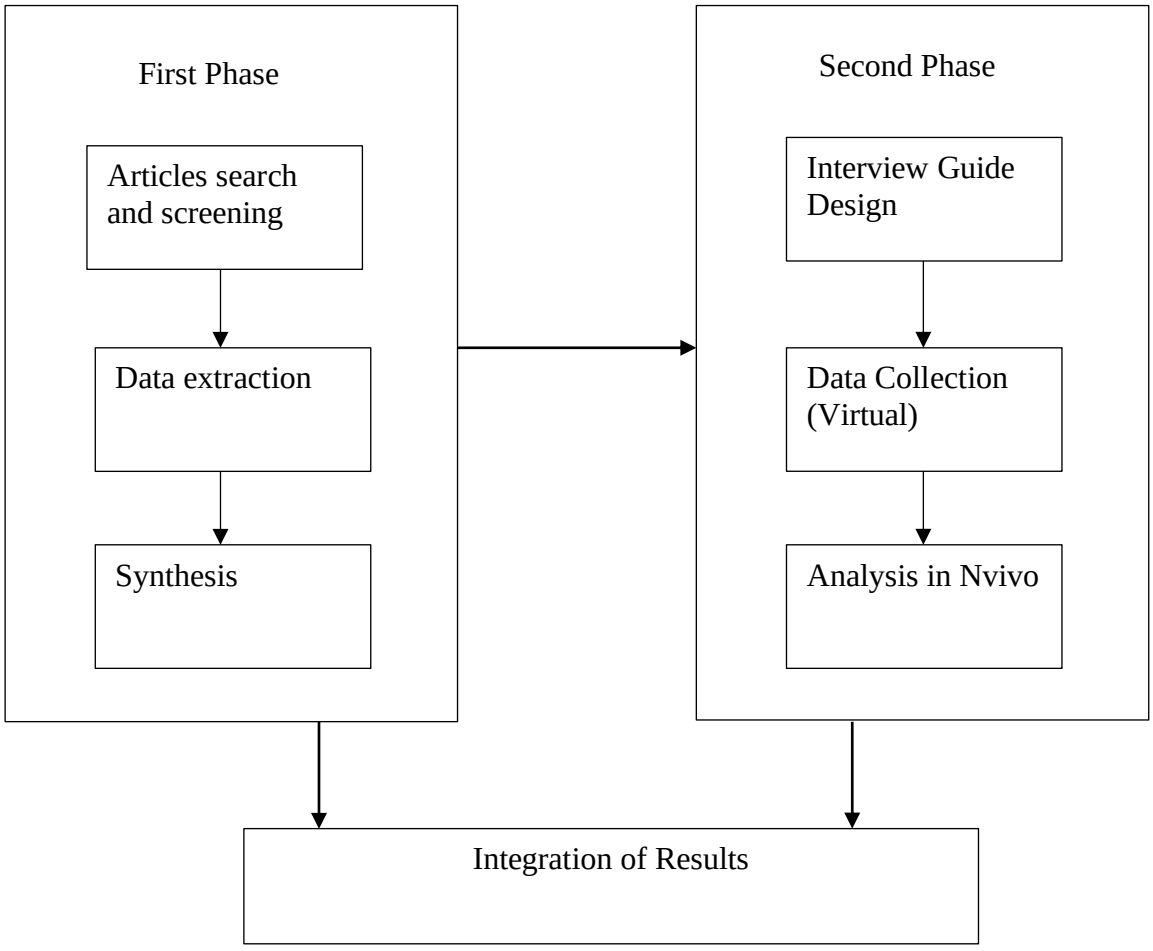

Fig 2.1: Framework and flow of activities for the data collection and analysis

2.3.1 Research Techniques

The research employed a scoping review and qualitative in-depth interviews as the main data collection techniques. In health research, scoping reviews are conducted to facilitate synthesis of research from different methodologies on a research theme and for the clarification of concepts in an area of research (Peters et al., 2015). Therefore, this research started with the objective of identifying the various ways existing literature on WaSH in LMICS frames the dimensions of individual and collective experiences of GBV. The study combined a variety of data sources to help conceptualize the dimensions of WaSH-GBV and identify the existing research gaps for future research. These data sources include academic databases such as Scopus and Web of Science (multidisciplinary datases), and two biomedical databases – Embase, and Medline. Employing multiple databases was very important for decoupling the complexity and multi-layered nature of GBV. The goal was to document and gain insights into the variety of opinions, meanings, and experiences on WaSH-GBV across different socio-economic and political settings. Database searches and screening were conducted between June 20 – July 30, 2020. After screening, 29 articles were eligible for the scoping review. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) was used to ensure methodological rigor and transparency (Moher et al., 2019; Tricco et al., 2018).

The second method employed was in-depth interviews. In-depth interviews (IDIs) have been one of the most widely used methods in GBV research (Westmarland & Bows, 2019). IDIs created space to listen to and understand participants ideas, lived experiences and memories about WaSH-GBV in their own words. Interviews were conducted with men and women who had lived in Ghana for at least 20 years, are natives of the UWR, and are living in Ontario, Canada for at least one year. Participants were first given information letters that outlined the research objectives, privacy and confidentiality issues, as well key contacts for the research via email. All clarifications

regarding the research were addressed on phone or through email. Before the commencement of interviews, issues relating to consent, recording and privacy in the information letter were again discussed with the participants. In all, a total of 27 IDIs (with 16 women and 11 men) were conducted from August to October 2021. These interviews were conducted in English and the discussions were guided with an interview guide that allowed the researcher some flexibility to probe for additional information during interviews. All interviews were conducted online via Zoom or Webex, and generally lasted between 45 minutes and 1 hour. To ensure all relevant data was captured, interviews were recorded and later transcribed verbatim.

2.4 Data collection – Interviews

The study was undertaken between August and October 2021. Purposive sampling was used to recruit study participants. The study flyer was posted on two major WhatsApp platforms: 1) the 5NORTH GHANA platform which is made of natives from northern Ghana living in North America, mainly Canada and USA, with the collective aim of advocating for development in Ghana, particularly the five northern regions; and 2) the Ghanaian Canadian Association of Kitchener, Waterloo and Cambridge with membership spanning across all Ghanaians living in the Waterloo region of Ontario. Those who agreed to participate were then contacted again via email and phone to arrange the interview. After the first two weeks of recruitment, 12 participants were recruited. The remaining 15 participants were recruited through snowball sampling techniques especially for elderly men and women who are not using WhatsApp. Using the participants' networks to facilitate recruitment worked well because it increased a sense of shared commitment to participating in the interviews and sharing their experiences. Due to Covid-19 restrictions and the University of Waterloo research ethics regulations at the time, all interviews were conducted

online. I conducted interviews to a saturation point – where no new themes were emerging within the study context (Saunders et al., 2018; Suddaby, 2006). However, I oversampled women (16 women; 11 men) because communities in UWR are patriarchal and women are mostly responsible for WaSH provision and management in the households (Dery, 2019). Online interviews have some considerable challenges such as the 'risk of technological exclusion of potential participants' and the challenge of obtaining consent to be recorded (Żadkowska, 2022:2). However, the snowball technique employed ensured a wider scope of participant recruitment and using multiple online interview platforms such as Zoom and WebEx provided participants with some flexibility in terms of technology, time and location of data collection (Żadkowska, 2022). Guided by the feminist political ecology of health framework and the findings from the scoping review, discussions focused on capturing participants' perceptions and experiences of WaSH-GBV in Ghana.

2.5 Positionality

The research work is guided by three main epistemological commitments. First, with a fundamental commitment to feminist research, I believe that gendered power relations shape women's access to and control of resources (i.e WaSH) within and beyond the household (Nyantakyi-Frimpong & Bezner Kerr, 2017; Adams et al., 2018). Therefore, in studying WaSH-GBV, it is important to: 1) accord critical attention to the ways gender is experienced, contested and reinforced within the household and community; and 2) recognize that social relations and interactions within the household and community operate within broader socio-economic and historical contexts (Rocheleau et al., 2013; Elmhirst, 2015). Second, I believe that people's health and wellbeing are shaped by their natural and built environment and their interactions within these

environments (Kearns, 1993; King & Crew, 2010; King, 2010). Therefore, my research situates the realities of the research participants within the global and local environment, economic, political and socio-cultural structures that shape these experiences. My third commitment as a WaSH researcher is to ensure that my research process and outcomes are transformative (Nelson, 2015; Rocheleua et al., 2013). For research participants, this transformation includes ensuring that the research findings lead to the design of well-suited policy interventions that promote dignified and violence-free access to WaSH and ultimately improve their health and wellbeing. This transformation also involves contributing to knowledge gaps and aiding with the visibility of health inequities faced by vulnerable populations, particularly women and girls.

In keeping with this understanding, I situate my methodological approach to research within the realm of what Donna Harraway refers to as 'partial and situated knowledges' (Harraway, 2004, 2020). Knowing that people's knowledge and experiences of WaSH-GBV are shaped in place and time, I employed multiple methodologies (scoping review and narrative inquiry) to produce different views and embodiment of WaSH-GBV in space (Nightingale, 2003). On a broader scope, the scoping review created an opportunity to weave together situated knowledge on WaSH-GBV in LMICs. The narrative inquiry fosters a disposition for understanding individual lived experiences on WaSH-GBV in particular social settings (i.e in Ghana and Canada) over time. My focus was to address my research questions using different methodologically approaches that complement each other, allowing my research questions to determine the methods as suggested by Elliott (1999). During the interview process, I conducted myself as a 'cultural insider' (Dery, 2020: 1176) with 'sensitivity' and 'self-awareness' whilst minimizing my role as 'expert' or 'knower' (Armitage & Gluck, 1998: 6) in the process of 'collecting, interpretation and revelation of the meaning behind' participants narratives (Pino Gavidia & Adu, 2022).

I grew up in a society in which patriarchal hegemony coupled with other socio-cultural norms and traditions limit women's chances to negotiate and participate in decisions/processes that affect their lives, and also make them primarily responsible for water provision, especially for household domestic needs. As such, I used the 'lens' from my Ghanaian experiences to ask questions, probe further and analyze situations during the interviews. My own cultural training on the significance of listening to and respecting the views of elders guided me to allow my participants to be authorities of their own stories. Thus, I did not approach the research with "*the view from nowhere*" (Nagel, 1989), but rather with a perspective which could influence how I interpreted participant responses.

Chapter 3: Towards an integrated theoretical framework for understanding water insecurity and gender-based violence in Low-and Middle-Income Countries (LMICs)

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Overview

Disparities in access to basic needs and resources such as water is largely borne out of power imbalance across scale. In examining these power dynamics in the context of health inequalities, scholars have deployed feminist political ecology analytical framework to situate gender and other forms of vulnerability as emerging from unequal power relations, and political ecology of health to emphasize the health implications of inherent relational power in the distribution of resources. Although appealing, the two theoretical frameworks over time have proven to be limiting in the study of intersectional vulnerabilities such as gender-based violence and water insecurity which reflect multiple dimensions of unequal power structures. This study expands the theoretical space for the study of inequalities in health geography by demonstrating the utility of incorporating feminist political ecology with political ecology of health to form an integrated theoretical framework – Feminist Political Ecology of Health (FPEH). This proposed theoretical framework gives guidance for engaging with a suite of questions and methods related to multifaceted problems such as water insecurity and gender based-violence. The paper highlights these theoretical issues and then discusses how FPEH can enrich research on water security and gender-based violence in Low-and middle-income countries (LMICs).

3.1 Introduction

The right to water seeks to ensure universal ‘‘safe, clean, accessible, and affordable drinking water” (United Nations, 2010: Resolution 64/292). However, this basic right is far from reality for about 2.2 billion of the global population who lack access to safely managed water (WHO/UNICEF, 2019). Women and girls in Low-and middle-income countries bear a greater burden of the health and wellbeing challenges that result from the lack of access to adequate water. Aside from water related bio-medical infections (Caincross et al., 2010; Wolf et al., 2018; Anthonj et al., 2018), women and girls are exposed to various forms of violence when meeting their water needs, which include structural violence (Wutich, 2009; Anwar et al., 2020; Cairns et al., 2017; Collins et al., 2019); psychosocial violence (Cooper-Vince et al., 2018; Collins et al., 2018; Stevenson et al., 2012; 2016; Pommells et al., 2018; Mushavi et al., 2020); physical violence (Collins et al., 2019, Cairns et al, 2017; Pommells et al., 2018; Mushavi et al., 2020); and sexual violence (Pommells et al., 2018). These forms of violence are exacerbated through multiple scales and temporalities and reinforced by structural processes. For example, institutional, political and economic processes are key determinants of who gets water, at what time and price (Anwar et al., 2020; Wutich et al., 2016; Tutu & Stoler, 2016; Mehta, 2014; 2016; Zeitoun, 2013).

Gender-based violence has devastating effects on health and wellbeing. While research on water, sanitation and hygiene (WaSH) related violence is gaining scholarship, the major challenge has been on how to capture nuances in the multiple dimensions and drivers of gender-based violence (GBV). Scholars, particularly in the Health and Medical Geography sub-discipline, have been challenged to extend their research lens and theoretical approaches for a broader understanding of the socio-political and environmental interactions that shape GBV and wellbeing. For instance, Dyck (2003) and Parr (2003) advocate for the use of feminist theory, specifically focusing on women and vulnerable groups. King (2010) calls for attention to the ecological and

socio-political dimensions of health. As such, feminist political ecology (FPE) and the political ecology of health (PEH) have served as major theoretical underpinnings for examining human-environmental interactions (Jackson & Neely, 2015). Feminist political ecology uses gender as a central social category that informs societal-nature relations, resource access (i.e water) as well as politics related to the environment (Rocheleau et al., 2013; Resurreccion & Elmhirst, 2008). In so doing, it reveals how power structures disempower bodies that are embedded in local social and cultural contexts. FPE has long been engaged in creating connections between gender and development (Whichterich, 2015), exploring women's agency and collective action (Rousseau, 2011) and for understanding inequality as embodied through gender (Harris, 2015; Sultana, 2011). However, FPE does not extend the analysis to an exploration of the health implications of social inequalities resulting from uneven water access as a result of power relations. Political ecology of health fills this gap and examines the role political-economic structures, socio-cultural and environmental contexts play in shaping population health and wellbeing.

The dualism in these theories has masked certain inequalities, particularly in relation to the health and wellbeing impacts of water insecurity. For instance, political ecology of health showcases how structural failures contribute to increased risk of diseases and ill-health but pays little attention to the gendered impacts (Jackson & Neely, 2015). Therefore, to open more possibilities for a nuanced understanding of water insecurity and gender-based violence, we advocate for the integration of these two theoretical perspectives. The integrated theoretical framework – feminist political ecology of health – can give guidance consistent with a suite of questions and methods for engaging with multifaceted and wicked problems such as water insecurity and gender based-violence. Wellbeing in this paper refers to all things that are good for a person and society, that make for a good life (Deaton, 2013). The paper is structured into 5

sections. We begin with a discussion of water as a gendered resource, highlighting the socio-cultural and relational issues involved in water access in section 2. Section 3 provides a conceptual framing of gender-based violence in WaSH. Section 4 draws on feminist political ecology and political ecology of health for an integrated theoretical framework and presents how the proposed framework will guide research on water insecurity and gender-based violence. The paper concludes in section 5 with a summary of the issues discussed and highlights the possible research methods critical for advancing the proposed theoretical framework in research on water insecurity and gender-based violence.

3.2 Water as a gendered resource

Gender reflects the socio-cultural, political and economically composed roles, responsibilities and expectations assigned to men and women, which are context specific and change overtime (Massey, 1994; Harcourt, 2009; Harcourt & Escobar, 2005; Manandhar et al., 2018; Myttinen et al., 2018). This makes gender both an outcome and a relational process concerned with patterns of masculinity and femininity across space (Van Aken & Donato, 2018). Feminist political ecologists have suggested that gendered dynamics of water should be discussed in ways that integrates power relations, subjectivities, ethnicity, and race in space, place, and scale (Nightingale, 2006; Rocheleau et al., 2013; Elmhirst, 2011; 2015; Mollett & Faria, 2013). In particular, gender is seen as a major factor shaping access, knowledge, control and distribution of several resources including water. So far as gender is a contextual construct, how it shapes knowledge creation, dynamics and relations in resource control and distribution (e.g. water) also occurs over space and place. Therefore, our understanding of water as a gendered resource is closely linked to trying to comprehend how communities and groups interrelate and negotiate water access, use, and control.

More fundamentally, how these relations differently affect men and women.

The burgeoning literature on gender–water nexus is centered around three main interconnected issues:

> 1) women and girls are primarily responsible for water provision, especially for households domestic needs (such as cooking, drinking and maintaining personal hygiene), resulting in gender differentiated impacts in periods of water insecurity;
>
> 2) women and men have unequal roles and different levels of participation in water governance particularly at the community level. Even when women are involved, their participation is usually passive; and
>
> 3) the psychosocial aspects of water insecurity with studies indicating that women disproportionately experience stress over water insecurity and these stresses are likely to be compounded in the face of changing environmental conditions.

These three literature clusters are discussed in the context of water as a gendered resource.

First, there is mounting literature demonstrating that gendered division of labour produces differential relations to water access, uses and knowledge between men and women that vary in space and time (Sultana, 2007; Graham et al., 2016; Pommells et al., 2018). Dery (2019) found that these gendered inequities, rooted in socio-cultural expectations, associate women with water collection and storage. In many LMICs, women and girls, as part of their normative roles are responsible for keeping the home (i.e., performing all domestic related tasks) (Pommells et al., 2018; Dery, 2019), and performing such roles require constant access to water. Domestic tasks such as maintaining household hygiene, caring for children, elderly and sick, and cooking for the

household signifies how much water is required on a daily basis by women to perform their normative roles. In sub-Saharan Africa where access to water is a challenge (WHO/UNICEF, 2017), women and girls bear the brunt of negotiating male dominated structure for water access, and the burden of long travel and wait time to draw water for household use (Graham et al., 2016; Geeree et al., 2018; Bisung & Elliott, 2016; 2018; Pommells et al., 2018).

Second, despite growing policy interventions and initiatives aimed at promoting gender equality, women in LMICs are hardly included in formal water governance (Adams et al., 2018). This inequitable participation is attributed to gender power relations and socio-cultural norms that associate masculinity with governance and resource ownership (Harris et al., 2017; Adams et al., 2018; Yerian et al., 2014). As revealed by Sultana (2007) in rural Bangladesh, gendered participation in water governance is influenced by socio-cultural norms as well as social class and power relations. Sultana's work highlights how patriarchy and gendered water struggles produce embodied gender subjectivities and constraint relations to water (Sultana, 2007). Mitra and Rao (2019) draw attention to the interconnection between women participation and the scales of water management, with women often able to participate and contribute in informal water committees but not in formal ones due to financial obligations and cultural stereotypes. Relatedly, knowledge in water governance and leadership is often codified as masculine (Zwarteveen & Liebrand, 2015), although women have been found to demonstrate informed knowledge and expertise in water management and budgeting than their male counterparts (Wutich, 2009). It has been noted that the current male dominated water management structures have roots in the neoliberal market-based approaches in the water sector (Harris, 2009; Ahlers & Zwarteveen, 2009). Relations in water access are inherently contested and negotiated through social and economic power dynamics with men dominating the control of water infrastructure and services (Truelove, 2011).

Lastly, the combined effect of gendered water access and governance is playing out in health and wellbeing. Psychosocial health outcomes manifest through complex processes of coping and adapting to water insecurity risk, which are sometimes persistent even when water access improves (Bisung & Elliott, 2018). Women at different life stages are more exposed to water related psychosocial health threats than men, particularly in LMICs where WaSH insecurity, poverty and environmental stressors act in concert (Bisung & Elliott, 2016; Cooper-Vince, 2018; Sclar et al., 2018; Collins et al., 2019). In particular, stressors included long walking distance to water sources, and queuing to fetch water, have been associated with water insecurity (Cooper-Vince et al., 2018; Collins et al., 2018; Bisung & Elliott, 2016). These stressors often result in psychosocial outcomes such as shame, embarrassment, depression, anxiety, frustration, and feelings of negative identity (Geere et al., 2018; Bisung & Elliott, 2016; Cooper-Vince et al., 2018; Collins et al., 2018).

The foregoing discussion demonstrates water as a gendered resource and access to it is mediated by nested multilevel structural, social-cultural norms and expectations, and several other contextual factors. Water access, use and control is thus explicitly link to broader social and political relations which are dynamic across space and time (Anwar et al., 2020; Marcatelli & Buscher, 2019). In this way, individuals, households, and communities' right to safe and affordable water is foregrounded on their capability to navigate these relations particularly in ways that support their health and wellbeing (Jepson et al., 2017; Wutich et al., 2017). As a consequence, tensions of social power, social marginalization and gendered inequities and vulnerabilities in terms of water access are abound, all of which breed violence. GBV in the context of water access is therefore relational, embedded in and produced by socio-political, cultural and historical relations (Parkes et al., 2013).

3.3 Characterizing WaSH Gender-based violence

Research on water-gender-based violence remains fragmented, with less attention paid to the conceptualization of challenges such as violence in WaSH (Sommer et al., 2015). For this reason, this paper adopts a broader conceptualization of water, sanitation, and hygiene gender-based violence (WaSH-GBV) that emphasizes hidden experiences and vulnerabilities to violence. We approach WaSH-GBV as a four-dimensional concept including structural, psychosocial, physical and sexual violence.

Structural violence reflects the role of economic, political and institutional powers play in determining who gets water, at what price and time. Water becomes a tool for political control and flows through power lines instead of pipelines (Anwar et al., 2020; Marcatelli & Buscher, 2019). This creates social suffering and accounts for forms of violence that constitute inequity. Such form of violence is structural economically driven and reinforced by neoliberal market policies in the water sector (Marcatelli & Buscher, 2019). For instance, in some LMICs, government sponsored piped water services usually target rich and middle class neigbourhoods while households in poor/informal settlements are left to secure water by informal means (Zeitoun, 2013; Mehta et al., 2014). Further, water rationing and allocation is shaped by politics and power, and access is usually mediated through institutions (Mehta, 2014; Zeitoun, 2013; Anwar et al., 2020). These procedural injustices produce and reinforce gendered violence (Anwar et al., 2020; Datta & Ahmed, 2020; Truelove, 2011). Structural biases also subject individuals, particularly women to financial violence. For instance, Oxfam International recently reported that the global sexist economic system creates gendered financial inequalities that empower men at the disadvantage of women (Oxfam, 2020). With their role in unpaid domestic labour (e.g. drawing water), women have fewer opportunities to earn income themselves, and therefore often without financial safety net to secure water (Wutich, 2009; Bisung & Elliott, 2016; Cairns et al., 2017; Collins et al., 2019).

Women and girls also experience physical violence in the form of assaults in negotiating their water needs (Pommells et al., 2018). Women are not only vulnerable to the distances to water source; they are also at risk of spousal abuse when water insecurity affects their normative roles (Pommells et al., 2018). Girls in turn suffer punishment from their mothers when they spend too much time fetching water or when water fetched is insufficient for household use (Pommells et al., 2018). Furthermore, water insecurity also creates avenues for interpersonal violence among women, especially during periods of water shortages when prolonged queuing causes anxiety, frustration and anger (Pommells et al., 2018).

Psychosocial violence involves any act that causes emotional harm, frustration, shame anxiety, depression, marginalization and feelings of negative identity. Women's inability to maintain personal hygiene, welcome visitors with clean water as a sign of hospitality, and fear of spousal violence due to the absence water at home causes shame, worry, frustration and negative self-identity (Collins et al., 2019; Pommells et al., 2018; Cooper-Vince et al., 2018; Bisung & Elliott, 2016; Stevenson et al., 2012). Cooper-Vince et al., (2018) found that women are at 70% greater risk of depression than men in water insecure areas in rural Uganda.

Aside psychosocial violence, water insecurity has exposed women and girls to sexual violence including rape, sexual assault, transactional sex, harassment, and inappropriate touching (Stevenson et al., 2012; Pommells et al., 2018). Drawing on the lived experiences of community and health care practitioners from Uganda, Kenya, Tanzania and Rwanda, Pommells et al. (2018) reported cases of women and girls being raped when fetching water, and offering sex for water when they cannot pay water fees.

Despite the fact that WaSH-GBV is a major threat to health and wellbeing, it is undertheorized in health research. The lack of theoretical guide limits its conceptualization,

hindering a careful evaluation of the conditions causing violence for informed research and policy interventions. The ensuing sections explore opportunities for an integrated theoretical framework to advance understandings on sensitive power issues in the face of resource access, such as water security and gender-based violence.

3.4 Re-creating the Political Ecology/Health Theoretical Space

3.4.1 Feminist political ecology

Political ecology is a theoretical construct that combines ecological concerns with aspects of broadly defined political economy (Blaikie & Brookfield, 1987). It acknowledges that social, economic, political and environmental conditions shape the lives of individuals and groups (Bryant, 1992; Bailey & Bryant, 2005). Central to political ecology are the issues of scale and power relationships. Most often, power relations are manifested in control over resources and subsequent impoverishment of less dominant groups (Bryant & Bailey, 2005).

As a sub-field of political ecology, feminist political ecology (FPE) uses gender as a critical lens to examine how power relations are constructed within space to shape access to and control of resources within and beyond the household (Elmhirst, 2015; Rocheleau, et al., 2013). In particular, FPE focuses on how struggles over environmental resources are often determined by unequal economic, political or economic power relations (Bryant, 1998; Elmhirst, 2015). FPE provides a way to explore the intricacies of everyday practices, spatialities and meanings that (re)produce patterns of gendered inequalities exclusion, marginalization and impoverishment (Truelove, 2011; Elmhirst, 2015).

