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Research Paper

Water insecurity and sexual and gender-based violence among refugee youth: qualitative insights from a humanitarian setting in Uganda

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ABSTRACT

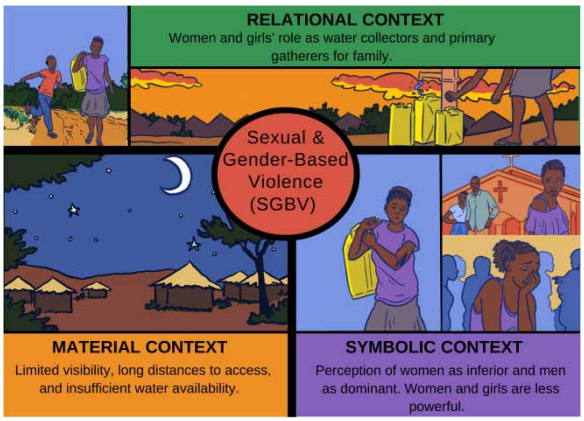
Refugee youth disproportionately experience sexual and gender-based violence (SGBV) and water insecurity, yet their SGBV experiences in the context of water insecurity are understudied. In this qualitative study, we conducted six focus groups ($n = 48$) and in-depth individual interviews (IDI) ($n = 12$) with refugee youth aged 16–24, and IDI with refugee elders ($n = 8$) in Bidi Bidi Refugee Settlement, Uganda. We applied thematic analysis informed by a social contextual framework and found that (1) SGBV is gendered, whereby adolescent girls and young women (AGYW) were targets for violence (symbolic context), and is intertwined with gender norms linked to AGYW's water collection roles (relational context); (2) water scarcity and off-site access to water infrastructure, combined with limited lighting, provide insecure environments that exacerbate AGYW's SGBV risks (material context); (3) participant generated solutions to water insecurity-related SGBV included engaging men and communities in dialogue and water collection (relational context), technology (e.g., solar lighting), improved security, and additional water points (material context). Findings signal the need to integrate water and sanitation hygiene development with SGBV prevention and sexual health (e.g., post-rape care) interventions. Refugee youth and communities should be meaningfully engaged in developing contextually relevant, gender transformative services to mitigate SGBV risks and advance health and rights.

Key words: refugees, self-care, sexual and gender-based violence, WASH, water insecurity, youth

HIGHLIGHTS

- Water insecurity-related sexual and gender-based violence (SGBV) research rarely includes refugees.
- Refugee adolescent girls and young women experience SGBV interwoven with their social roles as water collectors.
- WASH programs can focus on community mobilization and integration with SGBV prevention and care.

GRAPHICAL ABSTRACT



INTRODUCTION

There are approximately 89.3 million forcibly displaced persons globally (UNHCR 2021a) who experience social and geographic disparities in accessing water and sanitation resources (Calderón-Villarreal *et al.* 2022). Lack of access to water can cause multiple psychosocial stressors, including exposure to sexual and gender-based violence (SGBV) (Bisung & Elliott 2017; Wutich *et al.* 2020). Water insecurity can exacerbate poverty and contribute to poor social, health, and well-being outcomes (Patrick 2021; Coughlin *et al.* 2022; Nunbogu & Elliot 2022) that may disproportionately affect girls and women – signaling the need to attend to the 'water–gender–health' nexus (Pouramin *et al*. 2020) among refugees.

Girls and women, in particular, experience a high burden of household water management including water-based chores (i.e., cooking and cleaning) and water collection (i.e., fetching household water), and may receive blame and/or violence when insufficient water access disrupts household expectations (Geere *et al.* 2018; Brewis *et al*. 2019; Pouramin *et al.* 2020). Research has consistently revealed that water insecurity is associated with increased risk of SGBV. A scoping review in non-humanitarian contexts identified four types of water, sanitation, and hygiene (WASH)-related SGBV, including (i) structural (e.g., political marginalization); (ii) physical (e.g., assault); (iii) psychological (e.g., shame and fear), and (iv) sexual violence (e.g., rape) (Nunbogu & Elliott 2022). Existing research reports sexual violence concerns on journeys to collect firewood, water, or other household resources (Mukuhlani & Nyamupingidza 2014; Bisung & Elliott 2016; Krumdieck *et al.* 2016; Bisung & Elliott 2017; Pouramin *et al*. 2020). Evaluating the sustainability of sanitation systems is essential to improving health outcomes, addressing resource scarcity, and preventing SGBV. Indexes such as the sanitation sustainability index (SSI), the water and sanitation sustainability index (WASSI), or the WaSH performance index are useful tools for ensuring adequate, equitable, and sustainability sanitation, thereby proactively managing the risk of WASH-related SGBV (Cronk *et al.* 2015; Iribarnegaray *et al.* 2015; Hashemi 2020).

There is insufficient research explicitly examining experiences of water insecurity-related SGBV among refugee adolescents and youth who may experience water scarcity (Calderón-Villarreal *et al*. 2022) and a high prevalence of SGBV before, during, and following conflict-related migration (Stark *et al.* 2017; Logie *et al*. 2019a). Refugee youth, however, are situated at the nexus of water insecurity-related stressors and SGBV risks. Uganda provides the context to explore this water–gender–violence nexus among refugees as the largest refugee hosting nation in Africa with more than 1.5 million refugees (UNHCR 2021b) and an environment where drought and water scarcity exist (Mukasa *et al*. 2020). Environmental safety issues in refugee camps, such as exposure to violence while collecting firewood, have been noted across diverse geographical contexts (Robbers & Morgan 2017). In Uganda, outside of refugee contexts, water insecurity has been associated with increased risk of emotional distress (Mushavi *et al.* 2020), sexual violence (Pommells *et al.* 2018), and missed educational opportunities (Cooper-Vince *et al.* 2017).

This study addressed knowledge gaps regarding the lived experiences of water insecurity-related SGBV among refugee youth (Bisung & Elliott 2017; Pouramin *et al*. 2020). To this end, this study aims to explore (a) experiences of SGBV related to water access and (b) coping strategies and suggested innovations and solutions to mitigate the water insecurity-related risks of SGBV among refugee youth in Bidi Bidi Refugee Settlement, Uganda.

METHODS

Study design and setting

This qualitative study was conducted in February 2020 among refugee youth and elders living in Bidi Bidi Refugee Settlement, Uganda. We conducted (a) six focus groups with refugee youth aged 16–24, three groups were held with adolescent girls and young women (AGYW) and three groups with adolescent boys and young men (ABYM); (b) 12 in-depth individual interviews with refugee youth aged 16–24 who had lived experience of SGBV, including six with AGYW women and six with ABYM; and (c) eight in-depth individual interviews with refugee elders who were identified by youth peer navigators as older, respected people in their community.

Bidi Bidi, among the largest refugee settlements in the world, has approximately 240,000 residents with 25% of the population comprised of youth aged 15–24 and 52% women. The majority of residents are from South Sudan (Refugee Statistics February 2022 – Bidi Bidi 2022). This study was a collaboration between academics, Uganda's Ministry of Health, and a community-based partner (Uganda Refugee and Disaster Management Council, URDMC) who provide border resettlement services, collection, and transit centers for newly arrived refugees, and social and livelihood programs with refugee youth in Bidi Bidi.

Data collection

Working with URDMC, we hired and trained eight peer research assistants (PRA) who were refugees themselves aged 18–24 living in Bidi Bidi Zone 3 and fluent in English, Juba Arabic, and Bari. The study team provided training in