FPE scholars have cautioned on the weak conceptualization of gender as male-female divide and instead called for gender to be broadly conceptualised as a dynamic process that intersects with social relations and differences such as class, culture and ethnicity (Mollet & Faria,

2013; Nightingale, 2006). Thus, in relation to the micro-politics and gendered dynamics of access and control in place, FPE accords critical attention to the ways gender is experienced, contested and reinforced within the household and community (Truelove, 2011). FPE also recognises that social relations and interactions within the household and community operate within broader socio-economic and historical contexts (Rocheleau et al., 2013; Elmhirst, 2015).

Several feminist scholars have also explored the role of women's agency in challenging oppressive norms and institutions that propagate their subordination (Rocheleau et al., 2013; Harcourt, 2009; Harcourt & Escobar, 2005). Human agency is the active role of people in responding to demands and opportunities for their wellbeing (Abel & Frohlich, 2012; Ballet et al., 2007; Kabeer, 1999; 2005; 2011). The concept of agency has been useful in understanding the ways in which women's freedom and resource access are constrained by socio-economic and political structures, and has also helped demonstrate women's capability to challenge and transform the social structures within which they have lived (Nelson, 2015; Rocheleua et al., 2013). Agency, as demonstrated by research has been operationalised in several ways: both at the individual and collective levels, in household decision making (Alkire et al., 2013; Duvendack & Palmer-Jones, 2017; Malakar et al, 2018; Bleck & Michelitch, 2018), through participation in WaSH programs (Nunbogu et al., 2018), and other societal and institutional contexts (Nayaran, 2005). Collectively, these works conceptualised agency as a relational construct which is exercised within social structures. However, Hanmer and Klugman (2016) argued that agency is temporal, and its usefulness and impact are context dependent.

FPE engagement with WaSH continues to expand. Emerging literature demonstrates that WaSH access in some places is inherently gendered, showcasing the need for in-depth research on such inequalities (Truelove, 2011). FPE is thus useful in understanding the links between the

material nature of water insecurity (water prices) and non-material (social power relations, gender values and norms) and lived situations that shape not only water access but also the associated violence. For instance, Sultana (2011) using FPE to investigate arsenic contamination in Bangladesh, revealed the complex ways through which women negotiate access and use of water and the power struggles at multiple scales. Relatedly, O'Reilly (2016) discussed the ways water and sanitation interventions in India (re)shaped gendered practices, producing new gendered perspectives in relation to WaSH and unequal gender spaces for women and men. He observed that WaSH experiences are gendered and tied to social hierarchies of class, caste, and the physical abilities of men and women.

Ultimately, this paper would advance the FPE scholarship by highlighting the ways in which both material and non-material processes in WaSH decision making, social and spatial relations, and institutional arrangements contribute to water insecurity and violence. FPE provides a fundamental platform in understanding how relations of power and gender inequality shape WaSH access. However, FPE does not critically consider the embedded effects of gendered resource access and social inequalities on population health and wellbeing. For an expansive understanding of the water security and gender-based violence, it is important to draw on another sub-field of political ecology – political ecology of health (King, 2010; King & Crews, 2013).

3.4.2 Political ecology of health

Political ecology of health (PEH) is grounded on the premise that human health is a contextual process that is shaped by social, economic, political and environmental factors and relations across spatial and temporal scales. It acknowledges that the possibilities of human health are profoundly shaped by space (King, 2010; King & Crews, 2013). Mayer (1996) initiated the political ecology

of health framework which serves as a theoretical merger of human health, and political ecology. Since Mayer (1996), other researchers have employed the framework to discuss the relationship between environment, economy and population health and wellbeing (Richmond et al., 2005; King, 2010). King (2010) extended this reasoning further to discuss how economic and political processes shape population health and disease transmission and the mutual relationship between health and environment using the cases of cholera outbreak and HIV/AIDS epidemic in Zimbabwe and South Africa, respectively.

Political ecology of health facilitates our understanding of human health in three ways (King, 2010). First, it demonstrates how human health is shaped by political, cultural, economic and environmental systems across multiple scales. The scale of analysis is important in understanding the multiple ways socio-political decisions transform population health and wellbeing – at the body (individual), the household or the community. For instance, Swyngedouw (2005) demonstrates how national political decisions and structural failures in LMICs expose women and girls living in deprived neighbourhoods to various forms of violence. Flynn and Chirwa, (2005) and Mehta (2006) also show how government decision to commercialise water in South Africa created pockets of water insecurity, further worsening racial and ethnic inequalities in disadvantaged communities. According to Farmer (1996) these forms of structural failures should be interpreted as a form of violence which perpetuates inequalities and make certain social groups more vulnerable to diseases.

Second, political ecology of health shows how human health and diseases are perceived within a particular context and also, points to the influence of power inequalities on access to health information and resources. Issues of political ecology should be understood in the context of socio-economic characteristics such as ethnicity, culture and social class, as these produce

health inequities and variations in disease exposure (Bryant and Bailey, 2005; King & Crews, 2013). For instance, Marcatelli & Buscher (2019) draws attention to how racial inequalities operate under the guise of neoliberal policies to shape patterns of water access and violence in South Africa. Public policies and programs on water and sanitation are least accessible to the poor and other social marginal groups in ways that limit their ability to adopt good sanitation behaviours (O'Reilly, 2016; Tutu & Stoler, 2016).

Third, political ecology helps in understanding how disease transforms livelihood options and how societies change in response to disease management. The connection between diseases and livelihood options is well established considering the HIV epidemic in South Africa (King, 2017).

Human health is socially produced by a range of political, social, economic, environmental and cultural factors operating at multiple scales (Venkatapuram, 2013). Thus, PEH provides a framework for understanding the links between ecology (such as water use, sanitation, climate variability), politics (policies on population health and wellbeing; social structures within communities) and economic (dimensions of poverty) and the embedded effects on population health and wellbeing. However, PEH has yet to fully incorporate issues of gender and intersectional vulnerabilities in research and practice.

3.5 Towards an integrated theory – Feminist political ecology of health (FPEH)

Feminist political ecology of health (FPEH) draws theoretical perspectives from feminist political ecology (FPE) and political ecology of health (PEH). While each of these theories offers insight into the ways socio-political structures shape human life situation in context, they remain divided on some perspectives. FPE integrates social relations at the local level (individual, household and

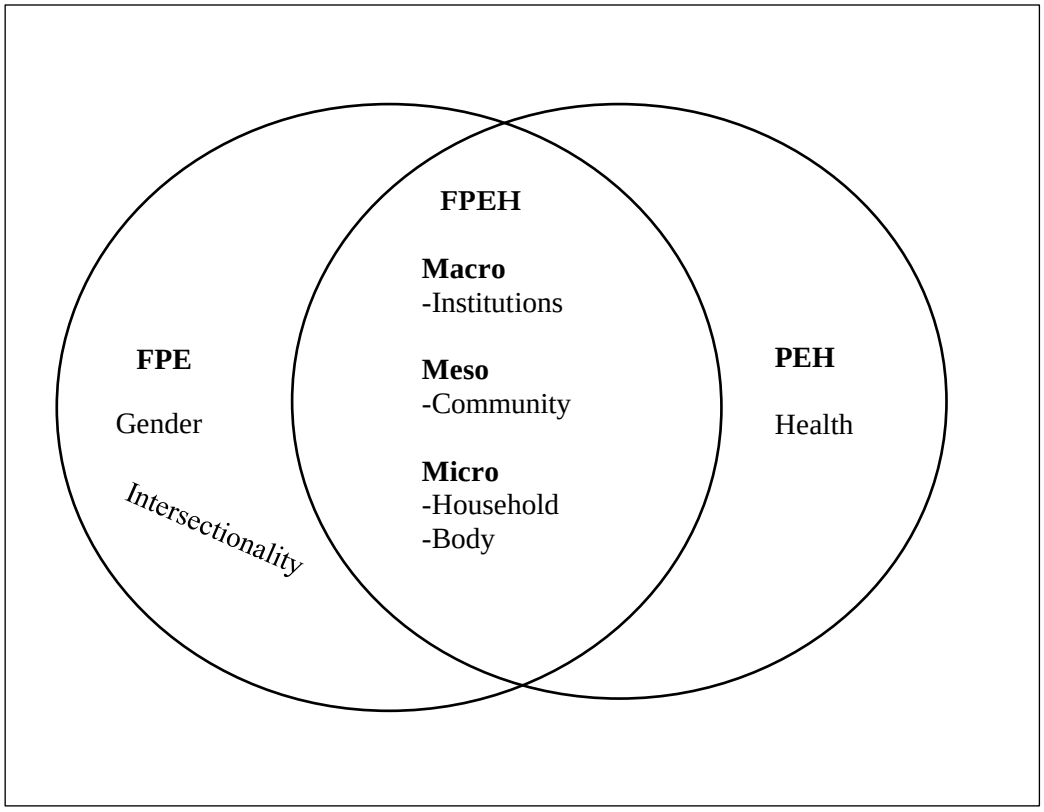
community level) to a larger political economy and draws attention to the gender roles and embedded gendered inequalities. Also, though political ecology of health examines the role of political structures and power relations in shaping population health, it pays little attention to how power dynamics and inequality permeate and creates vulnerability between men and women in resource access (e.g. WaSH access). FPE addresses this gap as it particularly emphasizes on gendered knowledge claims (Elmhirst, 2011) and the function of social norms which tends to subordinate women and marginalized groups. For example, as Truelove (2011) demonstrates in Delhi slums, water insecurity at the household scale unequally affects men and women, and women responsibility to procure household water exposes them to exploitation and violence. However, FPE does not explicitly discuss how these power structures and gendered inequalities in resource access profoundly shape population health. FPE scholars have also pointed out the danger of treating communities as homogenous entities with regards to livelihood experiences and interest. Such conception of community, they argued, blind researchers to the existing power struggles and marginalization within it (Rocheleau et al., 1996; Mollet & Faria, 2013). As such, FPE pays attention to the agency of people in shaping their lived situation; an advantage political ecology of health discounts.

While health geographers have engaged both political ecology of health and feminist political ecology in discourses on WaSH, violence, population health and wellbeing, the intersection of these theories is often undeveloped. The consequence is that the gendered and interrelated power relations that intersect to shape population health might not be explicitly integrated in analyses aimed at exploring the influence of broader economic and political structures on population health. Also, approaches on how human health is socially produced and is differently vulnerable to power relations, and ecological and environmental changes are not wholly integrated

(Jackson & Neely, 2015; Harper, 2004). In a discipline that seeks to comprehensively understand health in place, and "especially one that foregrounds theory" (Brown et al., 2010: 3), it is important to consider an integrated theoretical framework in analyzing the complex relationship between health and place. The FPEH offers a robust integration of FPE and PEH. It is grounded on the premise that human health is co-produce by a range of political, social, economic, cultural and environmental factors operating at multiple scales. FPEH, places gender as a critical variable embedded in and intersecting with broader power structures to shape population health and wellbeing. This theoretical construct would help advance critical inquiry on how broader structural factors intersect with gender to mediate inequalities and deprivation and the consequent health and wellbeing outcomes.

Social and political structures interact to either constrain or enable opportunities that shape the everydayness of people (Keans, 1993; Frohlich & Abel, 2001). The Ottawa Charter for health promotion (World Health Organization, 1986) underscored the importance of structural conditions and individual agency in health promotion – seen as a process of empowering people to increase control over, and to improve their health (World Health Organization, 1996). Though some empirical evidence exists on health and social inequalities, our understanding on social reproduction of these inequalities remain unclear (Abel & Frohlich, 2012). As embodied in Giddens structuration theory (Giddens, 1984) and Weber's discourse on lifestyle (Frohlich et al., 2001; Abel & Frohlich, 2012), structures are power laden and represent the ensemble of norms, rules and practices which regulate actions and resource access in social contexts and thus empower individuals and social groups differently. As such, structures can enhance the adaptiveness and sustainability of agency and therefore can be transformative or constraining (Healey, 2003) through relationships and interactions. For instance, gender norms and power dynamics may

constrain the role of men and women and determine their access to resources (i.e water), but on the other hand, provide a sense of identity and position in society (Hays, 1994). The constraining aspects limit women agency and reproduces patterns of inequalities, whilst the enabling features enhance agency to (re)negotiate their positions in society (Hays, 1994; Kabeer, 2011). The integrated theoretical framework provides some novelty to research on the interplay of agency and structure in the production of social inequalities particularly in the context of water insecurity and gender-based violence. Thus, FPEH offers a critical lens to examine the everyday, embodied violence against women that has become 'hegemonic' – seen as normal, particularly those related to WaSH. Significantly, the framework (Fig. 1) links population health and place, as well as the multi-scalar structures that produce social and health inequalities. It integrates the commonalities and differences between FPE and PEH, and focuses on WaSH-GBV that extends beyond acts of individuals to how institutions and social structures produce violence. In particular, FPEH framework forges an understanding of the interconnection of gender and health across scales (i.e. micro, meso, and macro), specifically highlighting how our conception of WaSH-GBV is tied to the construction of the scales.



FPE: Feminist Political Ecology
PEH: Political Ecology of Health
FPEH: Feminist Political Ecology of Health

Fig. 3.1: FPEH framework for understanding water insecurity and gender-based violence in LMICS.

3.5.1 Place, Scale, and Feminist Political Ecology of Health

FPEH framework reaffirms the role of scale in understanding the relationship between place and health inequalities, particularly in terms of the influence of power and structural factors on health and wellbeing. The relationship between health and place have been well presented in research discussions in geography (Kearns, 1993; Cummins et al., 2007; Macintyre et al., 2002; King, 2010; Pearce et al., 2012; Bambra et al., 2019). From a relational perspective, Cummins et al (2007: 1825) argue that "there is a mutually reinforcing and reciprocal relationship between people and place". Here, place is framed in terms of "compositional" (characteristics of

individuals: socio-economic, demographic, and behavioural factors) and "contextual" (socio-economic structures, socio-cultural and historical features, shared norms, values, social capital, and social cohesion) inter-relationship (Cummins et al., 2007, Macintyre et al., 2002). Composition and context are dynamic and intertwined, and both contribute to the relationship between health and place (Macintyre et al., 2002).

A significant stream of research has highlighted the importance of scale in understanding the complex interconnection between health and place (Rishworth & Elliott, 2019; Bambra et al., 2019; Macintyre et al., 2002; Cummins et al., 2007). This enlarged scope of analysis emphasises that the 'local' and 'global' scales are in dynamic interaction; that economic and political processes at multiple scales interact to shape the local scale and the associated health patterns; (Bambra et al., 2019; Macintyre et al., 2002), and that scalar interactions are socio-political constructions (Rangan & Kull, 2009; Neuman, 2009). Central to these discussions is the argument that scale is constructed out of social relations. The view, then is, if scale is formed out of social interrelatedness, then a place is a particular outcome of those relations or a particular moment in those socio-political scalar networks (i.e micro, meso, macro scales). And the particularity of any scale is not defined by placing boundaries around it but through the specificity of the networks of relations (Rangan & Kull, 2009). For instance, the burgeoning initiatives and approaches of WHO/UNICEF and the oft-quoted sponsors such as the Bills and Melinda Gates foundation are transforming WaSH spaces globally, particularly in developing countries. As a result, each scale of governance – sub-regional, national, and local – on WaSH globally is being realigned in relation to Sustainable Development Goals (SDGs) targets, their roles within the wider whole being reassigned, and their boundaries dissolve as collaborations on WaSH increase among actors.

Hence, the geographical scale within and between countries becomes less easy to separate and distance seems to be becoming meaningless.

These lines of discussion over the conceptualisation of scale and place are closely tied up with gender. Just as place is understood as dynamic and a product of social relations, so also, it is argued that gender is relational (Massey, 2013; Van Aken & Donato, 2018). Gender is viewed as a social outcome, with subjective power relations between men and women supported and maintained by social and cultural structures (Massey, 2013). Thus, understanding gendered health outcomes is tied to understanding how individuals and groups envision place, and how their interactions are maintained.

Whilst the framing of health in place has advanced our understanding of health inequalities, Marcintyre et al. (2002) argued that the causal pathways linking health and place have often been undertheorized. Further, Bambra et al., (2019: 37) argued that the "lack of attention amongst health geographers to structural drivers has resulted in conceptualisations that underrepresent the complex multi-scalar and interdependent processes operating at the systems level…to shape geographic inequalities of health". The FPEH framework fills this theoretical gap by focusing on the impact of factors beyond the individual (i.e micro) and the neighbourhood (i.e meso) in shaping population health; and how politics shape health at broader scales. Although both FPE and PEH assert the importance of multi-scalar analysis (Mollet & Faria, 2013; Nightingale, 2015; King, 2010; Neely, 2015) particularly in terms of how macro-political and economic factors influence place, PEH is short in demonstrating gendered subjectivities across scales (See Fig. 4.1). Indeed, PEH has been important in understanding how politics shape health across scale (i.e the individual, household, community, nation-state), however, there is little consideration on how the health outcomes across each scale are gendered. Understanding gendered health outcomes across these

scales is particularly important because of the embedded power structures and gender roles, and how these could shape health in place. Further, although PEH has shown how macro-structural processes informs health behaviours at the local scales, an examination of recent research (King, 2017; Jackson & Neely, 2015) indicates that little is known about how micro-scale factors shape interactions across the other scales. For example, how do local actions inform macro-structural decisions for improved health? FPEH therefore provides a fundamental dimension of these analysis, to understanding the relationships between health in place.

3.5.2 Nested scales of understanding WaSH insecurity and gender-based violence

FPEH renews emphasis on the multiple scales (i.e. micro, meso and macro) of understanding WaSH insecurity and gendered violence. These scales are interconnected and generate feedback to reinforce vulnerabilities. The interactions across the scales are contextualized within particular historical, political, economic and institutional contexts. The interactions across these scales shape the lived experiences of individuals with regards to WaSH and the possibilities for health and wellbeing. While research on WaSH insecurity and GBV considers these scaler issues, they are rarely integrated for broader discussions.

The macro scale includes social, economic, political and institutional processes that dictates how the WaSH landscape is constructed at the meso and micro scales. Decisions related to WaSH services provision, pricing, and distribution are influence by actors at this level. As mentioned earlier, these decisions have consequences for WaSH access in many communities in LMICs (Anwar et al., 2020; Tutu & Stoller, 2016; Truelove, 2011; O'Reilly et al., 2017). The changes in the socio-political systems reinforce temporalities in the conceptualization of violence

across the scales. Thus, engaging with macro-level factors presents an opportunity to understand broader inequalities and health issues in society.

The meso scale describes relationalities in access to WaSH and community engagements to cope with WaSH insecurity and gendered violence. Meso level relationalities on one hand create opportunities for communities to self-mobilize agency for innovative actions on WaSH and wellbeing (Bisung et al., 2014; Dickin et al., 2017; Nunbogu et al., 2018). On the other hand, inequalities and vulnerabilities to WaSH in many LMICs are sometimes reflections of social relations at the community (Sahoo et al., 2015; O'Reilly and Luis, 2014). For instance, in rural India caste and religious identity were found to negatively affect community-led initiatives on sanitation (Hathi et al., 2016). The proposed framework presents researchers a theoretical guide to understand these relationalities within communities and how they shape gendered violence and health.

The micro-level is a site or a 'place' for construction of gendered subjectivity, which is produced by interactions across the meso and macro scales. As such, the body remains an important site for social experience and political resistance. For example, lack of access to WaSH put women and girls at risk of violence (Bisung & Elliott, 2016; Sclar et al., 2018; Pommells et al., 2018). In other cultural context, menstruation taboos affect women access to water and sanitation (Sahoo et al., 2015; Nightingale, 2011). Using an FPEH framework, micro-level research would capture the everyday WaSH experiences of individuals and the gendered health implications that unfold over time and space.

3.6 Application of FPEH in water security and gender-based violence research

While the conceptualisation of water security as the "inadequate, unreliable, and unaffordable water for a healthy life" (Jepson, 2014:109) advances some insights on water access and use, it masks other important dimensions such as the ecological processes as well as the social, cultural and political relations that determine water access. Emerging literature emphasizes the significance of exploring the concept in the context of relational frameworks such as the hydro-social cycle – which envisions water security as an outcome of the interactive relationships between a population, their social, cultural and physical environment (Linton & Budds, 2014). Using the capability framework, Jepson et al. (2017: 50) argued that water security should not be conceived as a state of adequacy, but rather a "relationship that describes how individuals, households, and communities navigate and transform hydro-social relations to access the water that they need and in ways that support the sustained development of human capabilities and wellbeing in their full breadth and scope". Collectively, these relational frameworks acknowledge that water security is grounded in socio-economic, cultural and political relations. Thus, in terms of conceptualising water security, FPEH serves as a useful theoretical framework for understanding the relationalities surrounding water access, use and control and the gendered violence associated with these relations across scale. Inequalities in water access and gendered violence in many LMICs are sometimes outcomes of political and institutional processes beyond the control of communities. Engaging FPEH would provide a useful lens in understanding how structural processes determine who gets water, at what price and time.

The type of water source and its distance (in time) from the household is a key component of measuring water quality and access within the Joint Monitoring Programme (WHO & UNICEF, 2017) 'services ladder'. The underpinning assumption for measurement of water security is that piped water is readily available (i.e. within the residence), or time spent in fetching water from an

improved source is not more than 30 minutes. This interpretation fails to acknowledge the fact that water access is not only an issue of inadequate infrastructure and time, it is also determined by socio-cultural factors and power relations. For example, while an improved water source may be available in a community and is accessible within the defined time frame, individuals or households' ability to access it may be mediated by existing power dynamics and structures at household and community level (McFarlane et al., 2014). Therefore, inequalities in water security still exist even among households with access to an improved water source within premises (Bisung & Elliott, 2018). As mentioned previously, water insecurity makes women and girls more vulnerable to violence (Truelove, 2011; Pommells et al., 2018). These findings point to the need for a broader conception of water security that addresses power inequities mediating people's access to water services and the ensuing violence and health implications. FPEH provides a guide for researchers to articulate a novel interpretation of access to overcome the limitations identified above. By placing gender, class and ethnicity, and water distribution and access in the center of analysis, FPEH is particularly useful as it would provide theoretical guidance for lines of inquiry on inequalities and violence by extending attention to the everyday embodied interactions as well as the emotional relationships involved in water access.

In the context of WaSH, women's participation is acknowledged as an effective means of gender mainstreaming and empowerment (Fisher et al., 2017). However, existing measures of mainstreaming in water governance mainly focus on women involvement without considering the historically ingrained socio-cultural and power relations across multiple scales (Cairns et al., 2017). There are instances where women appointed into water management committees are unable to participate in meetings because of socio-cultural barriers, power relations and sometimes heavy domestic works (Cairns et al., 2017; Harris et al., 2016; Hawkins & Seager, 2010). What is often

missing is a broader theoretical framework, one that can recognize these power relations and the role of agency in water governance (Cleaver & Hamada, 2010). The feminist ideologies embedded in FPEH will significantly guide researchers to develop the right approaches, ask the right questions regarding gender power relations in WaSH. For example, at the micro scale, FPEH would allow us to better understand the embodied realities of water insecurity, provides a way for scholars to conceptualized violence beyond physical to include other dimensions that remain unrecognized, and guide discourse on how power and knowledge shape the ways violence is experienced. At the community, it would help in framing the spatiality of violence, create a theoretical space for exploring community engagements on WaSH related violence and trigger a rethink on empowerment and gender equality across scales (Bisung & Dickin, 2019; Dickin et al., 2021) and the conceptualization of gendered wellbeing. The framework would also draw attention to equity considerations at the macro scale. For instance, how do the actors in WaSH take collective steps to ensure equitable outcomes? How is equity assessed and fostered in WaSH policies, programs, and projects? How do scalar institutional interactions shape the landscape of violence?

FPEH offers some methodological advantages that will enable researchers to gain novel insights into the multifaceted issues of water and gender-based violence and to ask questions that will inform policy. For instance, besides well-known methods such as focus groups and interviews, the framework creates an opportunity to employ art-based and creative methods (such as photovoice, poetry, songs, stories and pottery), which have long history in feminist research on gender violence (Westmarland & Bows, 2019). These methods could either be used as data collection techniques or as techniques to disseminate sensitisation messages on WaSH and gender-based violence. Studies by Frohmann (2005) and Kanyeredzi (2014) employed photography and narratives to examine women lived experiences of violence and their strategies for coping and

living with violence. Hargreaves (2015) used storytelling to investigate violence against indigenous women in Canada. Story telling as argued by Hargreaves, enable people to narrate their oral traditions and how they negotiated their environment to survive abuse and oppression. The framework opens opportunities for understanding gendered vulnerabilities and marginalization through a mixed method approach. In Kenya, Bisung et al. (2014) used photovoice concurrently with surveys to elicit how water inequalities shape population health. Art-based methods when used alongside focus groups and interviews, minimize hierarchical power relationships and allow for reflexive and reciprocal dialogue in the data collection process (Westmarland & Bows, 2019), and could enable researchers to longitudinally assess how each respondent move in and out of water (in)insecurity and violence depending on existing power situations. Reflexivity allows for the reframing of research questions on sensitive issues (Johnson & Madge, 2016; Westmarland & Bows, 2019). For instance, rather than asking why women are abused during water access, researchers are able to consider the broad socio-cultural issues that (re)produce spaces for gendered violence. This allows participants to contribute to discussions without finding themselves in a personally vulnerable position. Besides allowing 'silence' voices to be heard, the empowering methodologies entrenched in the theoretical framework create avenues to empower research participants as they provide room for them to ask their questions and to have control over the information shared and knowledge produced.

Further, FPEH when successfully employed could serve as a useful framework for the design and implementation of WaSH policies in LMICs. Currently, gender and water relations are ‘rhetoric’ and to some extend narrowly conceived along male-female participation, ignoring the materiality and spatial and temporal dimensions (Seager, 2010; Thompson, 2016). Basic gender - disaggregated data from FPEH guided research at the micro and meso scales will guide the design

of inclusive gendered policies, and facilitate measurement of policy indicators. Since the framework situate micro-level experiences in sync with the meso and macro levels, context-specific research can provide a guide for measuring the gender neutrality of political and economic structures at the macro scale. Further, an in-depth understanding on politics of everyday water access and gendered vulnerabilities bears relevance for more nuanced analyses of state policies on WaSH. With these experiences, we can better understand how state water policies are experienced and navigated.

3.7 Conclusion

This paper advocates for the integration of feminist political ecology and political ecology of health theoretical framework into an amalgamated theoretical framework – feminist political ecology of health. While these theories separately provide useful analytical grounds for research, integrating them offers a viable and robust alternative theoretical framework for understanding water security and gender-based violence in LMICs, one that recognizes the underlying role of political-economic structures and power relations in shaping population health and wellbeing.

We discussed water as a gendered resource, showing how its access, use, and control are embedded in a complex web of socio-cultural and political networks that impose social relations at different scales (Sultana, 2009; Harris et al., 2009; Ahlers & Zwarteveen, 2009; Truelove, 2011; Harris, 2015; Van Aken & Donato, 2018). Water security is grounded in these socio-cultural and power relations of access (Jepson et al., 2017; Gimelli et al., 2018). And these relational exchanges provide a context for understanding gender-based violence. The inability of individuals, households and communities to navigate socio-cultural and power relations for water exposes them to violence. Gender-based violence could also be institutionalized, resulting from socio-economic

inequalities and discrimination in water provision (Truelove, 2011). The integrated theoretical framework creates avenues to explore the complex relationships between water insecurity and gender-based violence. It helps to make a theoretical connection between socio-cultural, economic and political processes and water security and gender-based violence. The theoretical framework also emphasizes the importance of human agency for collective action in overcoming water related violence, while reflecting on how broader structural factors constrain or create an agency to WaSH especially in LMICs (Bisung & Dickin, 2019). Thus, the framework is able to contribute and generate broader policy recommendations on WaSH and bring attention on how to reduce WaSH related inequalities and violence by enhancing agency 'to participate in, negotiate with, influence, control, and hold accountable institutions that affect their lives' (Nayaran, 2005:5).

As Bambra et al. (2019: 37) argued "Place matters for health, but politics matters for place". The FPEH framework emphasizes the role of macro-structural factors in shaping population health. It maintains the relational perspectives (Cummins et al., 2007) that places are dynamic social constructions – emerging from the interplay of multiple structural factors across scales. These scalar interactions result in health patterns for individuals, communities, and regions. This therefore moves the discussions on water insecurity beyond the micro-scale (i.e individual) and encourages researchers and policy makers to pay attention on the ways macro-structural factors interact across time and space to shape water insecurity – "a state of being that is produced by social relations" and vary in time and place (Deitz & Meehan, 2019: 1093). FPEH perspectives on water insecurity adds on to the recent calls on adopting systems perspectives in understanding health inequalities (Rutter et al., 2017; Bambra et al., 2019) which frames health as a product of interdependent elements in a connected whole. These elements (social, economic, political, environmental factors) are in a continuous process of interaction, transformation, and

redevelopment, with changes in any scale affecting the system as a whole. This lens of framing water insecurity is particularly important given the impact of global policies and the ensuing effects of national government and civil society policy decisions on communities and individuals health and wellbeing (see Marcatelli & Buscher, 2019; Deitz & Meehan, 2019).

Recognizing knowledge as partial and situated, structured by class and gender (Jackson & Neely, 2015), the framework creates space for incorporating political-economic and socio-cultural aspects of health and wellbeing through a mixed methodological approach. Quantitative methods can be used to examine the pattern and established relationships between water insecurity and gender-based violence, and gender-based violence and wellbeing. Qualitative methods can also be used to explore how water insecurity and gender violence are embodied, expressed and experienced across time and place. The use of qualitative methods gives voice to the marginalized and also contributes to our understanding of the spatiality of violence. The methodological rigour of the framework invites a fuller consideration of the lived and everyday water insecurity and violence, the meanings people attach to them as well as the ways broader structural changes might affect household water security.

While the focus of the paper is on understanding water insecurity in LMICS, the framework is also useful in the context of developed countries and other research areas concerned with exploring health inequalities among populations. For instance, Deitz and Meehan (2019) showcased how spatial inequality resulted in water insecurity in minority communities in the United States of America. The flint water crisis is another example of how structural decisions create patterns of water insecurity and health inequalities in a developed world (Pieper et al., 2019). “There is something in the water” a Canadian documentary film also brings attention on how macro-political and economic structures shape water landscapes and health inequalities. Also

highlighted in the documentary is the role of micro and meso scalar actions (collective agency/bargaining) for collective wellbeing. All the above examples re-emphasized the role of place in health. We, therefore, invite geographers to examine and apply this framework for a nuanced understanding of health inequalities.

Chapter 4: Characterizing gender-based violence in the context of Water, Sanitation, and Hygiene: A Scoping review of evidence in Low- and Middle-Income Countries

Nunbogu, A. M., & Elliott, S. J. (2022). Characterizing gender-based violence in the context of water, sanitation, and hygiene: A scoping review of evidence in low-and middle-income countries. *Water Security*, 100113.

Overview

The right to water and sanitation is recognized as fundamental to attaining all other rights. Despite the progress in access to water and sanitation in Low-and Middle-Income Countries (LMIC), women and girls are vulnerable to various forms of violence when meeting their water, sanitation and hygiene (WaSH) needs. The findings on WaSH related gender-based violence (GBV) in LMICs are fragmented, and thus may not be able to inform policies and interventions aimed at addressing vulnerabilities to WaSH related violence. This scoping review characterizes forms of WaSH related violence against women in LMICs. A review of 29 peer-reviewed papers emerging from a search in Scopus, Medline, Embase and Web of Science reveals four dimensions of WaSH-GBV: structural, physical, psychosocial and sexual. We observed that gender norms reproduce power relations that intersect with drivers of inequities, social exclusion and marginalization to shape patterns of violence. Based on these findings, we propose a conceptual framework showcasing how contextual factors produce and reinforce WaSH related gender-based violence. We reflect on the implications of these findings for policy and suggest the need for WaSH practitioners and researchers to evaluate and measure WaSH access beyond the Joint Monitoring Program (JMP) service ladder. Further research on WaSH-GBV is essential to facilitate global efforts on achieving the Sustainable Development Goals (SDGs) for gender equality (SDG 5); and

ensuring access to water and sanitation for all (SDG 6).

4.1 Introduction

The right to water and sanitation is integral to the human rights-based approach to development and a prerequisite to attaining all other human rights (United Nations - UN, 2010). However, globally, about 2.2 billion people still lack safely managed drinking water, 4.2 billion people are without safely managed sanitation, while 3 billion lack basic handwashing facilities at home (United Nations Children's Fund – UNICEF & World Health Organization - WHO, 2019). Despite the progress made in water and sanitation access between 2000 and 2017, only about 27% of the population in sub-Saharan Africa (SSA) had access to safely managed water, and 18% had access to safely managed sanitation services as in 2017 (UNICEF & WHO, 2019).

The impacts of water insecurity and inadequate sanitation have mainly been approached within the biomedical model, focusing mainly on infectious diseases related to the consumption of contaminated water and food (See Caincross et al., 2010; Wolf et al., 2018; Anthonj et al., 2018; Vaz Nery, 2019; Shrestha et al., 2019). Consequently, water, sanitation, and hygiene (WaSH) interventions are designed to break the fecal-oral-route transmission of diseases with less consideration for WaSH related violence and psychosocial health outcomes (Jain & Subramanian, 2018). Yet, WHO defines health not as the absence of disease but as the complete physical, social, emotional and mental wellbeing (WHO, 1957). The Ottawa Charter for Health Promotion (WHO, 1986) also viewed health as a 'resource for everyday living' and identified the underlying conditions and prerequisites for health as education, peace, shelter, food, income, equity, sustainable resources, social justice, and a stable ecosystem. These definitions draw attention to the multiple determinants of health and the increasing role of the social, cultural, economic, political and environmental conditions within which human health is shaped (King & Crews, 2013).

Interestingly, a stream of research has documented the impacts of WaSH on health beyond

infectious diseases, particularly for women and girls in Low- and Middle-Income Countries (LMICs) (Sclar et al., 2018; Bisung & Elliott 2016; Kulkarni et al., 2017; Cooper-Vince et al., 2018; Collins et al., 2019). Globally, about 1 in 3 women have experienced some form of violence (WHO, 2021), and there is a greater risk for women to experience violence when access to WaSH infrastructure and services is inadequate (Pommells et al., 2018; Kulkarni et al., 2017; Hirve et al., 2015; Jadhav et al., 2016; Winter & Barchi, 2015; Datta & Ahmed, 2020).

Studies have also linked inadequate WaSH access to women and girls' disempowerment and negative wellbeing (Krenz and Strulik, 2019). Wellbeing in this paper refers to all things that are good for a person and society, that make for a good life (Deaton, 2013). The time spent searching for water constrains women's engagement in income-earning opportunities and other skills development programs (Wutich, 2009; Bisung & Elliott, 2016; Cairns et al., 2017; Collins et al., 2019). With regard to the impact of menstrual hygiene and women empowerment, Krenz and Strulik (2019) found that access to appropriate menstrual hygiene management reduced women's work absenteeism by 21% in Burkina Faso. Research shows how the absence of adequate WaSH inhibits females from safely managing their menstruation which subsequently affects their educational engagement and attainment (Sommer 2010; Jewittt & Ryley, 2014; Sommer et al., 2015; Crankshaw et al., 2020; Lahme et al., 2016). Garn et al. (2013), in a cluster-randomized trial on the impact of school WaSH on pupil enrollment and gender parity in enrollment found that the provision of WaSH in schools increased girls' enrollment by 4% in Kenya.

While the absence of WaSH infrastructure and services heightens risks of gender-based violence (GBV), their presence does not completely eliminate violence (Caruso et al., 2018; Pommells et al., 2018; Truelove, 2011). Recent evidence suggests that household WaSH practices are predominantly shaped by existing social processes, social norms, social networks and social

capital (Nunbogu et al., 2019; Venkataramanan et al., 2018; Harter et al., 2018; Mosler et al., 2018; Slekiene & Mosler, 2018; Dickin et al., 2017). Even when WaSH infrastructure is available, access and use are determined by gender, social class and power relations (Sahoo et al., 2015; Truelove, 2011). For example, a recent study by Pommells et al. (2018) showed that women and girls are vulnerable to sexual violence in East Africa because water sources are controlled by men. Despite the continuing documentation of gender-based violence in WaSH, less attention is paid to how we can conceptualize violence to inform WaSH policy and interventions. Several studies have provided mounting evidence that WaSH research should give greater consideration to the characterization of gender-based violence (Sommer et al., 2015; Kulkarni et al., 2017; Pommells et al., 2018). Furthermore, a recent commentary by Sinharoy and Caruso (2019) on the 2019 World Water calls for a broader consideration of embedded gender vulnerabilities in WaSH to "leave no one behind".

This scoping review characterized gender-based violence in WaSH and shifts attention from interpersonal violence to the varied ways in which structural processes produce and reinforce violence. Gender-based violence in this sense, is institutionalized and manifests in various forms of social suffering such as unequal access and discrimination in WaSH provision. The paper also presents the coping strategies employed by individuals and communities to reduce vulnerabilities to WaSH-GBV.

In this review, the term WaSH security is not merely the availability of WaSH infrastructure and services, but rather a sufficient and reliable access to socio-political and cultural environments that guarantee safety, dignity and adequate access to WaSH services in ways that support health and wellbeing.

4.2 Space, place and WaSH gender-based violence

WaSH access, use, and control are embedded in a complex web of socio-cultural and political networks that impose social relations at different scales. As Van Aken and Donato (2018) noted, water is a relational resource because of its materiality and complex social networks, institutions and patterns of cooperation that revolve around it. Jepson et al. (2017) supported this perspective by arguing that water should not be treated as a material object to which individuals have rights. They conceptualized water security as a relational and dynamic process linked to human capability and broader political and social structures. Studies have also linked individual sanitation access to contextual factors such as socio-cultural relationships, social identity, power and gender identity (Sahoo et al., 2015; Harter et al., 2018; 2019; Nunbogu et al., 2019). In this sense, gender is viewed as a social outcome, with unequal power relations between men and women supported and maintained by social and cultural structures. Therefore, understanding GBV is closely tied to understanding how individuals and groups envision both space and place and how fundamentally, their meaning of place and space are maintained (Tyner, 2012). GBV is relational and a social and spatial phenomenon. It has a spatio-temporal form since the social relations out of which it emerges are themselves dynamic.

Since social norms define and govern acceptable behaviours, a number of researchers have discussed their role in GBV. In feminist literature, GBV is examined in relation to patriarchy and masculine subjectivity (Massey, 2013; Tyner, 2012; Dery, 2019). This stream of research suggests that when gender norms support the dominant position of men and relegate women to subordinate positions, they turn to perpetuate GBV (Massey, 2013; WHO, 2012; Tyner, 2012; Dery, 2019). Also, the feminisation of household labour further confines women to relatively isolated positions where they are subject to the power of their husbands (Dery, 2019; Pommells et al., 2018). Relatedly, several studies have established a direct relationship between controlling behaviours of

men and physical and psychosocial violence against women (Shakya et al., 2016; 2019; Dery, 2019; Pommells et al., 2018). Thus, gender norms weaken power relations between men and women, putting women in vulnerable positions. Violence in this sense becomes a means of role enforcement and 'crisis of masculinity' (Kellner, 2015:14), in relation to the societal connection between masculinity and power (Dery, 2019).

Related to the role of gender is broader social identity – defined here as ways in which particular groups interact and interrelate – which governs social behaviour and thus shapes individual behaviour and relations (Harter et al., 2019; Nunbogu et al., 2019; Bisung et al., 2014). Social segregation promotes vulnerability and gender inequality and allows for the (re)emergence of values that might conflict existing cherished societal norms (Tyner, 2012; Massey, 2013; Shakya et al., 2016). In this regard, increased social segregation may rationalize and legitimize violence and weaken social capital within and between communities and social groups. Specific examples are cited from India, where caste intersects with gender to shape WaSH access and use (Khanna & Das, 2016). Social capital – social structures and relations, norms of reciprocity, interpersonal trust and mutual aid that facilitates collective action – promotes the diffusion of WaSH behavioural interventions and also facilitates collective actions in terms of management and maintenance of WaSH infrastructure and services. In Kenya, women overcame WaSH vulnerabilities through collective resource sharing (Bisung & Elliott, 2017). Similarly, in exploring the relationship between social segregation and intimate partner violence in Peru, Benavides et al. (2019) noted that women who received support from related social networks were less likely to experience violence. Thus, even when women are exposed to violence, the social space and networks within which they live and work determine their capability to cope with their lived situation.

Institutional processes and policy frameworks at the international scale tend to transform WaSH spaces globally, particularly in LMICs. International policies and organizations exert powerful forces, and also, act as the foci of socio-political relations stretched over space and extend down to the national and local scales of WaSH governance. The promotion of neoliberal policies such as full cost recovery for services, prioritizing efficiency in WaSH policy decisions and the privatization of water services has created several invisible spaces of violence in most LMICs (Marcatelli & Buscher, 2019; Mehta et al., 2014; Mehta, 2014; 2016). According to Bakker (2013, pp 283), water governance is "a form of biopolitics, based on the categorization, quantification, and knowledge/power formation of urban residents in an attempt to govern their behaviour". This means the materiality of water "connects individual bodies to the collective body politics" (Bakker, 2012, pp 619) that creates a situation in which their fundamental right to water is dependent on their ability to negotiate access. In South Africa, Marcatelli and Buscher (2019), using the term 'liquid violence', illustrate how neoliberal water policies coupled with unequal power relations dispossessed marginalized populations of water, causing systemic harm to their bodies. Mehta et al. (2014) noted that public water supply in Delhi, India, targeted elite and middle-class settlements leaving marginalized populations in informal settlements to depend on contaminated water which consequently exposed them to health complications. Here, violence is an outcome of institutional processes and arrangements. Thus, to fully comprehend GBV in WaSH, this paper employed a scoping review methodology to characterize the dimensions of WaSH-GBV in LMICs. We see this as a critical step to support the larger global drive on reducing gendered vulnerabilities in WaSH, and efforts to improve the wellbeing of marginalized populations.

4.3 Methods

This review was guided by Arksey and O'Malley's (2005) methodological framework for conducting scoping reviews and Peters et al., (2015) guide for systematic scoping reviews. A scoping review was chosen for a number of reasons. First, scoping reviews provide a critical lens for mapping existing literature in a given area of research and identifying knowledge gaps and directions for future research (Munn et al., 2018). Second, scoping reviews are an ideal tool for examining how research is conducted on a topic in a given field (Munn et al., 2018; Peters et al., 2015), as they facilitate the synthesis of research from different methodologies (Arksey & O'Malley, 2005). Third, scoping reviews are particularly useful when literature on a given research area has not yet been comprehensively reviewed (Pharm et al., 2014). Finally, scoping reviews allow for the clarification of concepts in the literature to capture and disseminate a wider scope of research evidence (Peters et al., 2015).

4.3.1 Search Strategy

The review was conducted through systematic searches of four main electronic databases – two multidisciplinary databases (Scopus and Web of Science) and two biomedical databases (Embase, and Medline) (see Table 4.1). These data bases were selected to cover a broad range of research works. The electronic search was limited to published peer-reviewed articles from 2000-2020. This time frame witnessed the implementation of the Millennium Development Goals (MDGs), and the adoption of the Sustainable Development Goals (SDGs), which established an ambitious research and policy agenda for WaSH. In 2010, the United Nations General Assembly recognised access to water and sanitation as a human right and called on development organisations and states to pay particular attention to groups suffering, likely to be suffering or at risk of discrimination in meeting their WaSH needs (Mehta, 2014; UN, 2010).

Four main concepts were used to develop the search strategy: water, sanitation, hygiene and violence. Detailed search items are provided in Table 4.1. The search strategy was developed by the first author in collaboration with a librarian. Subject areas for searches in Scopus were limited to social science and medicine while searches in web of science were restricted to social science multidisciplinary, geography and environmental studies. The language of publication was restricted to English. Reference lists of included studies were manually searched for additional relevant papers. All searches and screening were conducted between June 20 – July 30, 2020.

Table 4.1: Search concepts and keywords used

Concepts	Key words	Databases
Water	Keyword terms: "water security" or "water insecurity" or "water availability" or "water distribution" or "water access" or "water supply" or "access to water" or "drinking water"	Medline (via ovid) Embase (via ovid), Scopus, and Web of science
Sanitation	Keyword terms: "sanitation" or "open defecation" or "latrine use" or "toilet use" or "latrine use" or "latrine access" or "toilet facilities"	
Hygiene	Keyword terms: "hygiene" or "menstrual hygiene" or "WASH"	

Violence	Keyword terms: “gender” or “gender-based violence” or “intimate partner violence” or “violence”	

4.3.2 Eligibility Criteria and Screening

From the search, peer-reviewed articles that reported issues of gender violence in relation to WaSH access in LMICs (based on the World Bank 2020 classification of countries by their Gross National Income – GNI) were selected. Some dimensions of GBV, particularly those related to sexual abuse, are often under-reported because of the sensitivity and the associated stigma (Kulkarni et al., 2017; Sommer et al., 2015). Keeping this in mind, we included all studies presenting primary research without any restrictions based on methodologies. This decision was made in order to identify a wide range of evidence related to WaSH-GBV. For qualitative studies, we aimed to document the everyday embodied lived experiences of violence as a result of WaSH insecurity. In quantitative studies, our interest was on the reported pattern and established relationship between WaSH insecurity and GBV. Eligible studies explicitly reported a connection between water and/or sanitation access and the embedded gender dimensions of violence. Articles that documented women and girls’ vulnerability to and experiences of violence during menstruation were also included. Studies that broadly explored the impacts of WaSH insecurity on population health were excluded. No restrictions were placed on the age group of respondents in the studies screened. In instances where the gender dimension of violence was unclear after title review, abstract and full-text reviews, the second author (SJE) was consulted.

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) was employed to ensure methodological rigor and transparency

(Moher et al., 2019; Tricco et al., 2018). The first author (AMN) screened all titles and abstracts after the removal of duplicates to determine the eligibility of studies for review. Full text assessment was conducted for 256 studies and 29 of these were included in the study (Fig. 4.1). AMN screened the full text articles and uncertainties were resolved by consulting the second author.

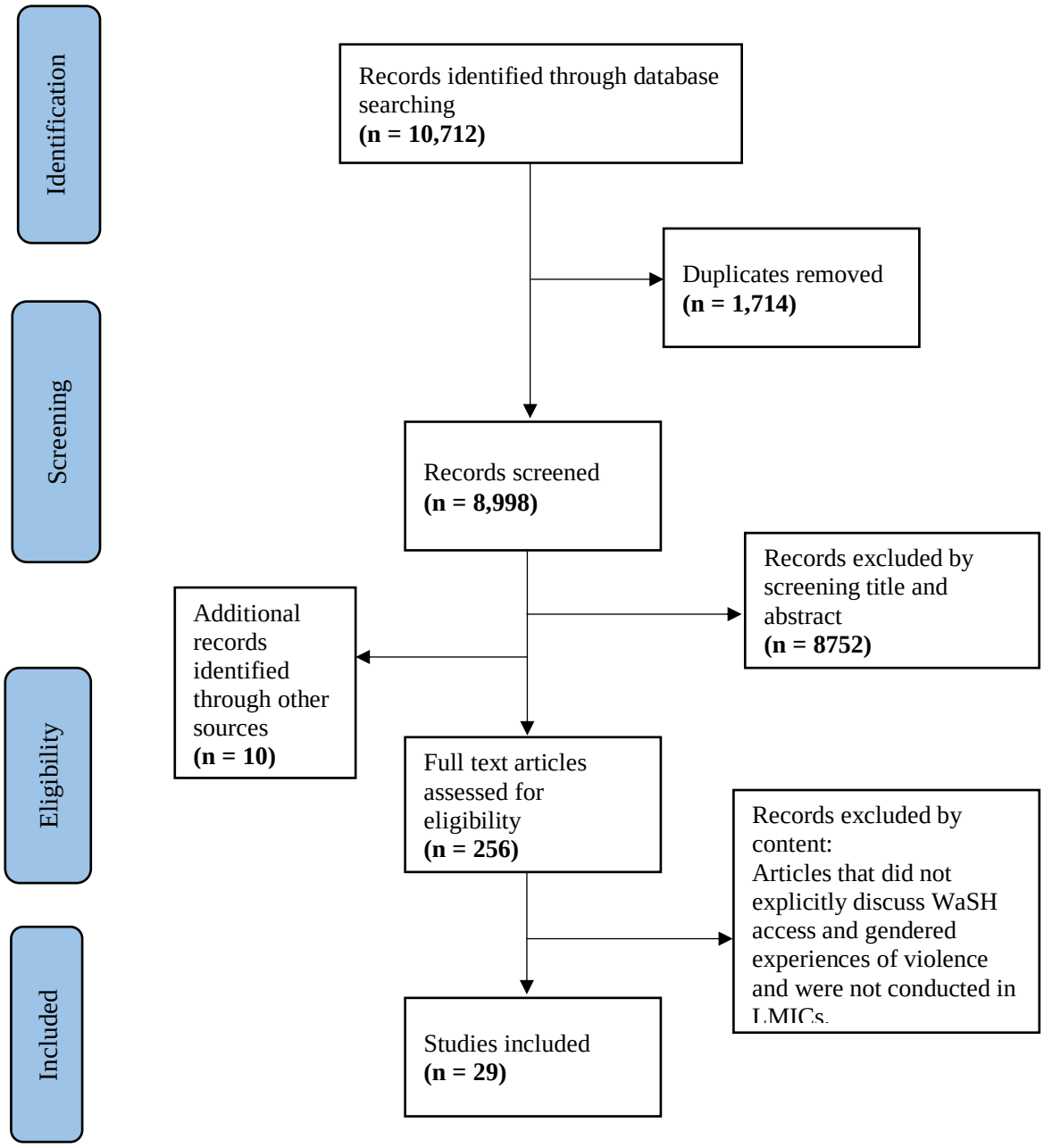


Fig 4.1: PRISMA Flow Diagram of the Search Process

4.3.3 Data extraction and analysis

Mendeley software was used to manage the set of articles resulting from the review and Excel was used to organize the data stemming from the application of a data charting exercise (Arksey &

O'Malley, 2005). The analysis of the literature occurred in two stages. First, a summary of the study characteristics including the study location, study purpose and objective(s), study context, study population, study design, methodology, theory used, and key findings was prepared. This information was then synthesized into a descriptive summary. Second, we employed the thematic approach (Green & Thorogood, 2018) to undertake a narrative synthesis of the findings, which included characterising the dimensions of WaSH-GBV as well as identifying the various coping strategies employed by individuals and communities to reduce vulnerabilities to WaSH-GBV.

4.4 Results

The search results yielded 10712 articles, 8998 were maintained after removing duplicates. After an initial screening of abstracts and titles, 256 full-text articles were examined, and from which 29 were eligible for inclusion – 13 qualitative studies, five quantitative, and 11 mixed methods (see Fig. 4.1). A summary of the charted data of each study is presented in appendix A.

4.4.1 The setting, population and timing of included studies

All the 29 studies selected were conducted in LMICs. Fourteen (48.3%) of the articles included in the review were conducted in Africa, twelve (41.4%) in Asia and one (3.4%) in South America. Two (6.9%) of the studies were conducted across continents; one in Asia, South America and Africa and the other in South America and Africa. Studies conducted in Africa were set across three sub-regions including West Africa (n=1), East Africa (n=11) and Southern Africa (n=2). All studies included from Asia were set in South Asia (n=12). The majority of these studies (n=11) were conducted in India. Only one study was set in Central South America. West Africa and Central South America were found to have the smallest proportion (6.9%) of the literature

reporting WaSH-GBV although we recognize that limiting the search to English may have missed sources conducted in other languages. A greater proportion of the studies (78.6%) conducted in Africa were set in East Africa.

A majority of the studies (n=13, 45%) included were conducted in rural settings. Seven (24%) were conducted in urban areas, with only two (7%) examining the everyday water struggles among populations in informal settlements. Nine studies (31%) were conducted in both urban and rural settings, and two (7%) of these examined national-level datasets: one in Kenya and the other in India. We found that 20% (n=6) of the studies took place in school settings, highlighting the WaSH experiences and practices among students.

A greater percentage of the studies (n=19; 65%) focused solely on the WaSH experiences of women (n=12, 41%) and girls (n=7, 24%). Specifically, five studies (17%) explored the ways menstrual hygiene practices exposed women and girls to various forms of violence, 10 (31%) examined women and girls sanitation experiences and the associated violence, three (10%) highlighted the violence encountered by women and girls when accessing water. None of the studies focused exclusively on the WaSH experiences of men and boys. The remaining 34% (n=10) of the studies examined a range of water and sanitation related violence across gender.

The publication trend on violence in WaSH over the past 20 years (2000-2020) is presented in Figure 3.2. We observed a gradual increase in the number of studies over time with a spike in the number of publications in 2015, 2016, and 2017 – which marked the end and the start of the MDGs and SDGs, respectively. The largest drop in publication was recorded in 2019, although this stabilized in 2020 with 5 articles published so far.

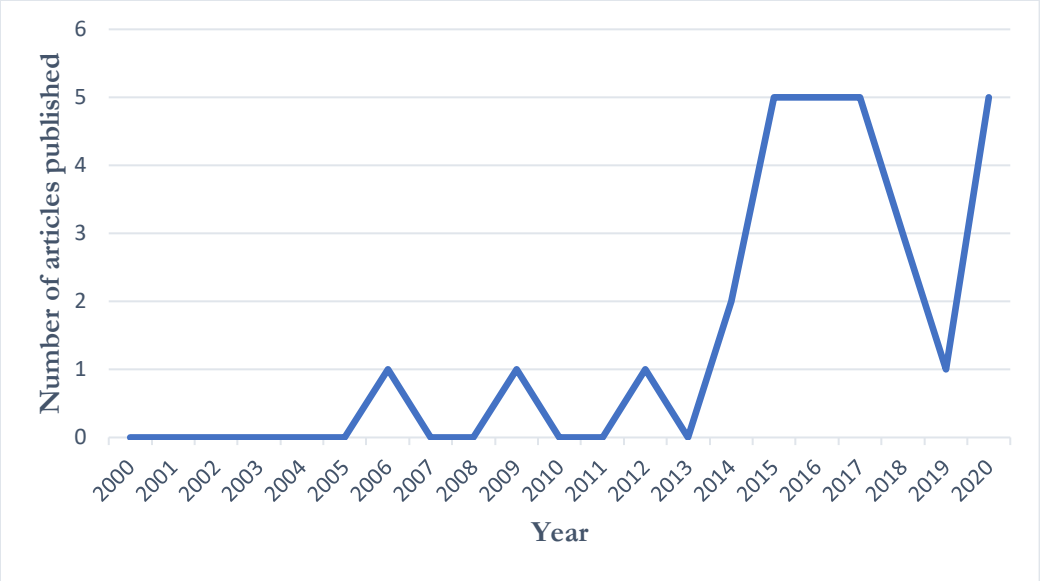


Fig 4.2 Timing of the articles selected

4.5 Characterizing WaSH-Gender-based violence

From the results, we identified four inter-related dimensions of GBV comprising structural, psychosocial, sexual and physical violence (Table 4.2). Psychosocial violence was the dimension of violence most reported in the studies (n=21, 72%), and the majority of these studies (n=14, 48%) related to sanitation and hygiene. Sexual violence was the least reported form of violence, documented by only 28% of the studies.

4.5.1 Structural violence

Socio-cultural, economic, political, and institutional structures and processes sometimes influence people's access to water and sanitation services (Bisung et al., 2016, Datta &Ahmed; 2020; Anwar et al., 2020). These processes interrelate to create an exclusive and discriminatory pattern of water access – who gets water, at what time and price (Datta and Ahmed, 2020; Bisung & Elliott, 2016; Wutich, 2009). In Pakistan, a study by Anwar et al. (2020) revealed that politics and power shape

water rationing and allocation in informal settlements, and access is usually mediated through institutions. Similarly, Tutu and Stoler (2016) noted that government-sponsored piped water services in Ghana are generally directed to rich and middle-class neighbourhoods, while households in poor settlements are left to secure water by informal means. These procedural injustices reinforce and expose women to a series of violence. For instance, Bisung and Elliott (2016) noted that water insecurity in Usoma, Kenya created perceptions of marginalization and neglect by the government. Also, Wutich (2009) reported that structural inequities regarding water provision and access caused anger, frustration and sentiments of marginalization in Bolivia.

The absence of reliable water adds to the financial burden of women. The opportunity cost of fetching water such as less time to engage in income-generating activities (Wutich, 2009; Bisung & Elliott, 2016; Cairns et al., 2017; Collins et al., 2019), and paying higher prices for water (Bisung & Elliott, 2016; Tutu & Stoler, 2016; Collins et al., 2019) depleted women savings. Although gender mainstreaming has gained attention in water resource management, financial support for gender equity initiatives in LMICs is largely dependent on Non-Governmental Organizations (NGOs) (Mwamsamali & Wayo, 2014). However, these NGOs sometimes coerced women to participate in water development projects (Cairns et al., 2017).

Table 4.2 Dimensions of WaSH-gender based violence

Dimension of violence	Studies on Water	Studies on Sanitation & hygiene	Studies on water, sanitation and hygiene
N(%)*			
Structural violence This describes WaSH related inequities and violence resulting from political, economic and institutional processes. **n= 16(55%)**	**n=6** Wutich, 2009; Anwar et al., 2020; Mwamsamali & Wayo, 2014Tutu & Stoler, 2016; Cairns et al., 2017; Collins et al., 2019.	**n= 7** O'Reilly et al., 2017; Khanna & Das, 2016; Sommer et al., 2015; Jewitttth & Ryley, 2014; Lahme et al., 2016; Caruso et al., 2020; Abraham et al., 2006.	**n= 3** Datta & Ahmed, 2020; Bisung & Elliott, 2016; Morgan et al., 2017
Psychosocial violence Stressful and emotional harm individuals experienced when meeting their WaSH needs or the providing for their households. These include shame, fear, anger, frustration, embarrassment, feelings of negative identity and marginalization. **n= 21(72%)**	**n=5** Cooper-Vince et al., 2018; Collins et al., 2019; Stevenson et al., 2012; Pommells et al., 2018; Mushavi et al., 2020	**n=14** Hirve et al., 2015; Bisung & Elliott, 2016; Sahoo et al., 2015; Kulkarni et al., 2017; Nallari, 2015; Khanna & Das, 2016;; Caruso et al., 2017; 2018;2020; Abrahams et al., 2006; Sommer et al., 2015; Lahme et al., 2016; Crankshaw et al., 2020; Jewitt & Ryley, 2014.	**n=2** Datta & Ahmed, 2020; Bisung & Elliott, 2016
Sexual violence This includes rape, sexual assault, transactional sex, harassment, and inappropriate touching experienced by individuals when accessing WaSH. **n= 8(28%)**	**n=1** Pommells et al., 2018	**n=7** Jadhav et al.,2016; Winter & Barchi, 2016; Sahoo et al., 2015; Khanna & Das, 2016; Kulkarni et al., 2016; Nallari, 2015; Jewitt & Rylet, 2014	-
Physical violence Physical violence includes fighting, beating, spousal abuse (physical), and stoning as a result of WaSH access. **n=9(31%)**	**n= 4** Collins et al., 2019, Cairns et al, 2017; Pommells et al., 2018; Mushavi et al., 2020	**n=5** Kulkarni et al., 2017; Khanna & Das, 2016; Nallari, 2015; Sahoo et al., 2015; Hirve et al., 2015	-

*Proportions do not sum up to 100% because some studies mentioned multiple dimensions of violence

The inadequacy of sanitation infrastructure also reinforces power relations within the household and community and compounds women and girls vulnerability to multiple forms of violence and health risks. For example, Datta and Ahmed (2020) noted that the disconnections and absence of sanitation infrastructure in Kerala, India, created violent spaces where women were physically and sexually abused. Women bear the burden of excavating pits for waste disposal alongside the continued physical and verbal assaults from spouses who enforce these duties. Studies have also documented the ways structural inequities interlinked with social segregations to deprive marginalized households and women of latrines (O'Reilly, 2017; Khanna & Das, 2016).

With regard to hygiene, the design and structural deficiencies of public sanitation facilities do not provide privacy for safe menstrual hygiene practices (Caruso et al., 2020; Jewitt & Ryley, 2014; Sommer et al., 2015). Morgan et al. (2017) noted in a multi-national cross-sectional WaSH study in 2270 rural schools randomly selected from Ethiopia, Kenya, Mozambique, Rwanda, Uganda, and Zambia that there were fewer than 20% of the schools with four of the five recommended menstrual hygiene services (separate-sex latrines with doors and locks, water for use, waste bin). Other instances of inadequate sanitation infrastructure for menstrual hygiene, including damaged or missing toilet doors, doors without locks, insufficient segregation of male and female toilets, and lack of changing rooms for menstrual hygiene, were also reported (Sommer et al., 2015; Jewitt & Ryley, 2014; Lahme et al., 2016; Crankshaw et al., 2020). Menstrual hygiene education was also reported to be limited at schools (Lahme et al., 2016; Sommer et al., 2015) and negative encounters from some male teachers created discomforts (Lahme et al., 2016). Female students expressed concerns about safety and lack of privacy for menstrual hygiene management (Abrahams et al., 2006; Sommer et al., 2015; Lahme et al., 2016; Jewitt et al., 2014; Crankshaw et al., 2020). This gap in service reduced school attendance, academic performance and sometimes

caused dropouts among female students (Abraham et al., 2006; Jewitt et al., 2014; Lahme et al., 2016).

4.5.2 Psychosocial violence

Psychosocial violence includes any act that causes emotional harm, anxiety and depression, frustration, feelings of negative identity and marginalization. Research has increasingly documented the psychosocial health risk of women and girls in relation to inadequate WaSH access. Regarding water, reported stressors included long walking distance to water sources, queuing to fetch water, unsafe water sources and insufficient supplies for daily need (Cooper-Vince et al., 2018; Collins et al., 2018; Bisung & Elliott, 2016). These stressors often resulted in psychosocial outcomes such as depression, anxiety and frustration, and feeling of negative identity. Cooper-Vince et al. (2018) observed that in rural Uganda, women in water insecurity hotspots are at 70% greater risk of depression than men. Water insecurity resulted in feelings of embarrassment, frustration and negative identity, and marginalization among women in Usoma, Kenya (Bisung & Elliott, 2016). Also, psychosocial outcomes such as shame for not being able to keep oneself or one's children clean due to lack of water have been reported (Bisung & Elliott, 2016; Collins et al., 2019). Women's inability to offer visitors clean water as a sign of hospitality, accusations of water theft by neighbours, fighting each other in water queues and fear of spousal violence contributed to social shaming, worry, anger, frustration and negative self-identity (Collins et al., 2019; Pommells et al., 2018; Cooper-Vince et al., 2018; Bisung & Elliott, 2016; Stevenson et al., 2012). In contrast, Mushavi et al. (2020) found that depressive symptoms associated with water insecurity were higher among men compared to women in rural Uganda.

Research has also established the association between poor sanitation and psychosocial wellbeing. For instance, Hirve et al. (2015) found that 64% of women who practiced open

defecation reported some level of stress due to perceived lack of personal safety as compared to 6% of latrine users. Also, 44% of open defecators reported some levels of stress due to lack of privacy compared to 3% of latrine users (Hirve et al., 2015). Other studies have reported on the anxiety and stress women and girls experience when going for open defecation due to fear of being abused and the associated embarrassment and shame (Bisung & Elliott, 2016; Sahoo et al., 2015; Kulkarni et al., 2017; Nallari, 2015; Khanna & Das, 2016). Women and girls also reported fear and experience of verbal assaults and ridicule when defecating in public latrines (Datta & Ahmed, 2020; Caruso et al., 2017; Sahoo et al., 2015). Relatedly, a cross-sectional study in 60 rural communities in Odisha, India, found that women experience high levels of anxiety, depression, and distress when urinating or defecating, even when they are using latrines (Caruso et al., 2018). Women have also reported withholding food and water intake in order to limit defecation and urination, holding in shit and urine when they are pressed in public (Khanna & Das, 2016; Kulkarni et al., 2017).

Furthermore, the literature showcases how WaSH insecurity inhibits women and girls from practicing safe menstrual hygiene, which influences their social engagement and psychosocial wellbeing (Nallari, 2015; Khanna & Das, 2016; Caruso et al., 2020; Abrahams et al., 2006; Sommer et al., 2015; Lahme et al., 2016; Crankshaw et al., 2020; Jewitt & Ryley, 2014). In a cross-sectional study in Odisha, India, Caruso et al. (2020) found women with no functional household latrine had higher menstrual insecurity scores than women who own latrines. The lack of sanitary towels, and safe spaces for changing menstrual towels, appropriate means of disposing sanitary pads, and unavailability of soap and water for menstrual hygiene practices caused shame, embarrassment, and anxiety among women and girls (Abrahams et al., 2006; Sommer et al., 2015; Lahme et al., 2016; Jewitt & Ryley, 2014; Sahoo et al., 2015). In the school environment, female

students reported living in fear of humiliation and ridicule by male classmates when menstrual fluid accidentally stains their uniforms or when seen changing menstrual pads in school urinals or latrines (Lahme et al., 2016; Crankshaw et al., 2020; Jewitt & Ryley, 2014). Social restrictions for menstruating girls resulted in emotional distress and discomfort (Jewitt & Ryley, 2014; Sommer et al., 2015).

4.5.3 Sexual Violence

WaSH insecurity also puts women and girls in overtly vulnerable positions including exposing them to sexual violence. Pommells et al. (2018) documented cases of women and girls being raped when fetching water, offering sex for water when they could not pay water fees, or for favors when in water queues.

A range of studies has also associated sexual violence with sanitation. For example, Jadhav et al. (2016) analyzed the 2005-2006 Indian National Family Health Survey-III and found that Indian women who practice open defecation are twice likely to experience non-partner sexual violence within the past year compared to women who had household toilets. Simirlarly, Winter and Barchi (2016) analysis of the 2008-2009 Kenyan Demographic Health Survey (DHS) data revealed that women who primarily practiced open defecation had 40% more likely of experiencing non-partner sexual and/or physical violence in the past year compared to women who did not primarily practice open defecation. These findings align with other studies which reported the sexual violence women and girls encounter when accessing their sanitation needs (Sahoo et al., 2015; Khanna & Das, 2016; Kulkarni et al., 2016; Nallari, 2015). For example, women and girls reported being watched (peeping through broken doors and walls) and being harassed by men/boys loitering around latrines and open defecation sites (Sahoo et al., 2015; Khanna & Das,

2016; Nallari, 2015; Kulkarni et al., 2017). Further, Khanna and Das (2016) documented women's stories and accounts on rape and sexual harassment during open defecation in rural India including the incident where a 14-year old girl was raped and killed by a group of men (Khanna & Das, 2016). Other forms of reported sexual assaults reported included men staring and masturbating in front of women and taking photographs of women at defecation sites (Kulkarni et al., 2017). Overall, adolescent girls were at greater risk of experiencing sexual harassment (Khanna & Das, 2016).

Moreover, girls' inability to purchase sanitary pads also exposed them to sexual violence. For example, drawing on the lived experiences of schoolgirls in Kenya, Jewittt and Ryley (2014) noted that girls from poor households engaged in transactional sex with fishermen and taxi drivers in order to obtain money for sanitary pads and other basic items such as soap or food.

4.5.4 Physical violence

Women and girls also experience physical violence in negotiating their daily WaSH access (Kulkarni et al., 2017; Sahoo et al., 2015; Pommells et al., 2018; Khanna & Das, 2016; Nallari, 2015, Collins et al., 2019). Women are not only vulnerable to attacks by non-partners on their way to water sources; they are also at risk of spousal abuse when water insecurity affects their normative roles (Pommells et al., 2018; Collins et al., 2019). Women are also susceptible to spousal abuse if participation in water management projects provides access to opportunities or enhances their social standing (Cairns et al., 2017). Water insecurity also creates spaces for interpersonal violence among women and girls, especially during periods of water shortages when queuing causes anxiety, frustration and anger (Pommells et al., 2018). Mothers, in turn, exert their anger

and frustrations on their girls when they spend too much time fetching water, and when water is insufficient (Pummels et al., 2018; Mushavi et al., 2020).

Studies have also documented accounts of women and girls being subjected to physical violence when practicing open defecation (Kulkarni et al., 2017; Khanna & Das, 2016; Nallari, 2015; Sahoo et al., 2015). For example, Nallari (2015, p.79) reported an incident in Bengaluru, India where a pregnant woman was "snatched and dragged off" by a group of men during defecation. Women are also shouted at, stoned and chased away with sticks at open defecation sites (Khanna & Das, 2016; Hirve et al., 2015).

4.6 Individual and Collective WaSH gender violence coping strategies

Despite the vulnerability of females to gender-based violence around access to WaSH service, our analysis revealed individuals – women in particular – and communities' pragmatic strategies employed to reduce vulnerabilities to violence. At the individual and household levels, women and girls employed several behavioural strategies to safeguard their safety and privacy when meeting their sanitation needs. Some strategies identified include: women and girls defecating early in the morning or late in the night to protect their privacy (Nallari, 2015, Sahoo et al., 2015; Hirve et al., 2015; Khanna & Das, 2016; Kulkarni et al., 2017), walking long distances to find hidden spaces for defecation (Khanna & Das, 2016; Kulkarni et al., 2017); going out in groups, in pairs, and under the guard of husbands or male household members to defecate (Sahoo et al., 2015; Nallari, 2015; Kulkarni et al., 2017); and carrying stones with them so they can defend themselves against attacks (Kulkarni et al., 2017). Women also reported withholding food and water intake and taking anti-diarrheal medicines when necessary in order to avoid defecating (Kulkarni et al., 2017; Khanna & Das, 2016). Kulkarni et al. (2017) found that some women construct household latrines

to enhance their safety during defecation whilst others fought with their husbands and in-laws for household latrines. However, the lack of land tenure security and low-income constrained households' decisions to construct latrines (Kulkarni et al., 2017; Khanna & Das, 2016).

Women also employ strategies to cope with water insecurity. These include conserving water for multiple uses (water reuse), prioritization of water uses (e.g drinking and bathing over other uses) and treating surface water for domestic uses (Collins et al., 2019; Bisung and Elliott, 2016; Stevenson et al., 2012; Wutich, 2009). During periods of water scarcity, some women reallocate water use to ensure their husbands had enough water to bath and drink in order to avoid their wrath (Collins et al., 2019), whilst others serve themselves food last when they are unable to cook enough food for the household because of the time spent searching for water (Pommells et al., 2018).

At the community level, collective initiatives taken to address water challenges include sharing water with neighbours, resource mobilization towards the maintenance of water facilities and the establishment of social networks for water loaning and borrowing (Wutich, 2009, Bisung & Elliott, 2016). With respect to sanitation, latrine sharing among households is a dominant coping mechanism in resource poor settings (Nallari, 2015; Bisung & Elliott, 2016).

4.7. Discussion

This review synthesizes evidence on the various forms of violence associated with the lack and inadequacy of WaSH services in LMICs. Four main dimensions of violence were identified including structural (social suffering and inequities resulting from institutional processes), psychosocial (emotional and mental distress), sexual (rape, coerced transactional sex) and physical. Our conceptualization of WaSH-GBV extends beyond interpersonal (rape and physical

assaults) violence to show how violence related to WaSH could be psychosocial. GBV could also be structural, resulting from institutional processes, socio-economic inequalities and discrimination in water and sanitation provision (Truelove, 2011; Tutu & Stoler, 2016). Structural violence is systemic and tends to be hegemonized since "it sustains the very zero-level standard against which we perceive something as subjectively violent" (Zizek, 2008.p2). As Datta & Ahmed (2020) illuminated, lack of access to WaSH infrastructure is a form of violence that is mutually constitutive with gendered violence in marginalized settings.

As outlined in the results, all the selected studies from Asia were set in South Asia and about 78% of those in Africa were conducted in East Africa. This synthesized evidence presents a trend of spatial disparity in WaSH-GBV research, and the possibility of leaving some populations behind in the global drive to clean water and sanitation for all, and gender equality. A special focus is therefore needed on the areas where research on WaSH-GBV is limited. These efforts could be a catalyst for not only promoting population health, but also gender equality. Most of the studies reviewed were conducted in settings where socio-cultural norms and expectations placed the responsibility of water collection, storage, and domestic hygiene maintenance on women and girls. In addition to these socially assigned roles, unequal social relations – including gender inequality intersecting with social class and caste – create spaces of discrimination and inequality, leading to negative experiences of sanitation among women and girls. WaSH-GBV, in this regard, is an outcome of unequal social relations, with gender intersecting with other dimensions of inequality. This highlights the need for a broader understanding of WaSH beyond the Joint Monitoring Programme (JMP) service ladder which focuses on the availability, design and quality of infrastructure with little attention to the environmental and social factors that shape WaSH experiences.

4.7.1 Framing WaSH gender-based violence

Drawing insights from the synthesis, we proposed a conceptual model which highlights how socio-cultural, structural and environmental interactions produce and shape violence in WaSH across time and space (Fig. 4.3). This model is partly informed by Sclar et al., (2018) preliminary model on the influence of sanitation on mental wellbeing. The review showed that contextual factors such as social (norms, intersectionality, inequality, gender roles); environmental (proximity, location, season in the year, and neigbourhood), and structural (policies, power relations, infrastructure design) expose individuals, especially women and girls to various vulnerabilities of violence which are embodied through lack of access to adequate water, sanitation and hygiene. WaSH gender-based violence is situated and shaped by social relations across multiple scales (i.e. household, community, national and international). We found that women and girls are exposed to various forms of violence such as structural, psychosocial, physical and sexual violence which negatively affect their wellbeing. These dimensions of violence are not mutually exclusive. For instance, structural violence produces and reinforces multiple forms of WaSH-GBV. The absence of infrastructure – such as water and toilet facilities – exposes women and girls to physical, psychosocial, and sexual violence (Datta & Ahmed, 2020; Kulkarni et al., 2017). Psychosocial violence, on one hand, is an outcome of the other three dimensions of violence (see Bisung & Elliott, 2016; Sahoo et al., 2015).

However, individuals and communities employed certain coping mechanisms (agency) to buffer their exposure to violence. Social support such as water sharing, lending money to buy water and sharing of toilets drive the buffering effect against violence. Therefore, the wellbeing of women and girls largely depended on their ability to cope and overcome their everydayness of

violence. However, the success of the agency (social support services) is dependent on the availability of social support from members of the household and community. Personal constraints or individual factors are also reported to influence the pattern of violence, such that individuals with fewer social and economic resources are at greater risk of experiencing violence. For example, girls who cannot afford sanitary towels are coerced into transactional sex (Jewittt & Ryley, 2014; Opiyo & Elliott, 2020).

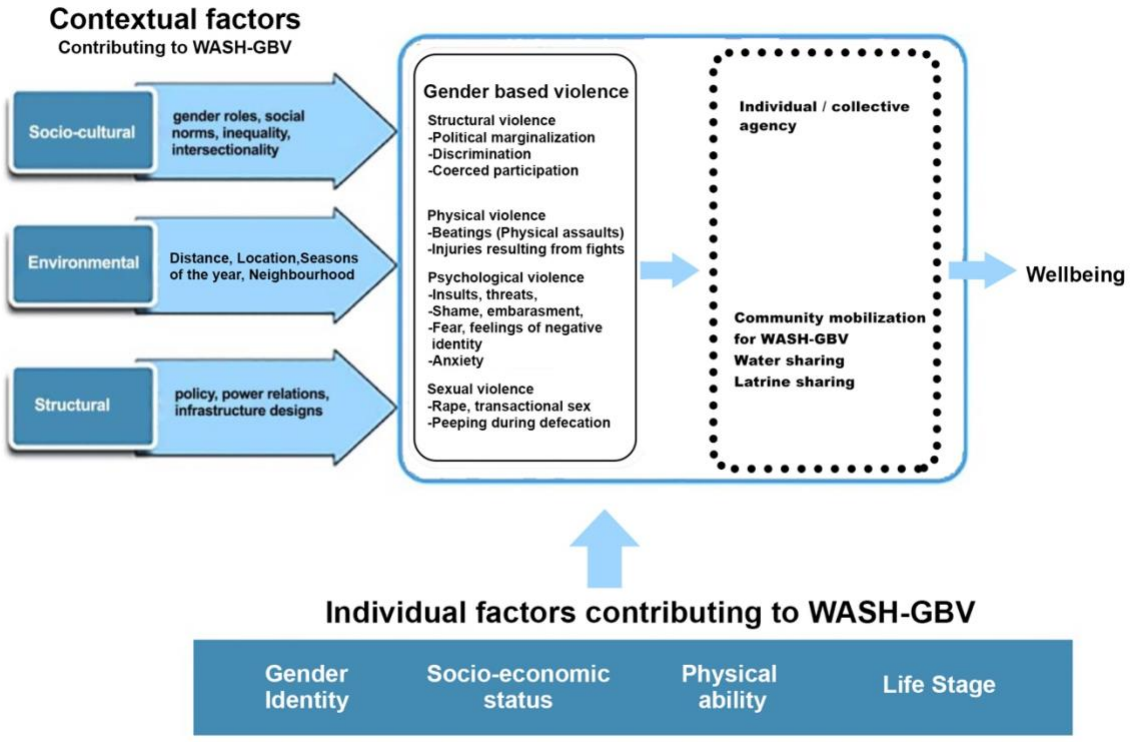


Fig. 4.3: A conceptual Model of WaSH gender-based violence.

4.7.2 Theoretical challenges and considerations in WaSH-GBV studies

The studies reviewed are premised on the fact that WaSH services are unevenly distributed, and some people are denied access to WaSH because of who they are and where they live (Datta &

Ahmed, 2020; Kulkarni et al., 2017; Khanna & Das, 2016; O'Reilly et al., 2017; Cairns et al., 2017; Bisung & Elliott, 2016). However, only five (17%) of these studies were grounded in explicit theoretical perspectives, including political ecology (Cairns et al., 2017), feminist political ecology (Jewitt & Ryley, 2014; Anwar et al., 2020), environmental stress and ecosocial theories (Bisung & Elliott, 2016), and the theory of informality (Tutu & Stoler, 2016). The majority of the studies (83%) were developed without explicit theoretical guidance, although various conceptual frameworks were sometimes cited as guiding the research.

The theories used informed researchers' understanding of the inequalities and gendered violence associated with WaSH access and guided their observation and framing of violence. Though these theories originated from different disciplinary backgrounds, they share some common perspectives. First, the theories affirm that social, economic, political and environmental conditions shape the lives of individuals and their agency. Second, they recognize that the benefits and consequences of these complex socio-political, economic and environmental interactions are not evenly distributed across space and among populations. Thirdly, the theories acknowledge that WaSH-GBV is a byproduct of these complex interactions and should be analyzed as embedded in and intersecting with various socio-economic and socio-cultural regimes of power and political context.

However, each of these theories has some limitations in offering a robust theoretical lens for understanding GBV in the context of WaSH. For example, although environmental stress theory is useful in understanding how individuals and communities perceive, experience and cope with the risk associated with WaSH insecurity, it gives less attention to the drivers of these risks and their distribution among geographic areas and populations. The embodiment literature helps our understanding of how environmental stressors related to WaSH are shaped by socio-economic

inequalities and become embodied to generate gendered patterns of health and wellbeing. Further, feminist political ecology (FPE) uses gender as a central social category that informs societal-nature relations, resource access (i.e. water and sanitation) as well as politics related to the environment (Rocheleau et al., 2013; Resurreccion & Elmhirst, 2008). In so doing, it reveals how power structures shaping WaSH provision and access disempower bodies (i.e. exposure to violence) embedded in social and cultural contexts. However, FPE does not extend the analysis to explore the health implications of social inequalities and violence resulting from uneven WaSH resource access and use. The dualism between theories has made certain inequalities hidden, particularly in relation to water insecurity and GBV, since each theory alone is incapable of capturing all the complexities. Moving forward, a theoretical integration, particularly incorporating insights from epidemiological theories into social science theories, will aid health geographers to conceptualize violence in the context of WaSH and the multiple ways it is embodied (Nunbogu & Elliott, 2021). Explicit engagement with theory will also prove useful for understanding the spatial temporality of violence as well as how community's development trajectory, social processes and local meanings shape gendered violence in WaSH.

4.7.3 Methodological challenges and consideration in WaSH-GBV

In terms of methodology, we found that the majority of the studies (n=13, 45%) included in the review were conducted using qualitative methods, and only five studies (17%) were quantitative. Qualitative research tends to be more common, especially in GBV studies (Westmarland & Bows, 2019). However, quantitative investigation of the phenomenon is important in order to gain a broader contextual understanding of violence. Another theme that emerged from the review was that studies on sexual violence were limited. This limitation has been attributed to the sensitivity

of the issue and under-reporting by women and girls due to the associated stigma (Kulkarni et al., 2017; Sommer et al., 2015). This requires researchers to consider adopting research designs that allow for the expansion and reframing of research questions to uncover the invisible voices of victims.

Further, many of the studies reviewed (n=21, 72%) reported psychosocial violence, which is the dominant dimension of violence reported. Some of these studies have developed tools to measure psychosocial distress related to sanitation insecurity. For example, Caruso et al. (2017) developed a novel sanitation insecurity measure to capture the negative sanitation experiences of women in Odisha, India. The proposed measure reflected women's sanitation concerns in three broad domains, including the physical environment, the social environment, and personal constraints. Caruso et al. (2020) again developed and validated a measure of menstrual insecurity to assess women's menstruation insecurity in Odisha. Though these measures have some limitations (i.e. contextual grounding), they provide an innovative research direction. Thus, we recommend their application in different socio-ecological contexts for further validation and application in WaSH research.

In addition, the studies in the review showcased a comprehensive range of methodological designs for WaSH research (Cooper-Vince et al., Caruso et al., 2017; 2020; Stevenson et al., (2012). For example, Cooper-Vince et al. (2018) employed Geographic Information System analysis to identify the spatial clustering of water insecurity and depression symptom severity in rural Uganda. In terms of sampling, majority of the studies (n=16, 55%) were conducted with only women and girls. There were no studies in the review that looked exclusively at the vulnerability of men and boys to violence. While this highlights that women and girls are more likely to experience violence when meeting their WaSH needs, an explicit understanding of men and boys'

vulnerability to violence would inform policy. For instance, women most often internalized their distress, frustrations and anger regarding the lack of adequate water and sanitation, while men externalized their emotional distress in the form of spousal abuse and assaults (Collins et al., 2019).

4.8 Gaps and directions for future research

Although the articles reviewed provided some important insights on violence in the context of WaSH, some questions and gaps were identified for WaSH research and practice. First, our conceptualization of violence in WaSH showcases the need for a broader framing of violence in order to illuminate certain hidden inequalities. Integrating a structural dimension of violence will enable us to understand how institutional processes produce and reinforce violence and how we can leverage these structures for solutions. Second, the review showed how socio-cultural norms and practices created spaces of violence in the study settings. However, the extent to which these cultural practices and norms provided safe spaces for WaSH or facilitated the reduction in vulnerability to violence remained a major research gap. Third, many of the studies identified gender inequalities and men as perpetrators of violence. However, none of the studies explicitly discussed the vulnerable experiences of men and boys. Though women and girls disproportionately bear a significant burden of WaSH insecurity, more research is needed on the experiences of men and boys. Fourth, several questions remained unanswered regarding the health implications of WaSH-GBV in LMICs. For example, how has WaSH-GBV shaped health and wellbeing differently among men and women? How do the health system and socio-political institutions respond to WaSH-GBV, and what are the challenges? Fifth, we found that none of the studies highlighted the sanitation needs of people with disability and their experiences of violence. Sixth, the narratives that emerged from the review did not significantly address the temporalities of

violence. How has the landscape of WaSH violence changed over time? With regards to sanitation, oftentimes, studies focused on latrine access and use without considering the possibilities of gender violence in the process of latrine construction. Individuals experiences of violence intensify when communities adopt shaming and social stigma as tools for promoting latrine construction (Bartram et al., 2012). Finally, ecological change (i.e climate change) has exacerbated the vulnerabilities to WaSH-GBV in some LMICs (Tandon, 2007; Kusangaya et al., 2014; Schilling et al., 2020). Although our model acknowledges the impacts of environmental factors on WaSH-GBV, future research should rigorously examine vulnerabilities to WaSH-GBV linked to seasonality and climate change. Further research is needed to address the identified research gaps and build on the proposed conceptual framework (Fig. 4.3) for research and policy interventions.

4.9 Conclusion

This review demonstrates that gender-based violence in WaSH is beyond physical, sexual and psychosocial harm. We emphasized the need for research attention on the way in which institutions and social interactions processes produce violence, with violence understood as a relational outcome. Incorporating a structural dimension of violence may shine a spotlight on institutional weaknesses in WaSH provisions at the community level and the importance of collective actions at multi-levels to effect change. WaSH-GBV will be exacerbated in LMICs because of the Covid-19 pandemic (Adams et al., 2021). Understanding WaSH-GBV as a social outcome will provide a robust platform for research and facilitate global efforts on achieving SDGs: 5 – achieve gender equality and empower all women and girls; and 6 – ensure water and sanitation for all. Further, the findings of the review demonstrate the need for a broader evaluation of WaSH beyond the physical presence and quality of infrastructure and service. Recognizing the heterogeneity of social

norms and relations that gives power to violence will significantly deconstruct the structures that reinforce gender vulnerabilities to violence beyond the home (e.g. at the school setting). Our proposal for a theoretical integration would provide a platform for reflexive methodologies in research focusing on WaSH related violence in LMICs.

While this scoping review significantly contributes to knowledge, it has limitations. Firstly, the search strategy was limited to peer reviewed articles published in English. This may have excluded other important articles. Second, the quality of the selected studies was not assessed. However, since the search was limited to peer reviewed articles, there is less likelihood of using studies of low quality. Third, as stated above, explicit studies on the vulnerability and experiences of men and boys were missing. Consequently, the findings largely represent the experiences of women and girls in the study settings. We, therefore, recommended research attention on the experiences of men and boys. Fourth, cases of WaSH related gender-based violence, particularly sexual violence, were under reported. As a result, it is possible that other experiences of sexual violence were not captured. Finally, the review is limited in terms of the generalization of the findings due to our focus on LMICs. However, the findings are still relevant for global policy and research since LMICs are the most challenged in terms of WaSH insecurity (WHO & UNICEF, 2017).

Chapter 5: *I feel the pains of our past water struggles anytime I turn on the tap*: diaspora perceptions and experiences of water, sanitation, and hygiene (WaSH) access in Ghana.

Nunbogu, A. M., Elliott, S. J. & Bisung E. *I* feel the pains of our past water struggles anytime I turn on the tap: diaspora perceptions and experiences of water, sanitation, and hygiene (WaSH) gendered violence in Ghana, *Social Science & Medicine, (Under review).*

Overview

Gender-based violence resulting from water, sanitation and hygiene (WASH) insecurity is a major public health problem. WaSH gender-based violence (WaSH-GBV) is a spatio-temporal experience and has disproportionate health and wellbeing impacts on women and girls. However, the global community of WaSH practitioners and policymakers is yet to adequately address women's vulnerability to violence in relation to WaSH access. Informed by the feminist political ecology of health framework, we used in-depth interviews (n=27, 16 women and 11 men) with immigrants to Canada from Ghana to explore their perceptions of their WaSH experiences over their lifecourse. This allowed them to reflect on the past and present while projecting on the future of WaSH security in Ghana. Results revealed that participants' perceptions and experiences of GBV are both socially and context dependent, organized around four dimensions: structural, physical, psychosocial, and sexual. These muti-scalar dimensions of recent diasporans' WaSH experiences and perceptions in Ghana are discussed along with their implications for policy and practice, specifically in enhancing health equity and water security.

5.1 Introduction

Gender-based violence is a global human rights and public health challenge. Globally, about 1 in 3 women have been victims of gender-based violence, with the United Nations Women (UN Women) describing violence against women as a shadow pandemic (UN Women, 2021). While anyone can be vulnerable to gender-based violence, women and girls are significantly more vulnerable than men and boys because of the intersection of their gender with other vulnerabilities (UN Women, 2021; World Bank, 2019). Gender-based violence (GBV) undermines the health and wellbeing of women and girls. For example, women who experience intimate partner violence have poorer physical and mental health (Rees et al., 2011; Tol et al., 2013; WHO, 2013) and lower chance of economic independence (Yount et al. 2014, Yount et al., 2016). There is also increasing evidence on poly-victimisation (Yount et al., 2017; Sterzing et al., 2019; De Oliveira, 2021) as well as social marginalization associated with gender-based violence (Kubai & Ahlberg, 2013). As a result, the prevention of gender-based violence has become a global priority as embedded in the United Nations Sustainable Development Goals (SDGs). Several grassroots movements and social media campaigns have also advocated for socio-political and economic transformations to end gender violence (Stabile et al., 2020). Some examples include #orangetheworld, #generationalequity – aimed at eliminating violence against women and girls; #Metoo, #TimesUp – shining a spotlight on the elimination of workplace sexual violence; and #HeForShe – which invites men to stand in solidarity with women to promote gender equality. Largely missing from these movements, however, has been a critical discussion on gendered violence associated with water, sanitation, and hygiene (WaSH) access.

There is a greater chance for women and girls to experience violence when access to WaSH infrastructure and services is inadequate (Pommells et al., 2018; Kulkarni et al., 2017; Datta & Ahmed, 2020). Gender-based violence in WaSH has been broadly categorized into four

dimensions including structural, physical, sexual and psychosocial violence (Nunbogu & Elliott, 2022). These dimensions of violence are co-productive, mediated through and integrated within the broader experience of place (Nunbogu & Eliott, 2021; Little, 2017; Tyner & Inwood, 2014). As such, gender-based violence can be understood as a relational process arising from societal interactions (Massey, 2013). For instance, in many Low-Middle Income Countries (LMICs), women and girls are disproportionately vulnerable to WaSH related violence because of their normative gender roles (Dery, 2021; Pommells et al., 2018). The burden of WaSH infrastructure inadequacy is gendered and largely borne through power relations and subjectivities (Truelove, 2011; Datta & Ahmed, 2020). By placing gender in the center of analysis, researchers have drawn attention to the ways socio-political and institutional processes on WaSH (re)produce landscapes of violence and inequalities (Marcatelli & Buscher, 2019; Mehta et al., 2014). These works reaffirm the importance of scale in understanding the relationship between place and gender-based violence, particularly with regards to the influence of power and structural factors on who gets access to water, when and at what price and how these processes unfold over time.

A recent review by Nunbogu and Elliott (2022) highlights gaps in knowledge on WaSH related gender-based violence in LMICs. In particular, despite the progressive global agenda and visible grassroots movements on ending gender-based violence, there is limited research on WaSH-GBV (Sommer et al., 2015). There remains a spatial disparity in research on WaSH-GBV which increases the likelihood of leaving some populations behind by 2030 (Nunbogu & Elliott, 2022). Now is another opportune time to draw attention to WaSH related violence. The Covid-19 pandemic has not only reignited a sense of collective responsibility for health and wellbeing, but also in a painful way revealed the hidden inequalities in WaSH access particularly in LMICs (see Smiley et al., 2020; Zvobgo & Do, 2020; Ekumah et al., 2020; Jiwani & Antiporta, 2020). There

is, consequently, an urgent need to reflect a little more carefully on WaSH-GBV to understand how it manifests and the socio-spatial processes that (re)produce violence in places.

In this paper, we draw on an integrated theoretical framework – feminist political ecology of health (FPEH) – to help reflect on the different lived realities of WaSH access among Ghanaian immigrants in Ontario, Canada that are shaped by individual circumstances as well as local geographies in Ghana. From a feminist perspective, we discuss the conception of WaSH-GBV – in particular the dimensions of violence embedded in and shaped by historical, socio-cultural and political contexts. The research was methodologically guided by critical narrative inquiry (Pino Gavidia & Adu, 2022; Sonday et al., 2020), which enabled our participants to weave together their past experiences on WaSH in Ghana with their present WaSH experiences in Canada for a contextual understanding of WaSH-GBV. Narrative inquiry is deeply embedded in the theoretical framework and created an opportunity for participants to situate their WaSH experiences in time (i.e historical context) and place for knowledge creation and learning on WaSH. Overall, the research provides a nuanced understanding of WaSH-GBV as an unfolding process that spans across scales (i.e., micro – the space of the body; meso – household; and macro – community) through space and time. The paper is structured into five sections. The following two sections outline the theoretical framework informing the research and the study context. Section 4 outlines the method employed to understand diaspora perceptions and experiences of WaSH-GBV in Ghana while section 5 presents the results obtained from the analysis. This is followed by discussion and conclusion.

5.2 Feminist political ecology of health

We draw on an integrated theoretical framework that combines feminist political ecology (FPE) and political ecology of health (PEH) to serve as a guide in understanding the spatial and embodied

experience of GBV through time (Fig. 1) (Nunbogu & Elliott, 2021). By integrating knowledge from FPE and PEH we are able to explore the socio-cultural and structural processes that shape WaSH-GBV and the associated health outcomes. While both theories emphasize the role of socio-political structures in shaping human life situations, they are limiting when used to study intersectional inequalities, particularly in relation to the health and wellbeing impacts of water insecurity (Nunbogu & Elliott, 2021).

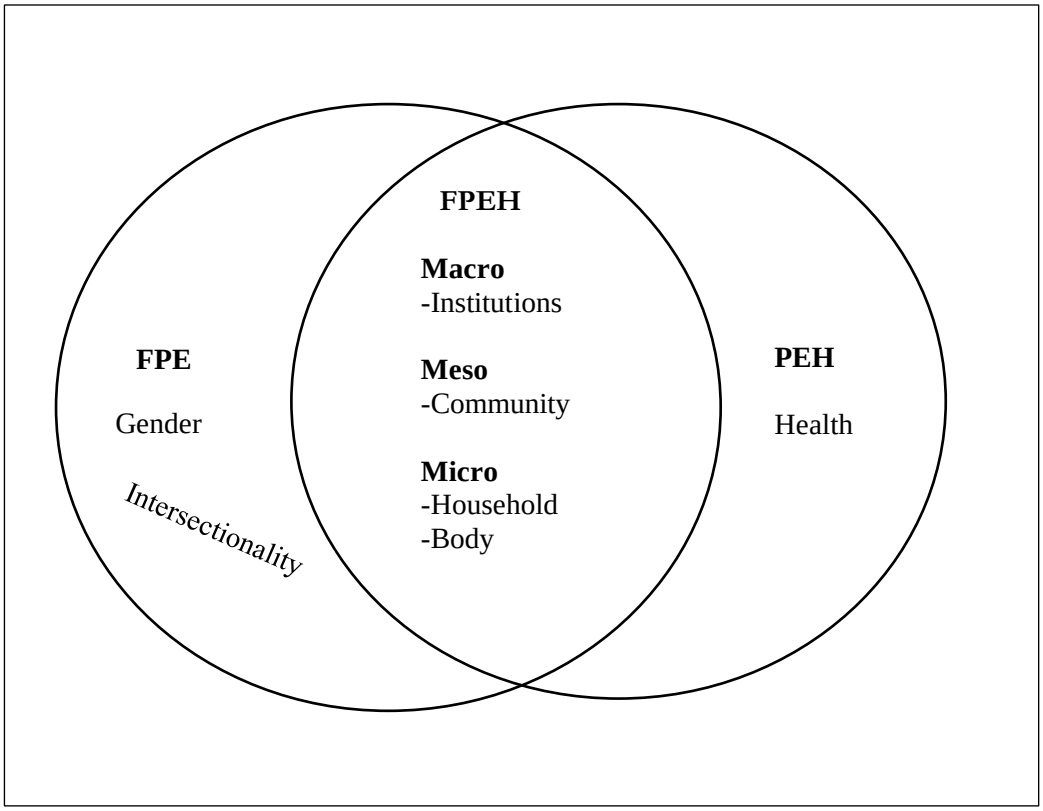
Political ecology of health emerged out of the political ecology of diseases framework (Mayer, 1996), and demonstrates how human health is produced in place. PEH is concerned with how social, economic and environmental systems produced uneven health patterns (King, 2010). Growing research in health geography has demonstrated how place-based structural processes and historical processes interact at multiple scales to produce unequal health outcomes (King, 2017; Nyantakyi-Frimpong, 2021). Collectively, these works further demonstrate how political context shapes human health by producing vulnerabilities and conditions that push certain populations into poor health and not others. Political ecologists and other researchers have also put greater analytical focus on how the political environment mediate exposure to structural violence (Farmer, 1996; 2006; Opotow, 2001; Ferring & Hausermann, 2019). Opotow (2001, p.151), for example, forwards the idea that "structural violence occurs as inequalities structured into a society so that some have access to social resources that foster individual and community wellbeing while others do not". Research anchored on this showcased how socio-environmental conditions intersect with structural processes to create cumulative vulnerabilities in the context of health (Ferring & Hausermann, 2019; Nyantakyi- Frimpong, 2021; Adams & Nyantakyi-Frimpong, 2021). A growing body of research across different sittings has also shown how structural processes shape patterns of WaSH access (Datta & Ahmed, 2020; Anwar et al., 2020; Tutu & Stoler, 2016;

Truelove, 2011). The embodiment of these vulnerabilities is dependent on existing social conditions and power relations (King, 2017). Through the intellectual scrutiny of these structural processes across scales, PEH has broadened the conception of human health beyond the biomedical model (Jackson & Neely, 2015; Nyantakyi-Frimpong et al., 2016). Human health is positioned at the "nexus of social and ecological systems" that unfolds over time (King, 2017, p.45).

Though PEH provides a theoretical context to understand how human health is situated and constructed by historical, social, political, and environmental processes, it does not explicitly reflect on how power relations and structural processes produce and (re)enforce gendered health patterns. In addition, it pays little attention to the role of human agency in pursuit of healthy life choices and transformative interactions with structural processes. Hence, for a more nuanced understanding of WaSH-GBV, we incorporate insights from FPE to provide a theoretical context to enable us to examine how broader socio-political processes, economic and environmental contexts create patterns of WaSH-GBV in Ghana, and how these experiences are perceived across space and time. FPE explicitly demonstrates how gender intersects with different social, political, economic and environmental factors to deepen population vulnerabilities in resource (i.e., water) struggles in space (Truelove, 2011). It situates gender relations at different scales and frames gender roles as intersectional and socially constructed (Mollet & Faria, 2013; Nightingale, 2006). The framework is therefore useful for examining the various ways socio-political scalar interactions and power relations produce and (re)enforce gendered vulnerabilities in WaSH, as well the context that supports such vulnerabilities. As such, feminist political ecologists framed the body as an important site for understanding the emotional realities and embodied lived experiences produced by, and productive of social power and structural relations (Sultana, 2020;

Sultana, 2011). Such an approach to the body foregrounds the centrality of time and space on the conception and experiences of gendered violence. FPE also recognizes the role of human agency in responding to opportunities for wellbeing (Nelson, 2015; Rocheleua et al., 2013). It thus recognizes the importance of women's empowerment to purposely take actions that will transform disempowering social, political and institutional contexts.

The integrated framework – feminist political ecology of health (FPEH) – operates at the intersection of FPE and PEH (see. Fig 1). It is useful for exploring the interconnections between gender and health across scales and provides a means to understand how dynamic interactions across these scales shape patterns of WaSH-GBV (Nunbogu & Elliott, 2021). From a relational perspective (Cummins et al., 2007; Marcintyre et al., 2002; Bambra et al., 2019) it directs attention to the links between population health and place, and the multiple dynamic scalar interactions that produce health inequalities.



FPE: Feminist Political Ecology
PEH: Political Ecology of Health
FPEH: Feminist Political Ecology of Health

Fig. 5.1: FPEH framework for understanding water insecurity and gender-based violence in LMICS.

5.3 The study context

Ghana was chosen for this study because it is one of the fast transforming economies with widening inequalities in sub-Saharan Africa (Cooke et al., 2016; Gradin & Schotte, 2020). About 87% of households in the country are without access to safely managed sanitation, whilst 59% lack access to safely managed water (WHO/UNICEF, 2021). More than one in every five households in Ghana practice open defecation (GSS, 2018). At the regional level, disparities exist with regards to WaSH access. For instance, open defecation practice among households varies from 52% in Upper West

Region (UWR) to a low of 6.8% in Eastern Region and 8.1% in Greater Accra Region (GSS, 2018). Although Ghana is the only country in sub-Saharan Africa to reduce poverty by half between 1991 and 2012 (UNDP, 2015), poverty reduction has not been even particularly between rural and urban areas, and men and women (Oxfam, 2021). For example, Ghana Statistical Service (GSS) in 2018 reported that 33.5% of households in rural areas were in the poorest wealth quantile as against 4.2% in the urban areas.

The UWR is one of the most deprived because colonial and post-independence planning and policy implementation skewed development towards southern Ghana to the neglect of the UWR and the other three regions in the northern part of the country (Young Aboagye & Bolt, 2018). The consequence of this is the increasing disparities in social and economic wellbeing between the UWR and the other regions in southern Ghana (GSS, 2018; Annim et al., 2012; Cooke et al., 2016). The region is largely rural where about 56.6% of households are in the poorest wealth quantile compared to 20% at the national level. Regarding the depth with which people live in inequality, the UWR leads with the highest level of inequality and has recorded the largest increase in inequality in the last two decades (Coke et al., 2016). Though the region has made considerable progress over the years, most of the social indicators are still worse than the national average (see Table 5.1).

Table 5.1: Social indicators of the Upper West Region

Indicator	UWR%	National%
Global Human Development Index	N/A	138 out of 189 countries[a]
Total population	894,129[c]	30,832,019[c]
Rural Population	74.6[c]	49.3[b]
Percentage of households in the poorest wealth quantile	56.6[b]	20.0[b]
Literacy rate among women	40.7[b]	65.0[b]
Improved drinking water accessible on premises	9.4[b]	22.3[b]
Percentage of households practicing open defecation	52.0[b]	21.7[b]

Percentage of women using appropriate menstrual hygiene materials with a secured place to wash and change while at home	90.3[b]	92.1[b]
Percentage of women (aged 15-49 years) excluded from social activities (school/work) during their last menstruation	23.1[b]	18.9[b]
Percentage of women (aged 15-49 years) who had any form of Female Genital Mutilation	32.5[b]	2.4[b]
Percentage of women (aged 15-49 years) married before 15 years	9.6[b]	6.2[b]
Percentage of men (aged-15-49 years) who believe a husband is justified in beating his wife:		
1. If she goes out without telling him	14.0[b]	6.5[b]
2. If she neglects the children	21.9[b]	10.2[b]
3. If she argues with him	14.7[b]	8.1[b]
4. If she refuses him sex	18.9[b]	5.1[b]
5. If she burns the food	10.1[b]	3.2[b]
6. For any of the above reasons	40.5[b]	16.5[b]

[a] United Nations Development Programme (2020)
[b] Ghana Statistical Service (2018)
[c] Ghana Statistical Service (2022)

According to GSS (GSS, 2018) about 74.2% of households in UWR lack access to improved sanitation compared to 34.8% across the country. With regards to water, 90.6% of households in the region do not have access to improved drinking water on premises and about 28.9% of water collectors spend between 1 to 3 hours on water collection per day. Households without on-premises water connection spend 166% more on water than those with on-premises connections (Fielmua & Dongzagla, 2020). Similarly, households in rural areas and small towns incur higher water tariffs compared to those in urban settings (Fielmua & Dongzagla, 2020). Inequality in water access in terms of limited network coverage (Jambadu et al., 2022) and low-quality service delivery (i.e poor maintenance of water infrastructure, low quantity of water supply) (Jambadu et al., 2022; Osumanu et al., 2021; Dongzagla et al., 2021) has also been reported. The region is experiencing increasing climate change (Dapilah & Nielsen, 2020; Derbile et al., 2016), higher food insecurity (Atuoye et al., 2017) and poor access to health and social services (Agbenyo et al., 2017; Atuoye et al., 2015; Rishworth et al., 2016) which create multiple patterns of cumulative vulnerabilities (Atuoye & Luginaah, 2017; Nyantakyi-Frimpong, 2021).

As in most parts of Ghana, the UWR is predominantly patriarchal and gender role differentiation and division of labor is prevalent. Men are often in charge of decision making and are seen as bread winners while women have less decision-making power (Bashiru, 2012). Sometimes these decisions may include when, where and even if, a woman should attend certain social gatherings, go to the market, have access to healthcare or seek support elsewhere (GSS, 2018; Ganle & Dery, 2015). In general, women in this region face significant discrimination in resource access, use and control, most particular agricultural resources (Nyantakyi-Frimpong & Bezner Kerr, 2015). The burden of water purchase, water collection, and management rests on women and girls (GSS, 2018). Also, the provision of care for children, and sick relatives are typically the responsibility of women (GSS, 2018). Interpersonal violence (e.g beating of wife) is sometimes reinforced as a means of correcting women who fail to perform these normative gender roles (Dery, 2021; GSS, 2018). Surprisingly, some women in UWR support 'wife beating' as a disciplinary measure for women who fail to comply with assigned gender roles (GSS, 2018). Studies have also reported women's resistance to men's participation or support in roles perceived to be for women (Ganle et al., 2019). Gender inequality in access to and use of healthcare services is also prevalent in the region (Agbenyo et al., 2017). Besides walking long distances to health facilities (Atuoye, 2015; Rishworth et al., 2016; Agbenyo et al., 2017; Sumankuuro et al., 2017), women face physical and verbal abuse within health facilities (Sumankuuro et al., 2017).

5.4 Methods

5.4.1 Participants recruitment and data collection

This study draws on 27 in-depth interviews with indigenes of the UWR in Ontario, Canada, from August to October, 2021. Purposive sampling techniques (Patton, 2014) were used to recruit participants. The study flyer was posted on two major WhatsApp platforms: 1) the 5NORTH

GHANA platform which is made up of natives from northern Ghana living in North America, mainly Canada and USA, with the collective aim of advocating for development in Ghana, particularly the five northern regions; and 2) the Ghanaian Canadian Association of Kitchener, Waterloo and Cambridge with membership spanning across all Ghanaians living in the Waterloo region of Ontario. Participants who wished to participate in the study contacted the first author through email for more information on the general purpose of the study. Those who agreed to participate were then contacted again via email and phone to arrange the interview. To be eligible for the study, participants had to have lived in Ghana for at least 20 years, to be a native of the UWR, and be living in Ontario, Canada for at least one year. We focused on indigenes from the UWR region because it is the most deprived region in Ghana (GSS, 2018, Cooke et al., 2016), and little is known about how the existing social and economic inequalities stemming from national policy create pathways of gendered violence in WaSH across the region. Further, since communities in the region are mainly patriarchal, it is important to understand the various ways power relations determine WaSH access and use at the individual, household, and community levels that discriminate against others and push them into spaces of violence. After two weeks of recruitment, 12 participants from the WhatsApp platforms agreed to participate in the study. The recruitment of the remaining 15 participants was facilitated by an elder of the Dagaaba (an ethnic group in UWR) community in Ontario who has lived in Canada for over 30 years. Through his social networks, the lead author contacted 20 persons through email and 15 of them agreed to participate. They included older adults who are not on any of the WhatsApp platforms, and people who by their social and cultural orientation needed the research to be introduced to them by a familiar person. We over sampled women (16 women participants) since women are mostly responsible for water collection and management in the study setting (Dery, 2019; GSS, 2018).

All interviews were conducted virtually using Zoom or WebEx depending on the participant's preference. The interview guide was pretested on the first day (August 2, 2021) with two participants and the outcome was satisfactory. Interviews began with the interviewer (first author) getting to know the respondent and developing rapport. Guided by the theoretical framework, the discussion focused on participants' perceptions and experiences of WaSH related violence growing up in UWR and how that has changed over time and place. Participants were asked to reflect on these perceptions and experiences across their multiple domains of social life in Ghana and Canada. This gave them the opportunity to tell stories about the past WaSH situations in UWR in the light of present lived experiences in Ontario, Canada (Sonday et al., 2020). In Ghana, as in other LMICs, shame and stigma colour the sharing of certain WaSH experiences (Sommer et al., 2015; Kulkarni et al., 2017). Hence, telling their stories in their present environment created opportunities to share sensitive issues that may be difficult to talk about in Ghana. None of the participants raised emotional concerns or appeared distressed during the interviews. The interviews lasted between 45 minutes to 1 hour and were digitally recorded with participant consent, and transcribed verbatim from the audio recordings for subsequent analysis using Nvivo version 12. Two research assistants with relevant experience in gender and health research were recruited to assist in the transcription and coding of the interviews. The study received ethics approval from the University of Waterloo ethics review board (REO#: 43520).

5.4.2 Data Analysis

The audio recorded interviews were transcribed verbatim. The lead author read all the transcripts in order to ensure complete anonymity of participants; and also to identify thematic codes to develop a coding frame (Miles, 2014; Panton et al., 2014). We used both deductive and inductive

approaches to develop the codes (Fereday & Muir-Cochrane, 2006). The deductive codes complemented the research questions and existing literature and allowed for the theoretical framework to be integral in the process while inductive codes included themes emerging from the transcripts (Fereday & Muir-Cochrane, 2006). The themes include the water and sanitation situation in Ghana, and participants' perceptions and experiences of WaSH related violence growing up in UWR, Ghana. Two transcripts were independently coded by the first author and one of the research assistants to assess the inter-coder reliability. About 75% intercoder agreement was achieved and the differences between the coders were resolved through dialogue (Lombard et al., 2002; O'Connor & Joffe, 2020). Following this, the coding frame was subsequently used to synthesize all the remaining transcripts using Nvivo 12.

5.5 WaSH Gender-based violence in Ghana

The results are organized around three main themes: participant perceptions of WaSH-GBV, their experiences and the ways WaSH-GBV is managed. We have used tables to present the number of mentions and number of participants mentioning main themes and sub-themes. The basic characteristics of the participants are presented in Table 5.2. Submissions on the themes are punctuated by participants' voices, gender [M=men, W=women] and age to give a minds picture of participants' characteristics. We assigned pseudonyms to participants voices to ensure anonymity.

Table 5.2 Socio-demographic characteristics of participants

Background	Number of participants	References
Gender		
Men	11	11
Women	16	16
Age		
20-30 year	1	1
31-40 year	14	14
41-50 year	5	5
51-60 year	4	4
61+ year	3	3
Reasons for coming to Canada		
Education	18	18
Marriage	4	4
Employment	2	2
Family reunion	3	3
Years lived in Canada		
Less than 5 years	15	15
6-10 years	5	5
11-15 years	1	1
16-20 years	2	2
21+ years	4	4

5.5.1 WaSH-GBV: participants perceptions

Interviews began by asking respondents about their WaSH experiences back in Ghana. This often took respondents back to their childhood and consequently to specific moments of their WaSH struggles across their life cycle. Although varied narratives were given, accounts of these memories highlighted the embeddedness of gender violence in societal structures. For Tieroo – a woman in her forties – the songs women sing, and the names given to fabrics all point to the everydayness of gender violence in the community. For her, the lyrics in these songs give accounts of women's suppression and resistance. When asked to centre their narratives on WaSH-GBV, participants offered a range of responses related to the multiscalar and relationality of WaSH-GBV. These responses extend WaSH-GBV beyond the individual to include collective experiences at the household and community (Table 2). Pognaa – a woman also now in her forties – recounted the collective embodied experiences of WaSH-GBV.

Back in Ghana, water and sanitation related violence is experienced every day, especially by women and girls. We were stuck in this pain and sometimes you want to crawl out of your skin. However, when you turn around you see your friends and neighbours suffering from the same thing. The pain and suffering were invisible but always present. [Pognaa, W, 45]

Nuo, also shared a similar experience.

You see, water and sanitation related violence is a community wide problem. These struggles burden not only the individual but the community. Who does not experience the pain? All of us [women] do and bear witness – but we usually hide it and transfer it as custom to the younger ones. [Nuo, W, 62]

Although participants identified WaSH-GBV as a collective problem of the community, they acknowledged that individual experiences or exposure to gendered violence are mediated or reinforced by their households. Several participants observed that:

We all lived in different households and our WaSH experiences will not be the same. My cry is different from that of my friends or neighbours. And your experience will be different if you have a supportive husband. [Maalma, W, 34]

You see, sometimes the household either exposes or protects you from violence. We used to return from school, go to the farm and still come home to fetch water for the house. Our pain and suffering would have lessened if the other household members were supportive. [Mwinma, W, 36]

The narratives from respondents also shed light on the transformed gender roles in WaSH in their present households. For many of them, WaSH provision was the ascribed responsibility of women and girls back in Ghana. However, in their present household, gender is not a major determinant of WaSH provision and management. For instance, some respondents stated that:

We [the participant referring to men] are all women here in Canada. I scrub the washrooms, clean the rooms, and cook for the family. These are things I did not do back home. [Sumbu, M, 42]

In this country every man supports his wife. There is nothing like men's or women's work. And the truth is, I just finished cleaning the showers so that my wife will get some rest. Had it been in Ghana, people would have said my wife is controlling me. [Naah, M, 39]

.Like I said, my husband keeps saying women have power in this country and so he supports me. He does not fetch water because the taps flow always, but he cleans washrooms and bathes the kids. These are things he does not do when he goes back to Ghana because per his status and gender his family will not allow it. [Pognaa, W, 45]

It is noteworthy that the above responses make reference to the role of space in the transformation of gendered WaSH roles. Collectively, these narratives show how social arrangements interact with power relations to create long-standing practices that shape men's roles in households WaSH provision and management across space. Whereas men participate in WaSH provision in Canada, social arrangements (patriarchy, gender stereotyping and power relations) undermine their willingness to do so in Ghana.

Table 5.3: Participants' perceptions on WaSH-GBV

Themes	No. of respondents (%)	No. of mentions (%)
Conception of WaSH-GBV		
Individual	2(7)	2(10)
Household	5(19)	6(30)
Community	11(41)	12(60)
Influence of gender on WaSH provisions and management in households - Ghana		
Gender is a key influence of WaSH	25(93)	73(78)
Gender is not a key influence of WaSH	12(44)	20(22)
Influence of gender on WaSH provisions and management in Households - Canada		
Gender is a key influence of WaSH	7(26)	7(19)
Gender is not a key influence of WaSH	17(62)	29(81)

5.6 WaSH-GBV: memories from home

While narrating their WaSH-GBV experiences back home in Ghana, participants recounted different memories which we grouped into four forms of violence. They include physical, psychosocial, sexual and structural violence. Table 5.3 reports the number of times these forms of violence were mentioned whilst Table 5.4 reports the number of mentions by gender. These different forms of violence are discussed in turn, with findings punctuated by participant voices.

Table 5.4: Forms of WaSH-GBV reported

Forms of violence	No. of respondents (%)	No. mentions (%)	No. of respondents (%)	No. of mentions (%)
	Water		**Sanitation**	
Physical	24(89)	78(25)	16(59)	26(18)
Psychosocial	27(100)	136(43)	23(85)	68(46)
Sexual	8(30)	12(4)	10(37)	12(8)
Structural	24(89)	88(28)	18(67)	41(28)

Table 5.5: Number of mentions indicated by gender of participants

Forms of violence	**No. of mentions (%)**			**No. of mentions (%)**		
	Water			Sanitation		
	Men	Women	Total	Men	Women	Total
Physical	31(40)	47(60)	78	9(35)	17(65)	26
Psychosocial	40(29)	96(71)	136	26(38)	42(62)	68
Sexual	4(33)	8(67)	12	3(25)	9(75)	12
Structural	42(48)	46(52)	88	17(42)	24(58)	41

5.6.1 Physical violence

The memories shared by many of those interviewed revealed specific instances they have experienced physical violence or witnessed their neighbour's experience. These violent encounters took the form of beating, stoning and fights either at home, the water source or the defecation site. For Banayel, the scars on her arm and stomach are testaments of her experience.

These scars tell my story…the security man at the mission house was chasing us because we went there to fetch water. I could not run fast because I was so small. He canned me and later pushed me through the barb wire fence…the wounds were deep. [Banayel, W, 32]

Some participants also shared their experiences of physical violence at home.

My mum understood the situation, but my dad will beat us anytime there is no water at home. I remember the day he slapped my mum because she tried rescuing us. [Vielong, M, 35]

Growing up in the villages, there were times we witnessed men beat their wives because they failed to provide water to drink or bathe. And such cases were seen as normal because the community feels it is women's responsibility to fetch water for the husband to drink and bathe. Hmmm, women who are not able to perform these tasks are seen as irresponsible. [Ayelesung, M, 45]

Others gave accounts of how they fought at the borehole when fetching water or were beaten during defecation.

I remember those times. We could see groups of women fighting because someone had jumped the queue. Sometimes they will say one head one pan but some people will want their whole household to fetch. So, it will result in fighting and insults. The weak women will just stand there and go back home empty handed. It was survival of the fittest if you ask me, the strongest and the loudest wins all the time. [Mwinbalono, W, 37]

Those days almost every bush and uncompleted house was a defecation site. And once you are going in, somebody is coming out. But there are days when you are unlucky, the owners of these structures will beat you and asked you to collect the faeces with your bare hands. [Mwinma, W, 36]

5.6.2 Psychosocial violence

Common across the narratives of respondents were recollections of psychosocial abuses. They reported being unhappy, verbally abused, embarrassed, ashamed, issued threats of divorce and were disrespected. For Banayel, these sentiments threatened her sense of purpose and belonging.

Those days, we go to bed every night thinking about how to get water for the household the following day. There are days you could not even sleep because you are anxious and worried. And sometimes the feelings of grief, depression, sadness, and infinite suffering made you question your purpose in life as a woman. [Banayel, W, 32]

A recurrent emotional dimension to participant memories was the pain of hiding one's feelings in order to belong. For women participants, the expressions of one's emotions were taken to mean a sign of weakness and rebellion which further exposed them to violence. As Mwinma explained:

You see, we lived in a society that reminded us that these struggles will make us better women and wives. Even when the suffering was too much, the elderly women ensured you remain silent. I remember the day I told my mum I was tired fetching water, she called me all sorts of names…it hurts, but that is where I found myself. [Mwinma, W, 36]

For some participants, the availability of water in their present households rekindles memories of their past struggles.

Hmmm, I still feel the pain anytime I turn on the taps to brush or shower. I remember the shameful and embarrassing experiences I encountered anytime I tried helping my mum to fetch water. I did not want to be in the midst of women and when I do, boys will tease me, even other girls will tease you. And as a boy, it was shameful. [Malyiri, M, 35]

With regards to sanitation, participants recounted the experiences people go through when looking for safe spaces to defecate. The stories of respondents explained the increasing anxieties, shame, and risk involved in managing everyday life around sanitation.

It was a big struggle getting a safe place to defecate especially in the dry season when the bushes are burnt. There are times men run into you at these places and it's so embarrassing and shameful. [Kpenye, W, 42]

Open defecation was widely practised in my community. And as a young man then I was not shy of my body but I was worried about my sisters and mother. Imagine your friends telling you they saw your mother defecating or called your sister names because they saw her nakedness. Yeah, it is so devastating, but it happens sometimes. [Banaadong, M, 43]

Yet, while the absence of toilets exposed respondents to emotional violence, even in the presence of toilets, the intermittent flow of water rendered respondents hopeless when they cannot use their water closets. Songzie explained how frustrated it was when there was no water to flush the toilet.

Though we had a toilet at home we couldn't use it when the taps are not flowing. You can't also use the little water at home to flush the toilet. When that happened everyone was asked to defecate outside. It made us hopeless. [Songzie, W, 37]

5.6.3 Sexual violence

When asked about their experiences related to sexual violence, respondents explained that sexual violence happens in private spaces and is usually handled in secrecy. For instance, Joe explained that:

I will not say sexual violence related to WaSH access does not exist. So, they may be occurring but it's shrouded in cultural secrecy and not easily expressed. Yeah, I think it occurs. But are women empowered to talk about these and won't face any repercussions when they speak up? [Malyiri, M, 35]

However, some respondents narrated stories of sexual violence other people in their communities experienced.

You know this is a good question for my husband. He always makes a joke of how in the villages, and specifically his place, sometimes there was no courtship before marriage. In the 70s and 80s, if a man is in love with a woman, whether the woman agrees or not, the men from the man's village will go and hide in the bushes, waiting for the girl when she's going to fetch water, they will take her to the man's village and that's the end of the story. And that's how people used to get their wives and married. There were also unfortunate situations, where of course, there were hooligans who hide in the bushes and will rape girls as they went to get water. But these are things that are never talked about. [Sungba, W, 60]

Hmmm, sexual violence? Families usually don't bring such issues to the public. But I heard a little girl in a neighbouring community was raped when she was out to defecate at night. I remember my classmate was also raped in the public latrine at night. [Tieroo, W, 40]

Respondents also talked about the everyday sexual harassment of girls such as touching.

I remember boys touched girls breasts and buttocks either at the borehole or when they were carrying the water. [Gumo, W, 40]

The narratives revealed a reality of sexual violence as localized and embodied, and as such cannot be detached from the socio-cultural and political spaces in which they occur. These spaces often expose women to violence and also serve to conceal violence.

5.6.4 Structural violence

The stories of participants relate structural violence to the normative multi-scalar and temporalities of gendered violence from institutional policies to household spaces. These narratives make visible how social arrangements and power relations shape people's experience and vulnerability to

gender violence from the household to the community. Respondents' accounts illustrated how socially prescribed norms around male and female roles created spaces of violence in the household. Some participants recount, with great frustrations, concerns over women's inability to purchase water for their households to fulfil what is expected of them. Maalba, who grew up in a peri-urban community narrates:

In my community women were tasked to pay a levy for borehole maintenance. If a woman is not able to pay, she bears the embarrassment and not her husband, because she is the one that cannot access water. And the community would tend to call her names or use that as an insult. I remember some women had to borrow money to pay the water levy…these women also spend their productive time collecting water…is this not disempowering the woman? [Malyiri, M, 35]

Respondents' narratives also draw attention to the ways social and economic power relations serve to create inequalities in community water and sanitation infrastructure distribution.

…using an example from my own community, power relations and social arrangement, that is whom you know determines who gets access to water. When the small town water system was constructed, the main distribution lines were directed to powerful households and people they thought could pay water bills. So, the distribution lines were further away from poor households and these households have to buy more pipes, which means more cost, to get connected to water. Many of these poor households are still not connected. And that speaks to the inequalities in water distribution you find in the community. [Malyiri, M, 35]

I remember some years back an NGO came to support the community with pit latrines. All those households that got these latrines were the wealthy and powerful ones. The chief's and his friends' households. The other households were asked to use local materials to construct their latrines. You see it's like the story in the Bible, the rich will continue to get richer and the poor poorer. Even though all the households in the community are poor per international standards, these unfair actions further worsen the situations of the unprivileged households and the women will always suffer most. [Banadong, M, 43]

Politics and institutional processes have also created WaSH inequalities in which access and control of WaSH infrastructure is determined by political affiliations and social networks.

You see, at the community level we have different sections, and these sections are composed of people with deferent levels of income and political affiliations. So, when it comes to water provision, for example, the provision of boreholes, it is usually determined by political affiliations, who votes for who? Those whose political party is in power will usually get access first. These politicians often use infrastructure provision to manipulate the local people. [Malyiri, M, 35]

Two years ago, my brother who is the Assembly Member of our community made several efforts to get a borehole for our section of the community but failed. The District Assembly gave several excuses and later asked him to pay some money to facilitate the process. The same thing happened some years back when the community wanted a toilet facility for the Clinic. However, we know other communities that were given boreholes. This has created a lot of suffering for women. They leave their work and walk to other sections to fetch water. It made us feel like we are not part of the country. Why should people suffer just because of water? You see, corruption is part of the problem. [Yuora, M, 37]

These narratives point to socio-political and institutional (re)production of gendered violence which manifests through the denial of WaSH infrastructure access over time and across space. Collectively, these accounts reveal the ways social arrangements and power relations expose populations to unequal life chances. For instance, WaSH infrastructure access and provision reinforce intimate relationships of power within the household and the community and shape how women and marginalized groups experience violence. Like many of the participants, Yuora's lamentation shows how people's access to WaSH infrastructure influence how they perceive themselves and their place in society. In this context, structural violence, reinforces collective emotional harm, creating a cycle of violence.

5.7 Managing WaSH related violence in the community

Socio-cultural, political and institutional arrangements of communities were identified as key determinants of how WaSH-GBV was managed in the community. Throughout the discussion, it emerged that gendered socio-cultural norms, intersecting with structural processes operate to (re)create gendered subjectivities and subsequently influence what is perceived as violence within the household and community. Participants asked a succession of rhetorical questions when asked about the ways households and communities managed cases of WaSH-GBV (Table 5.5): " Is something even done about it?", "does the community see it as violence?", "who will even listen to your story?". These questions became important points of reference that ultimately shaped participants' narratives.

Table 5.6: Management of WaSH-GBV in the community.

Theme	No. of respondent (%)	No. mentions (%)
WaSH related violence management in the community		
Addressed at home	17(63)	27(37)
Reported to community leaders	13(48)	20(27)
Reported to police	5(19)	8(11)
Nothing is done about it	14(52)	18(25)

Several participants recounted that nothing was done about cases of WaSH-GBV. Others used local phrases to support their narratives: "Te zaa bong yeni" (meaning we are all the same), "die yele la" (this is a household issue). According to them, households and communities hide behind these sayings to conceal and demise cases of WaSH-GBV. For instance, some respondents explained:

You see, no household would want to wash its dirty linen outside. So, cases of WaSH-GBV at the home are seen as a household problem or a normal everyday quarrel and should be handled as such. The community will just hear the woman or girl cry, and the problem ends with the cry. This

is a household problem, and no external person talks about it. Sometimes you'll only hear rumours about it at the borehole. [Songzie, W, 37]

We are all related in some way in the community. Sometimes you'll fight at the borehole and later help each other at the farm or go to market together the following day. [Sungba, W, 60]

For some participants, even when extreme cases such as sexual abuse are reported to the community leaders, the actions of the community sometimes expose victims to double victimization and in most cases, justice is not served.

When [….] was raped and got pregnant, the community elders forced the gentleman who did that to marry her. And at the end of the day, you ask yourself, is that justice? You see, this is not what she wanted, but just by being a victim of sexual violence, she becomes victimized again by being forced to marry her abuser. [Tieroo, W, 40]

Certainly, I wonder how a mouse will be justified in the court of cats. The community leaders are men, and they'll always defend their fellow men to preserve their power and masculinity. So, how will women get justice? It all depends on how your own family pushes the issue. As I said, some families or communities understood the fact that being a woman doesn't take much away from being cared for. [Songba, W, 60]

Some cases of WaSH-GBV are reported to the police. However, some participants recounted that reporting mechanisms are very weak whilst others raised concerns about the quality of support or services provided. Respondents also criticized the police for extorting money from victims or complainants which makes it difficult for the poor to follow their case through to prosecution. As Angbang explained, women who report their abusive husbands are socially chastised and sometimes sacked from their matrimonial homes.

The fact is women are afraid to report to the police because they don't get justice. Some are even sacked from their matrimonial homes because they reported their husbands. [Angbang, W, 39]

5.8 Discussion

This study seeks to draw attention to WaSH-GBV as a major public health problem and a significant impediment to achieving the SDGs. In doing so, the study explores diaspora perceptions and experiences of WaSH-GBV in Ghana. Their understanding and perceptions of WaSH-GBV were complex, socially constructed and context dependent (Truelove, 2011; Nunbogu & Elliott, 2022). For instance, some participants described WaSH-GBV with emphasis on acts and individual embodiment of their everyday WaSH struggles. In this understanding of WaSH-GBV, the focus is on the physical torture, emotional abuse, beatings, and rapes that bodies endure. Others, however, described WaSH-GBV in terms of collective embodiment of existing WaSH situations. These discussions shift attention from acts and individual embodiment and conceive WaSH-GBV as a community-wide problem, noting that embodied experiences are reciprocal. Although participants' understanding of WaSH-GBV differed, they agreed that it is the outcome of unjust and unequal social conditions. It is also embedded within institutional and structural processes that shape the experiences of and responses to it (Datta & Ahmed, 2020; Marcatelli & Buscher, 2019). The understanding of WaSH-GBV in this context points to its intersectionality in place and time (Little, 2019; Nunbogu & Elliott, 2021). For example, the study findings reveal how social structures and gender norms expose women to violence in the intimate space of the household in Ghana, and how different gender regimes in Canada promote men's support in WaSH at the household. The narratives that emerged also portrayed the temporality and continuity of WaSH-GBV (Tyner & Inwood, 2014). For instance, participants recounted how the presence of WaSH infrastructure in Canada triggered emotional sentiments of their experiences of violence in Ghana.

Some participants also interpreted their past gender roles in terms of their present daily lives. For example, some men participants 'identified' as women in Canada because the ascribed roles and responsibilities in WaSH at their present household are gender blind – men scrub washrooms and bathe their kids which are culturally the roles of women back in Ghana. However, socio-cultural barriers and familial resistance prevent men from performing these roles when in Ghana.

These findings draw attention to four interrelated dimensions of WaSH-GBV including physical, psychosocial, sexual, and structural violence. These dimensions of violence are not mutually exclusive and are experienced through multiple scales of gender and power relations from the household to the community (Truelove, 2011; Datta & Ahmed, 2020; Little, 2017). Participants were concerned about how institutional and structural processes produced and reinforced multi-scalar spaces of WaSH inequalities. These inequalities when viewed as a whole would conceal the suffering of marginalized populations. For instance, the absence or poor quality WaSH infrastructure may be viewed as a community wide problem. However, we found that power relations within the household compound these inequalities leading to multiple forms of violence and health risk on gendered bodies. For example, as the participants narrated, the opportunity cost of fetching water such as less time to engage in productive activities and borrowing money to pay for borehole maintenance disempower women. And their inability to provide the WaSH needs of their households also exposes them to violence. Therefore, WaSH-GBV should be approached from a scalar perspective as this will give rise to a broader understanding of the multiplicity of violence, both through time and space. Framing WaSH-GBV as a multi-layered social outcome enables us to examine its complex relationship with structural processes. The narratives that emerged showed how social structures at multiple scales produce violence and how these same structures shape community and households' responses to violence.

Fear and the culture of silence are nurtured and forced-fed into victims by their society. As some participants lamented, reporting violent encounters, particularly sexual violence, implied losing one's dignity and sense of belonging in the community. Hence, victims hold their secrets in order to belong. Women are therefore defined by how they express their feelings, how they expose their vulnerability and how they challenge oppressive gender norms. Our findings also shine a spotlight on women's inability to get justice for being abused. Within the community, forced marriages were identified as a common response to sexual violence that led to pregnancy, leading to double victimization of women.

Theoretically, the integrated framework – feminist political ecology of health (FPEH) – created a robust foundation for understanding the multi-dimensional and the relational nature of WaSH-GBV. The framework also forefronts the centrality of place and time on both the conceptualization and experiences of WaSH-GBV (Tyner & Inwood, 2014; Nunbogu & Elliott, 2021). This enables us to provide a rich and detailed accounts of the socio-cultural, historical, and institutional processes shaping WaSH-GBV in Ghana. Our theoretical led approach to the study of WaSH-GBV created avenues to explore the complex and multi-scalar relations between people and place. Through this perspective we acknowledge the importance of intersectional inequality in gendered experience of violence and how this is embodied by different groups within the community. The reality of WaSH-GBV as we learned is that it is an 'unfolding process' and cannot be detached from its context (Tyner & Inwood, 2014; Little, 2017). These findings draw policy attention to women's experiences of their lived bodies and the pathways by which social structure and culture create unequal life chances and health patterns. Health Geographers and policy makers need to reflect deeper on this complexity (i.e the being and the becoming of WaSH-GBV) and give

greater recognition to the different and interrelated factors that create landscapes of violence within the community and in personal spaces (i.e., the home) that are perceived to be safe.

Although the aim of the study was not to establish patterns and make generalizations about WaSH-GBV experiences of Ghanaians in Canada, a limitation of this study is that the sample was insufficiently diverse to reveal the socio-economic and cultural differences of respondents by class and status back in Ghana, and the stage in the life-cycle or ethnicity – issues that deserve more attention in future research. Nevertheless, we adopted a purposive sampling strategy to ensure that we covered varied experiences, different cultures and ethnic groups and opinions across the life across the study area. This allowed us to gain an in-depth contextual understanding of people's experiences of WaSH-GBV. The narratives were all about past WaSH experiences over the lifetime of participants. This gave participants the opportunity to reflect on their past WaSH situations in UWR in the light of their present lived experiences in Ontario, Canada. This would not have been possible had the interviews been conducted in Ghana. The narratives of participants are based on past WaSH situations in UWR, which may not adequately reflect the present WaSH trend and the changing landscape of GBV governance. For instance, the government of Ghana introduced the national gender policy in 2015 (Ministry of Gender, Children and Social Protection, 2015), hoping to improve gender equality, enhance women's rights and provide a framework for addressing GBV and other forms of gendered inequality embedded in the society. There is also the risk of recall bias as the length of stay in Canada increases. However, participants acknowledged playing an active economic role in WaSH provision for their families in Ghana, which may reduce the biases regarding narratives on the recent WaSH situation in UWR.

5.9 Conclusion

We opened this paper with the aim of understanding diaspora perceptions and experiences of WaSH-GBV in Ghana. In doing so, we found that WaSH-GBV is a relational outcome and that place shapes the practice of violence. Therefore, while the findings generated by this study may offer valuable lessons, they are also place-based. Guided by an integrated theoretical framework we learned that WaSH-GBV is complex and occurs at multiple scales. On the one hand, this understanding of WaSH-GBV will help illuminate the spatial inequalities and marginalization in WaSH at individual, household and community scales. On the other hand, by conceptualizing violence as a multi scalar social outcome will guide us to critical appraise the complex ways social, economic, political and environmental factors act in concert to produce violence in place, and how bodies experience, embody and manage violent conditions. Adopting a place-based approach to understanding WaSH-GBV enabled our respondents to appreciate the complexity of local, and broader structural processes that shaped their experience and vulnerability to violence. Also, attention to the contextual experiences and perceptions of WaSH-GBV was useful to identify gendered health and wellbeing outcomes both within and outside the household. For instance, we found that power relations and gender norms are important determinants of social inequalities in health and influence the extent to which women's bodies are subjected to violence or protected from it. These conditions shape the potential for individuals, particularly women to have a good life. Furthermore, they represent significant barriers to achieving the SDGs; it will not be possible to achieve health and wellbeing for all (SDG 3) without safe water and sanitation for all (SDG 6) and neither is possible without empowering women (SDG 5).

Chapter 6: Discussion and Conclusion

6.1 Introduction

The goal of this thesis was to gain a better understanding of the dimensions of gender-based violence related to water, sanitation and hygiene in LMICs. In order to achieve this goal, the research used a qualitative research approach to address the following research objectives:

1) to develop an integrated theoretical framework for framing our understanding of WaSH-GBV in Low-and Middle-Income Countries.
2) to characterise the dimensions of WaSH-GBV in Low-and Middle-Income Countries.
3) to explore the WaSH-GBV experiences of Ghanaian immigrants in Canada over the life course.

This chapter presents a summary of key findings, situated within the context of current literature on WaSH-GBV and health. The chapter also identifies the main contributions of the research as well as limitations. This chapter concludes with a discussion of the implications of these findings for policy as well as directions for future research.

6.2 Summary of key findings

This thesis consists of three substantive papers (Chapters 3, 4 and 5). Chapter 3 reviewed literature to demonstrate the utility of an integrated theoretical framework (feminist political ecology of health -FPEH) for understanding WaSH-GBV. This is because the existing theoretical frameworks – feminist political ecology (FPE) and political ecology of health (PEH) – although promising are limiting when used to study the contextual, collective and compositional factors that influence WaSH-GBV in place and the consequent health outcomes. For instance, whilst FPE guided our understanding of the relationship between gendered subjectivities and WaSH-GBV, it does not explicitly discuss GBV as a means of health denial. The inadequate theoretical platform for

understanding WaSH-GBV limits its conceptualization in the context of LMICs where WaSH-GBV is mainly attributed to patriarchal norms at the individual or household level (Dery, 2019).

Further, the review suggests that WaSH-GBV is a continuous process and not a one-off act, and the social conditions that produce and are re-produced by violence are context dependent (Little, 2017; Tyner, 2012; Tyner & Inwood, 2014). This conception of violence acknowledges its relationality through space and time. With this understanding, the review argued that a place-based conception of WaSH-GBV is needed to draw attention to its embeddedness in personal and everyday spaces. Like Truelove (2011), the review explores the issues surrounding WaSH-GBV from a feminist perspective drawing attention to the gendered power relations and subjectivities that shape the experience and response to WaSH.

Further, the review showed that WaSH-GBV is an outcome of scalar interactions across space and time. The suggested framework (Fig. 4.1) demonstrates the importance of scale in understanding WaSH access, use and control. The framework demonstrates how the 'micro' and 'macro' scales are in dynamic interaction to shape patterns of WaSH-GBV. Further, from a feminist perspective, the review has argued for accommodating the production of everyday violence and how it is produced by entrenched hegemonic inequalities and gender marginalization across scales. For example, research has shown how macro structural processes (re)produce WaSH inequalities that are embodied differently among men and women (Truelove, 2011; Anwar et al., 2020; Datta & Ahmed, 2020). Through this perspective, the framework also recognizes the importance of factors beyond the individual (i.e micro) and the neighbourhood (i.e meso) in shaping population health; and how politics shape health at broader scales.

Chapter 4 uses a scoping review to conceptualize the dimensions of WaSH-GBV in LMICs. Results revealed four dimensions of WaSH-GBV: 1) structural (Truelove, 2011; Anwar

et al., 2020; Datta & Ahmed, 2020); 2) physical (Kulkarni et al., 2017; Sahoo et al., 2015; Pommells et al., 2018; Khanna & Das, 2016; Nallari, 2015, Collins et al., 2019); 3) sexual (Sahoo et al., 2015; Khanna & Das, 2016; Kulkarni et al., 2016; Nallari, 2015), and 4) psychosocial violence (Cooper-Vince et al., 2018; Collins et al., 2018; Bisung & Elliott, 2016). Psychosocial violence was the dominant dimension of violence reported by the studies (n=21, 72%) whilst sexual violence was the least reported (n=8, 28%). The review findings showed that women were more likely to experience WaSH-GBV in setting of WaSH insecurity. For instance, Cooper-Vince et al. (2018) noted that women in water insecurity hotspots are at 70% greater risk of depression than men.

Further, the review results indicate that WaSH-GBV is an outcome of socio-cultural, economic, environmental, and political processes. This finding reaffirms the results and discussions in Chapter 3. Based on these findings, a conceptual model was proposed which shows how socio-cultural, structural and environmental interactions produce and shape violence in WaSH across time and space. From the model, I observed that the dimensions of WaSH-GBV identified are not mutually exclusive. For instance, structural inequalities enable and expose women to multiple forms of physical, sexual and psychosocial violence (Datta & Ahmed, 2020; Kulkarni et al., 2017). Psychosocial violence, on one hand, is an outcome of the other three dimensions of violence (see Bisung & Elliott, 2016; Sahoo et al., 2015). Personal constraints such as life stage, socio-economic status, gender and physical ability influence the pattern of violence. However, the review suggested that individual exposure and embodiment of WaSH-GBV is determined by their social networks and the available social support.

The review also revealed spatial disparities in WaSH-GBV research in LMICs. For example, all the eligible studies from Asia were conducted in South Asia and about 78% of those

in Africa were conducted in East Africa. This finding suggests that the voices of many women entrapped in WaSH-GBV are yet to be heard and there is the likelihood of leaving them behind in our quest to ensure clean water and sanitation for all by 2030. Therefore, the second phase of the study (Chapter 5) employed qualitative approaches to explore the lived experiences of Ghanaian immigrants with regard to WaSH-GBV.

Chapter 5 uses qualitative in-depth interviews (n=27, 16 women and 11 men) with immigrants to Canada from Ghana to explore their perceptions and their WaSH experiences over their lifecourse. Participants' perceptions and experiences of WaSH were complex and context dependent. The accounts of respondents point to the embeddedness of GBV in societal structures. For some respondents, the songs women sing, and the names given to fabrics all highlight the everydayness of gender violence in the community. When asked to specifically describe their WaSH experience, participants offered a range of narratives that extend WaSH-GBV beyond the individual to include collective experiences in the household and community. This reflects the multi-scalar nature of WaSH-GBV as discussed in Chapter 3.

Further, the results indicate that participants experienced four dimensions of WaSH-GBV including structural, physical, sexual and psychosocial violence. The findings also indicate that socio-political processes, economic opportunities, and cultural and ecological contexts have a direct influence on individual and community's perceptions and responses to WaSH-GBV. Individual exposure and experiences of WaSH-GBV is mediated or reinforced by the household or community. This finding reaffirms the results discussed in Chapter 4. As Benavides et al. (2019) alluded, women who receive support from their social networks are less likely to experience violence. Therefore, even when women are exposed to violence, the social space within which they live determines their capability to cope with their lived situation.

6.3 Contributions

6.3.1 Theoretical contributions

Health geographers have contributed to broader debates on WaSH and have engaged with how place and place-based experiences construct WaSH access, use and control (Bisung & Elliott; 2016; 2017; Truelove, 2011; Caruso et al., 2017). Recent progress in the WaSH sector reflects a broader shift in focus from technical dimensions towards social and bahavioural strategies and the importance of socio-institutional arrangements in sustaining interventions (Dickin et al., 2018; Nunbogu et al., 2019; Harter et al., 2018). In this sense, researchers and practitioners are therefore challenged to understand the complex and scalar relations in WaSH. From the feminist political ecologist perspective, water is gendered and accessed through power relations (Sultana, 2011). Political ecology of health explores how broader political and economic structures decisions in water provision affect population health. Other researchers employ it to examine how large-scale water infrastructure such as dams transforms local disease patterns (Ferring & Hauserman, 2019). These varied theoretical perspectives on water-societal relations highlight the critical importance of integration to better understand the complexities and address the inequalities for informed policy design and implementation. Also, existing literature on the hydro-social cycle (Linton & Budds, 2014) points to the interconnections between water and gendered social and structural relations. However, gender and water relations are 'rhetoric' and to some extent narrowly conceived along male-female participation, ignoring the materiality and spatial and temporal dimensions (Seager, 2010; Thompson, 2016). By integrating feminist pollical ecology (FEH) with political ecology of health (PEH), the research contributes to how researchers can advance research on gender-WaSH and ecological relations across multiple scales and contexts.

WaSH-GBV is a socio-temporal phenomenon and continues to evolve across space. Socio-cultural, economic, political and environmental factors shape GBV in the context of WaSH.

Political ecology of health (PEH) offers a useful framework for understanding how access to WaSH and other environmental inequalities are embodied to produce patterns of health. As demonstrated in this research, though PEH facilitates our understanding of the health implication of WaSH insecurity, it does not explicitly discuss the embedded gendered subjectivities and health patterns. The continuous multifaceted interactions between meso (i.e community) scale actions and macro (broader socio-economic, political and institutional processes) underscore the complexities involved in addressing GBV in LMICs. Geographers are therefore urged to study GBV through the lens of theory to appreciate how some particular socio-economic and political conditions are imbued with violence (Little, 2017; Springer & Le Billon, 2016; Tyner & Inwood, 2014). This research extends this discussion in the context of WaSH by demonstrating how an integrated theoretical framework can help us conceptualize WaSH-GBV in space and facilitate understanding of the ways by which WaSH inequalities are maintained socially and spatially.

Further, the framework outline in **Chapter 3** (Fig. 3.1) is important for identifying and understanding how multi-scalar factors interact to shape health patterns in place. While the framework can contribute to how population can embody WaSH insecurity, it extends the discussion beyond the 'body' (i.e micro-scale). Such framing will enable policy makers and researchers to adopt systems perspectives in understanding health inequalities as advocated by Rutter et al., 2017 and Bambra et al., 2019. This lens of framing WaSH-GBV is particularly important for understanding gendered health inequalities and provides a fertile ground to incorporate theory with gendered health research to inform the design of theoretically informed interventions for WaSH and health promotion.

In addition, findings from this thesis can be transferred to similar contexts in other LMICs. As **Chapter 5** demonstrates, the social, economic, political, and environmental conditions that

continuously interact to shape WaSH-GBV in most communities in UWR are similar and the lessons from this study will be applicable to most communities facing challenges in access to WaSH. Though placed-specific conditions may limit transferability, the lessons from the research are useful in developed countries as they will help researchers to understand how structural processes produce spatial inequalities, particularly in Canada and the United States of America where communities are faced with water problems (Deitz & Meehan, 2019; Castleden et al, 2015).

6.3.2 Methodological contributions

This research makes three contributions to the methodological literature. First, it contributes to the conceptualization of WaSH-GBV in a cross-cultural context. Though a number of studies have discussed WaSH-GBV in LMICs, the use of theoretical frames to capture the structural, sexual, psychosocial and physical dimensions of WaSH-GBV in communities remains limited. **As Chapter 4** highlighted, there are spatial variations with regards to research on WaSH-GBV and the existing studies mostly report on individual dimensions of WaSH-GBV. Therefore, this research contributes to this knowledge and methodological gap by providing evidence on how to employ multiple qualitative methodologies to examine the broader dimensions of WaSH-GBV in LMICs.

Second, the research demonstrates how to use theory to inform research design, data collection and analysis. The theoretical framework developed in **Chapter 3** drew insights from epidemiology, sociology, political science, and health geography to illustrate the interconnected pathways through which macro-structural factors interact with the micro-scale to shape patterns of WaSH inequalities and GBV. These insights were subsequently used to design and structure the data collection and analysis. The use of theory to inform data collection and analysis is important

in health geography given the call from Aboud (2011) and Krieger (2011) to move away from "blind observation" to theoretically informed research. An explicit engagement with theory assisted in the identification of the silences and embedded inequalities with regard to WaSH-GBV.

Third, the research contributes to the application of "decolonizing and participatory methodologies" in response to De Leuw and Hunt (2018), Sylvester et al., (2018) and Castleden (2008), and criticisms regarding power and hierarchal relationship in feminist research or research involving marginalized communities (Westmarland & Bows, 2019). The use of in-depth interviews created an environment for adequate participation and discussions of people's lived experiences, and an opportunity to value the life stories of women. This approach was essential in understanding individual's subjective meaning of WaSH-GBV and provided a rich account of socio-cultural, economic and political orientations shaping experiences and responses to WaSH-GBV over the lifecourse of participants. The use of theoretical informed participatory research created a platform to explore the complex relations between WaSH-GBV in place and how people experiences evolve across space and time. The research provides evidence that participatory methodologies that require the active involvement of marginalized groups are possible in pandemics (i,e Covid-19) and can provide an effective means to explore many issues that affect health and wellbeing remotely.

6.3.3 Substantive contribution

Despite the fact that GVB is a major public health issue and a threat to population wellbeing, it's conceptualization in health geography is narrowly focused and undertheorized (DeVerteuil, 2015). As a result, certain forms of violence remain hidden unless it *'affects us personally'* (Tyner, 2012: IX). For instance, a number of researchers have narrowed discussions on violence to geopolitical conflicts and domestic violence neglecting the other forms of violence across the wider society

(McIlwaine, 1999; Evans, 2011; DeVerteuil, 2015). The latter in particular has received considerable attention in health geography, but often these issues are discussed without recourse to the layers of power imbalances, social exclusion and inequality that co-produce the violence (DeVerteuil, 2015; Little, 2017). The theoretical framework in **Chapter 3** addresses these limitations and offers some lessons for health geographers. For example, rather than employ FPE to study gender-based violence which would reveal gendered inequalities relating to resource access (i.e water and landholdings), economic opportunities and social status, incorporating political ecology of health provides a theoretical opportunity to discuss the health implications of these inequalities. This theoretical integration offers the potential for exploring how structural forces at different scales interact to produce patterns of violence and inequality in LMICs. It thus provides a wider theoretical lens for health geographers to advance their perspectives on the relational and multidimentional nature of violence – such as those resulting from societal power relations within the community as well as those from broader structural failures.

Further, the research will contribute to contemporary discourse on wellbeing in LMICs. Over the past decades, health geographers have raised efforts to explore the links between gender and health, whilst sidestepping that of gender and wellbeing. Population wellbeing is an outcome of the embodiment of local environmental and structural factors (See Kangmennaang & Elliott, 2018: 2019ab). In LMICs, inequality (this could take the form of water insecurity and gender-based violence) is identified as a critical indicator that undermines wellbeing (Kagmennaang & Elliott, 2018: 2019a) particularly in relation to WaSH (WHO/UNICEF, 2017). And people's access to WaSH is mediated by cultural, social and power dynamics which heighten inequality and undermine wellbeing (Gimelli et al., 2018; Jepson et al., 2017; Wutich et al., 2017). Gender intersects with these drivers of inequality which have complex effects on health and wellbeing

(Manandhar et al., 2018). Though several researchers in the wellbeing research are conclusive that wellbeing is socially and context dependent (Kagmennaang & Elliott, 2018: 2019a: 2019b), little is known about wellbeing between genders. As acknowledged by Elliott (2018), health geographers rarely conceptualize wellbeing for critical discussions and therefore contribute little to placing place and social theories for wellbeing research. The results from this research will advance understanding on the contextual and multidimentional nature of wellbeing since the theoretical framework employed focus on how socio-cultural, political and ecological environment simultaneously facilitate and shape health and wellbeing across space and place, explaining why people are poor and remain poor. The research, therefore, leverages the diversity and critical potential of the sub-discipline to provide a theoretical platform for health geographers to advance discussions on gendered wellbeing.

6.4 Implications for policy and practice

Gender-based violence has been recognized as a major public health problem. The SDGs exclusively aim to eliminate "all forms of violence everywhere" and create equal opportunities for both men and women. For instance, SDG 5 seeks to achieve gender equality and empower women and girls and specifically, target 5.2 addresses all forms of violence against women and girls including trafficking and sexual and other forms of exploitation. Further, the SDGs acknowledged different social, economic, and political enablers of gender equality/disparity that reduce or reinforce violence against women. The World Health Organisation (WHO, 2021) has also acknowledged the role of GBV as a means of health denial and requires a multi-sectoral response. This research intersects with three SDGs: SDG 3 – good health and wellbeing; SDG 5 – gender equality and SDG 6 – clean water and sanitation. Gender is also crosscutting in these 3 SDGs.

However, these SDGs have been criticized for lacking a methodological and theoretical foundation for gender perspectives. Thus, the findings from this research have implications for WaSH-GBV research, practice and policy intervention.

6.4.1 Framing and conceptualizing WaSH-GBV in LMICs

Though there is a growing recognition to address issues of GBV, its complexity and multiplicity act as a major challenge (Jewitt & Ryler, 2014; Little, 2017). Also of critical importance is the question of whether what is defined as violence reflects how people perceived it in their specific contexts. Communities are heterogeneous and successful interventions are those that are tailored to a specific context. The findings in **Chapter 4** reveal that in Ghana, WaSH-GBV is a complex phenomenon and context dependent. Participants recounted several experiences of violence related to meeting their basic WaSH needs including collective experiences within the community and an embodiment of the social, economic, political, and environmental context, extending the framing of WaSH-GBV beyond the individual. Hence, people's exposure and experience of WaSH-GBV were shaped by their social, economic, political and cultural and ecological contexts. Even when WaSH infrastructure is available, social power relations determine access, use and control within and between households and among the various sections of communities (Sahoo et al., 2015; Truelove, 2011). WaSH-GBV measures that are placed-based and are multi-dimensional would help build inter-sectoral partnerships that are vital for eliminating gendered violence.

As both chapters 3 and 5 depict, the intersection between power and place makes understanding gendered violence in WaSH a multi-scalar process. As mentioned earlier, **macro-scalar** processes determine the patterns of WaSH access and use at the meso and micro scales. In Chapter 5, Participants recounted how political and institutional processes intersected with

community structures to create spaces of WaSH inequalities in some communities. Thus, understanding WaSH-GBV requires a deep reflection on the links between past and present political, economic and social arrangements that shape WaSH access. For instance, several scholars have attributed the existing spatial inequalities in the public pipe water distribution system in Ghana to multi-layered socio-cultural, economic and political reasons (Zaato, 2015; Tutu & Stoler, 2016). Understanding how **macro-scalar** processes breed violence will provide valuable knowledge that will guide decision makers to design tailored and context-specific WaSH programs and services that will enhance individual and community wellbeing. At the **meso-scale,** the framing of WaSH-GBV policy and research attention should extend beyond the availability of infrastructure to the relationalities in WaSH access and use. For example, the neo-liberalized water sector has resulted in the emergence of various forms of state sanctioned violence on populations in LMICs (see Truelove, 2011; Mehta et al., 2014; Anwar et al., 2020). The roles and inherent practices of traditional (customary water management structures) and informal water governance should be mainstreamed in formal water policies and programs in order to improve service delivery, particularly in marginalized communities. Much like Jepson et al. (2017), this research (**Chapter 3)** conceptualized WaSH security as a relational and dynamic outcome linked to human agency and broader political and social structures. Drawing from this understanding, policy and research at the meso-scale should be foregrounded around three core issues: Firstly, understand the pathways through which structural inequalities and marginalization materialize as violence and how differently it is embodied by individuals; second, understand the interconnected of GBV in places and specifically, the prevalence of power relations, normative patriarchal gender norms, ableism, ageism and other forms of oppression with regards to WaSH access; thirdly, initiate niches of social networks and empowerment based on the existing context. The embedded cultural

and social norms can be harnessed to facilitate positive change and individual and collective wellbeing (Wamue-Ngare, 2021). Empowering communities with the objective of behaviour change and facilitating social and economic change will promote a sustained reduction in GBV (Eggers & Steinert, 2020).

6.4.2 Strengthening partnerships for WaSH-GBV reduction

Chapters 3, 4 and 5 indicate the multi-scalar and multi-dimensional nature of WaSH-GBV in LMICs. Providing WaSH and eliminating the associated inequalities and violence requires a multisectoral and crosscutting approach from the multinational organizations at the international scale to the local communities and civic societies. The review in Chapter 4 showed that embedded poverty and gender inequality are key contributors to WaSH-GBV such as girls engaging in transactional sex to get access to water or money to buy sanitary towels (Pommells et al., 2018; Jewittt & Ryley, 2014). Further, the narratives of participants in Chapter 5 showed their lack of trust in public institutions and community structures in dealing with WaSH-GBV. For example, victims of WaSH-GBV do not get justice or the needed social support when abuse cases are reported. Other victims do not report abuse cases because of financial constraints. These findings highlight the complexity and inter-dependence of WaSH-GBV and livelihood factors. However, crosscutting approaches on WaSH-GBV are not always translated into policies and practices in LMICs (Kindornay, 2020; Dogoli, 2021) which explains why there is the need to develop smart partnership and context-specific approaches to tackle WaSH-GBV.

Another area that requires attention is strengthening the capacity of national and local institutions to tackle WaSH-GBV and improve the health and wellbeing of women and girls.

Identifying multifaceted problems such WaSH-GVB in LMICs is not an end solution itself but a means for informed policy making. Civil society organizations and decentralized local government departments in Ghana as in other LMICs lack the required capacity to implement policy interventions on WaSH-GBV (Dogoli, 2021). As the world commits to improving access to clean water and sanitation (SDG 6) and reducing all forms of gendered violence (SDG 5) by 2030, building the capacity of institutions in LMICs is needed to promote intersectoral approaches to health and WASH for realizing the human rights of women and girls, promoting gender equality and addressing WaSH-GBV.

6.4.3 Mobilizing communities to create safe WaSH spaces

Over the past decades, WaSH practitioners and researchers have recognized that community involvement plays an important role in facilitating WaSH access, empowering women, and ensuring population health and wellbeing (Dickin et al., 2021; Dickin et al., 2017). For example, the adoption of community-led total sanitation (CLTS) in LMICs has empowered communities to take collective action for promoting their own sanitation. The CLTS process uses communication as a tool for social change and allows the community to identify and address contextual factors that affect their WaSH access and use (Harter et al., 2020), which allows program implementers to adapt their approaches to every target community and socio-cultural conditions. This process can serve as an entry point for community sensitization on WaSH-GBV and the identification of natural leaders who have the capacity to take a more active role in planning, monitoring and implementation of community action plans on WaSH-GBV. As Chapter 5 indicates, though participants identified WaSH-GBV as a collective problem, their communities are not empowered

to address reported cases. As such, some measures taken by the community expose victims to other forms of violence.

The reflexive and participatory processes of the research (Chapter 5) enabled participants to reflect on their past WaSH experiences and identified what matters to them most through the interviews. It also instilled in them a sense of responsibility towards addressing WaSH-GBV and improving health as they were able to identify the common challenges and ways to overcome these challenges. Community-based management can generate trust, cooperation and provision of mutual aid in addressing collective problems in communities where GBV has eroded trust and excluded individuals, limiting their active participation (Gupte et al., 2014). These management models are also attractive in addressing GBV in LMICs because they have the capacity to integrate local knowledge, social norms and social arrangements and government policy strategies (Treves-Kagan et al., 2020). This can facilitate the design of interventions across multiple scales; micro (i.e., individual, household) meso (i.e., community) and macro (i.e., institutional environment). At the micro-scale, interventions can aim at promoting behavioural change, creating knowledge and awareness, empowerment and skills training and connecting people to support groups (Gupte et al., 2014; Treves-Kagan et al., 2020; Udin et al., 2005). One critical concern with regards to empowerment at this scale is the *power within* (Rowlands, 1995). For Rowlands (1995: 87), empowerment goes beyond agency and is concerned with "the processes that lead people to perceive themselves as able and entitled to occupy that decision-making space". This allows individuals to become aware of the capability to take action against oppressive social norms and structures. Meso scale interventions can aim at creating enabling environment for behaviour change and empowerment at micro scale such as advocacy campaigns on social transformations, promoting community dialogue on embedded inequalities, and increasing supportive behaviours

(Treves-Kagan et al., 2020). However, with the varying levels of capabilities and social networks among individuals, greater understanding is needed of how these collective activities and household power and gender dynamics may disempower and further marginalize individuals and other disadvantaged groups (Dickin et al., 2021; Bardosh, 2015; Hathi et al., 2016). Evidence in Chapter 5 indicates a lack of effective coordination between households, community and institutions for reporting and addressing cases of WaSH-GBV. Intervention packages at macro scale can aim to support micro and meso scale initiatives to prevent WaSH-GBV. Stakeholder collaborations should be promoted (i.e between public and civil society organizations) to address embedded WaSH inequalities and facilitate the planning, implementation, and monitoring of policies at the national and international levels aimed at eliminating all forms of violence.

6.5 Limitations

The purpose of the qualitative research was not to establish patterns or make generalizations about WaSH-GBV but to capture the lived experiences of participants. A key limitation is the relatively small sample size (16 women and 11 men) and a single data collection technique (i.e., in-depth interviews) considering the complexity of WaSH-GBV and the cultural and ethnic diversity of the UWR. However, the sample size and research technique allowed for an in-depth understanding of WaSH-GBV. The study adopted a purposive sampling strategy to ensure that all the different cultures, varied experiences and opinions across the life course were covered as much as possible. We oversampled women to facilitate a wider understanding of the embedded gender subjectivities and power relations in WaSH in LMICs. Further, the interview design enabled participants to situate their narratives within a broader historical and structural context. This allowed us to gain

an in-depth contextual understanding of people's perceptions and experiences of WaSH across space and time.

The research focused on multiple contextual findings to propose a framework (Chapter 4) for understanding how contextual factors intersect with individual socio-demographic characteristics to influence the experience and response to violence in LMICs. The synthesis of various empirical investigations is advantageous for situating the framework within a broader theoretical and contextual frame. It also facilitates the design and implementation of policy interventions for LMICs. However, the use of a broader context has its limitation: (1) with varying levels of agency and institutional capacities among different communities and a range of contextual factors influencing WaSH-GBV, researchers and WaSH practitioners will need to adapt and situate the framework within existing local conditions; (2) individual factors are broadly framed. These factors should be context-dependent and an understanding of how gender intersects with broader structural factors to shape patterns of WaSH-GBV and coping mechanisms should be place-based.

6.6 Directions for future research

The substantive chapters (Chapters 3, 4 and 5) of this thesis highlighted some specific future research directions. These directions, which focused on future studies to explore dimensions and experiences of WaSH-GBV in LMICs are broadly discussed in this section to guide future research design. As discussed earlier, though researchers have explored how 'violence sits in place' (Little, 2017; Springer, 2011; Mazur, 2021), little research explains how WaSH-GBV evolves both through time and space, and across scales (i.e., micro, meso and macro). To fill this empirical gap, future research examining the temporality and continuity of violence in WaSH insecured settings

across space is necessary. In this regard, both longitudinal qualitative and quantitative research may be very important in order to explore how WaSH-GBV evolves at different spatiotemporal scales and influences gendered health outcomes.

Further, even though there have been several discussions on what counts as GBV research has been criticized for paying little attention to the construction of GBV across scales (Little, 2017; Pain, 2014; Tyner & Inwood, 2014). For instance, the relationship between place and the cultural construction of the 'body' that may influence the vulnerability and response to WaSH-GBV, and the ways victims of WaSH-GBV are supported needs further research attention. Similarly, there is limited knowledge on how macro-scalar policy interventions and frameworks on WaSH-GBV are adapted to ensure that they are workable in place. Understanding the scale (individual, household, community) at which people are exposed to and respond to WaSH-GBV is important for developing interventions. Since the scale of analysis influences the framing and response to WaSH-GBV, using individual responses alone as in the case of this research may not provide a holistic understanding of the multi-scalar nature of WaSH-GBV. Conducting a multi-scalar analysis (micro, meso and macro) and comparative analysis between communities or countries will add another layer to our understanding of WaSH-GBV in LMICs.

In addition, though researchers have explored the differential exposure and experiences of WaSH-GBV among men and women in LMICs, there is limited knowledge on the sanitation needs of older adults and people with disability and their experience of WaSH-GBV. As mentioned in Chapter 4, individual factors are important determinants of vulnerability and response to WaSH-GBV. In LMICs, people with disability represent one of the largest socially excluded groups in WaSH (WaterAid, 2011). Since the Global agenda on WaSH aims to 'leave no one behind' research attention on how disability and life stage influences WaSH-GBV is timely.

Finally, this research developed an integrated theoretical framework for understanding WaSH-GBV in LMICs. Applying the framework in other settings (High-income countries e.g Canada and the United States of America) will make a significant contribution to health geography. Further, the continued use and improvement of the theoretical framework will broaden our understanding of WaSH-GBV in a cross-cultural and socio-economic context. Increasing our understanding of WaSH-GBV in varied context is important as race, ethnicity, socio-economic status, and household characteristics intersect with institutional and political structures to produce WaSH insecurity and social inequality and how these collectively shape population health and wellbeing.

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Chapter 1

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Appendices

Appendix A: Summary of findings for scoping review

Author(s), Country	Study objective	Study population, location and context	Methodology	Theory	Key findings
Abraham et al., (2006), South Africa	Explores how girls' negotiate dangers and vulnerabilities associated with using toilets at school	School girls 16 years and older, teachers, and people responsible for cleaning school toilets, urban/peri urban	Qualitative: focus group discussions, in-depth interviews, participant observation and mapping of photography	-	Girls reported fear and discomfort in using school toilets. These were related to lack of privacy and loitering of boys around toilets.
Wutich, 2009, Bolivia	Examines the relationships between water insecurity, gender and emotional distress.	Households in Villa Israel, Cochabamba, Urban	Mixed methods: household surveys, interviews and participant observation	-	Women were more likely than men to experience the burden (time spent) of water insecurity. Women reported they lost income more significantly than men because of the time spent searching for water. Women reported experiencing fear and anger more often as a result of water insecurity than men.
Stevenson et al., 2012, Ethiopia	Assess the utility of local developed water insecurity scale in predicting women's psychosocial distress	Women in rural communities in South Gondar, rural	Mixed methods: Focus groups, free listings, ranking and household survey		Women reported abuse from husbands and domestic disputes over water. They also reported exclusion due

					to uncleanliness, shame and the opportunity cost of water collection.
Jewitt and Ryley, 2014, Kenya	Illustrates how menstruation and puberty reproduce inequalities in school attendance	Female students (in Primary and secondary schools), teachers, community women and representatives from relevant Community-based Organizations in Kisumu, urban/rural.	Qualitative: Focus groups, interviews, and participant observation	Feminist Political Ecology	The findings revealed that adolescent girls miss schools/lessons due to lack of access to sanitary towels and the required infrastructure to practice safe menstrual hygiene at school. Fears of being teased by male students and embarrassment associated with menstrual fluid leakages were also identified as reasons for missing school. Further, it was reported that some adolescent girls (usually from poor households) are compelled to engage in transactional sex in order to earn money for menstrual towels.
Mwamsamali and Mayo, 2014, Malawi	Establishes the status quo of gender mainstreaming in the water supply and management	Residents of Mzimba district and relevant institutions at both local and national levels, rural.	Mixed methods: interviews and surveys, and document review		The analyses revealed that funds are not explicitly allocated for women specific programs. The

					findings also showed that budgetary spending on water resource development has declined and financial support for gender equality initiatives are largely sponsored by donors.
Hirve et al., 2015, India	Examines psychosocial stress related to the use of toilet facilities or open defecation by women and adolescent girls	Women and adolescent girls in Pune, rural	Mixed methods: Focus groups, key informant interviews, free listings and survey.	-	Women and adolescent girls reported threats to their safety during open defecation. These threats include verbal, physical and sexual abuse by men. For instance, about 44% open defecators reported some level of stress related to privacy compared to 3% of latrine users. Concerns were also raised regarding the abuse adolescent girls face over lack of functional latrines at schools. Women and girls defecate early in the morning or late at night to protect their privacy.
Nallari, 2015, India	Describes how lack of access to adequate	Adolescent girls in Bengaluru , Urban.	Qualitative: Focus Group Discussions	-	Girls reported issues of harassment from

	sanitation facilities affect the lives of adolescent girls		(FGDs) and household interviews		boys when defecating, disposing sanitary pads, and queuing to use public toilets; shame and embarrassment due to men loitering around defecation sites; and fear of sexual assault. They go in pairs to defecate or access their sanitation needs early in the morning.
Sahoo et al., 2015, India	Examines the range of sanitation related psychosocial stressors during routine sanitation practices	Women in four life stages in urban slums, rural, and indigenous villages in Odisha, rural/urban	Qualitative: in-depth interviews	-	Three main psychosocial stressors were reported: Environmental stressors: discomforts at defecation sites and animal attacks; Social stressors: lack of privacy, social restrictions and conflicts; and sexual violence stressors: sexual assault and rape. Women defecate early in the morning or late at night to protect their privacy. Others go to defecation sites in pairs.
Sommer et al., 2015, Ghana, Cambodia, and Ethiopia	Explores girls school participation, their sanitation and	In-school and Out-of-school adolescent girls in Accra,	Qualitative: Focus group discussions	-	Girls reported fear and experiences of parental abuse

	hygiene needs, and the education they receive prior to menstruation	Phnom Penh and Battambang Province, Oromia Region, rural/urban.			associated with menarche at an early age. Girls also reported being ridiculed by boys when menstruating, and discomforts and lack of privacy when changing menstrual towels or defecating in the school latrines.
Winter and Barchi, 2015, Kenya	Examines the nature and extent of the association between lack of access to sanitation and women experiences of physical and sexual violence	Women who completed the Domestic violence Module in Kenyan Demographic and health survey (2008-2009), Nationwide.	Quantitative: Household surveys	-	The binary logistic regression revealed that women who practice open defecation are more like to experience non-partner sexual and physical violence compared to women who do not practice open defecation.
Bisung and Elliott, 2016, Kenya.	Explores psychosocial concerns related to lack of access to safe water and adequate sanitation	women and men between the age of 18-36 years in Usoma, rural.	Qualitative: Focus groups and key informant interviews.	Environmental stress and ecosocial theories	Respondents expressed psychosocial concerns related to lack of safe water and adequate sanitation such as marginalization, negative place identity, embarrassment, anxiety and frustration. Some women treated surface water for

					drinking, prioritised water use and conserved water for multiple use.
Jadhav et al., 2016, India	Assesses the effects of household sanitation facilities on Non-partner sexual violence (NSPV) in India.	Women between the ages of 15-49 years across India, countrywide.	Quantitative		The study indicates that non-partner sexual violence is twice as common among women who practice open defecation than it is among women with access to toilets.
Khanna and Das, 2016, India	The study seeks to understand gender-based sociocultural norms and practices on open defecation among women and structural drivers leading to poor sanitation	Women and some other stakeholders in rural Utta Pradesh.	Qualitative: Focus groups discussions and key informant interviews		Women reported incidence of murder, rape, sexual harassment, physical and verbal assaults during open defecation (OD). Other women were restricted by their families from practicing OD during daytime. Women also expressed concerns of political marginalization and neglect by local government regarding their sanitation. They also reported they lack support from their husbands to construct latrines.

Lahme et al., 2016, Zambia	Explores the factors influencing the experiences and practices of menstrual hygiene among adolescent girls	51 girls aged 13-20 years in the Mongo District, rural/urban.	Qualitative: Focus group discussion		Girls reported fear, discomforts and shame of being ridiculed by male students. They also reported distress related to the socio-cultural norms and practices on menstruation. Lack of functional WaSH facilities for menstrual hygiene practice was also reported.
Tutu and Stoler, 2016, Ghana	The paper seeks to understand the daily lived struggles for water in two slum settlements	Residents of Old Fadama and Old Tulaku, urban.	Qualitative: Focus group discussions	Informality	Water rationing and interrupted flow is a significant cause of water struggles among households. Respondents expressed concerns of disfranchisement, deprivation and neglect by central government regarding the quantity, quality, sufficiency and reliability of water access.
Caruso et al., 2017, India	The paper develops a sanitation insecurity measure for assessing women negative sanitation experiences	Women in 60 rural communities in Odisha.	Mixed methods (Randomised Control Trial): Focus groups, in-depth interviews, and surveys.	-	Women expressed worry of not having adequate facilities to urinate; fear of being harm during urination and defecation; and had to suppress the

					urge to urinate or defecate. Others withheld water and food intake in order to control urinating and defecating respectively.
Cairns et al., 2017, Bolivia, Lesotho and India	Explores gendered outcomes of water development projects	Community members and staff of relevant NGOs in Alto Beni, Maseru District, and Jhabua, rural/urban.	Mixed methods: Focus groups, key informant interviews, participant observation and surveys	Political ecology	Non-remunerated work such as childcare and other household activities hinders women participation in water meetings and activities. In Jhabua, women were coerced by Non-Governmental Organisations (NGOs), and their families to participate in water and sanitation projects. Also, it was revealed that women risked spousal abuse if water works earns them income and status their male partners cannot.
Kulkarni et al., 2017, India	Describes slum-dwelling women's experiences of violence related to lack of sanitation facilities.	Women across different socioeconomic and geographical contexts in Pune, urban.	Qualitative: Focus groups and interviews	-	Women reported to have encountered several forms of violence at their sanitation spaces including, rape, harassment from men,

					and verbal assaults. Reported psychosocial violence included risk of dog and snake bites, fear of accidents, shame of being seen defecating, trauma of sexual assault, and discomfort from using dirty, slippery and poor lit public toilets. However, lower caste women were more likely to experience violence than women of upper caste. Women defecate early in the morning or late at night to protect their privacy. Others travel in pairs to defecation sites or carry stones to defend themselves.
Morgan et al., 2017, Ethiopia, Kenya, Mozambique, Rwanda, Uganda, and Zambia	Examines WaSH access, continuity, quality, quantity and reliability in rural schools in sub-Saharan Africa.	2270 heads of schools in rural communities of Ethiopia, Kenya, Mozambique, Rwanda, Uganda, and Zambia.	Quantitative: Cross-sectional surveys	-	The analysis revealed that: about 1% of rural schools in Ethopia and Mozambique to 23% in Rwanda had improved WaSH services on school premises. Fewer than 23% of the schools met WHO standard of latrine-to-student

					ratios for boys and girls. Less than 20% of the schools had 4 out of the 5 recommended menstrual hygiene services including separate-sex latrines with doors and locks, water for use, waste bin.
O'Reilly et al., 2017, India	The paper examines how remoteness contribute to prevalence of open defecation	Residents of Uttarakhand, rural.	Qualitative: interviews and observation	-	Respondents expressed concerns of political marginalization and neglect, and resentment against government officials regarding their sanitation needs.
Caruso et al., 2018, India	The paper determines the association between women sanitation experiences and mental health	Women in 60 rural communities in Odisha.	Cross-sectional survey	- -	Overall, access to a functional latrine was associated with high mental wellbeing scores. However, women reported higher symptoms of depression, distress and anxiety when urinating or defecating.
Collins et al., 2019, Kenya	Explores the lived experiences of household water insecurity among	Pregnant and postpartum women in Nyanza, rural.	Qualitative: observation, interviews, photovoice	-	Some women (n=18) experienced intimate partner violence during periods of water insecurity.

	pregnant and postpartum women				Water insecurity also exposed women to interpersonal conflicts at the community level. Psychosocial consequences of water insecurity including shame, anxiety, and fear were reported. Further, water insecurity increased households expenditure on water – depleting their savings, and the time spent searching for water constrained women chances to engage in economic/income earning activities. Women prioritised the water needs of their husbands over all other household members.
Cooper-Vince et al., 2018, Uganda	The paper seeks to evaluate the geospatial clustering of water insecurity and risk of depression among men and women	A whole population study of 1814 participants in Mbarara district, rural.	Quantitative: Survey	-	The analysis revealed that residing in a water insecurity hotspot is associated with 70% greater risk for probable depression among women, but not among men.

Pommells et al., 2018, Uganda	This research seeks to understand the risks of gender-violence associated with poor water, sanitation, and hygiene (WaSH) access.	36 respondents (women and men) from Rwanda, Tanzania, Uganda, Kenya.	Qualitative: Focus groups and key informant interviews	-	Respondents mentioned rape and sexual assaults as common forms of violence women and girls are exposed to when accessing their WaSH needs. Domestic violence, and female-female violence were also noted to be common during periods of water insecurity. Due to desperation for water, and poverty, some women and girls are coerced to offer sex or sexual favours in order to facilitate their water access (commodity sex).
Anwar et al., 2020, Pakistan	Explores the everyday politics that contribute to the crisis of water provision at the neighbourhood level	General population of Karachi, urban.	Mixed methods: household surveys, in-depth interviews, media monitoring, and participant photography	Feminist Political Ecology	The analysis revealed that water supply and distribution is determined by power and political interactions across multiple levels. Corruption among government officials was also stated as a major hinderance on water supply. Women experienced violence including

					physical and verbal assaults (intimate partner violence) as a result of water shortages. In sum, respondents described water access as a major psychosocial problem.
Caruso et al., 2020, India	The paper assesses women menstruation concerns and experiences	Women in 60 rural communities in Odisha.	Mixed methods: Focus groups, free-listing interviews and surveys.	-	Women reported having difficulties finding a place to: change menstrual materials, bath during menstruation, dry menstrual cloth and dispose menstrual cloth or pad.
Crankshaw et al., 2020, South Africa	Explores the extent of access to modern sanitary products amongst female high school learners and the challenges that they face in menstrual management in school settings.	Students (male and female), educators, and mothers of female students in Gauteng, rural/urban.	Mixed methods: Focus groups, interviews and surveys.	-	Female students reported discomforts, teasing by male students and fears and anxiety of menses leakage. Lack of adequate WaSH infrastructure for menstrual hygiene management was also a major issues reported by female learners.
Datta and Ahmed, 2020, India	The paper examines how infrastructure disconnectedness or the lack of it causes	Women, policy makers, and town planners in Kerala, urban.	Qualitative: Focus groups, interviews, transect walks, participatory	-	Women reported fear and threats to their personal security when using public toilets and urinals. For

	violence against women		mapping and mental mapping.		instance, deficiencies of sanitation infrastructure (broken doors, faulty door look, and openings in the walls) exposed women to sexual violence. Physical and verbal assaults were also reported to be persistent forms of violence women experience when accessing their WaSH needs.
Mushavi et al., 2020, Uganda	This paper estimates the association between water insecurity and depression severity.	Residents of Nyakabare Parish, rual.	Mixed methods: In-depth interview and survey.	-	Multivariable linear regression analysis showed a positive and significant association between water insecurity and depression symptom severity. The scores were slightly higher for men compared with women. Reported violence resulting from water insecurity included physical and verbal assaults among women at water points, intimate partner violence, and beating of children

					that delayed or failed to fulfill their water fetching obligation. Other psychosocial outcomes such as emotional distress and disrupted interpersonal relations within the household or the community were also reported.

Appendix B: Interview guide

Purpose: To explore experiences and perceptions of WaSH access in Ghana		
Construct	**Question**	**Probe**
Context The questions in this section will guide our discussion on your water, sanitation and hygiene situation and that of your community or household members in Ghana.	Can you tell me about yourself?	Your age, education, ethnicity. Which part of Ghana are you from? Why did you move to Canada? How long have you been in Canada? What are some of the biggest challenges, surprises, and loses for you as an emigrant in Canada?
	What were the greatest development problems in your community?	What were the top three development problems in the community? Why? Was access to safe water and sanitation a development problem in your community?
	How was the water situation in your community?	What were your water sources? What were some of the challenges you encounter when meeting your water needs? How was the water situation of your neighbours? What were some of the challenges they encounter when accessing water? How has this changed over time? How has COVID-19 impacted the water situation?
	What is [has been] the situation regarding access to toilet in your community?	What was the state of access to household latrines in your community? What was the extent of open defecation in your community? What were some of the challenges people encounter in meeting their toilet needs? Did you own a Toilet facility?

		What was the sanitation situation of your neighbours? How has COVID-19 impacted the sanitation situation?
Perception and Experiences of WaSH The questions in this section will help our understanding of how gender shapes water, sanitation and hygiene access and the associated violence.	Did gender influence WaSH access and management in your community/household? If yes, probe.	How did gender influence WaSH access? - Water - Sanitation - Hygiene How different is it in your present community/household?
	Did the nature of access to water expose people to any form of violence? If yes, what kind of violence?	How about structural, physical, sexual and psychosocial violence. Where did the violence occur [e.g on the way to water point, at water point, home etc)? Who were the most vulnerable to violence? Men vs women, boys vs girls. Why were they vulnerable? Who were the perpetrators of GBV and why they did so? How would you rate the incidence of water related violence? How did this change over time?
	Did the nature of access to toilet expose people to any form of violence? If yes, what kind of violence?	How about structural, physical, sexual and psychosocial violence. Where did the violence occur [e.g on the way to toilet, at toilet site etc)? Who were the most vulnerable to violence in WaSH? Men vs women, boys vs girls. Why were they vulnerable? Who were the perpetrators of GBV and why they did so? How would you rate the incidence of sanitation related violence? How did this change over time?
Women empowerment on WaSH	How were issues of WaSH-GBV handled in your community?	Were perpetrators reported or community structures shielded

This section seeks to discuss community initiatives on WaSH and how women are empowered to enhance access to their WaSH needs.		them? Is GBV a community vs household problem?
	How did you solve the water problems?	- Household - Community - Institutions
	What initiatives were taken by the community to empower women on WaSH? What were the challenges?	Can you provide a brief description of these initiatives? How was the progress/success of these initiatives? Did the community structures (chiefs, elders, family heads) support these initiatives?
	Did you receive any external support from any organizations or institutions to promote women empowerment on WaSH?	Can you briefly describe these supports? Which organization/institution supported you? Government vs Non-governmental What are the existing challenges? Were you able to access District Assembly support services?
	Based on your current experience, how would you recommend problems of WaSH be handled.	-At the Individual/household scale -In the community -At the institutional scale
Discussion	Is there anything you would like to discuss?	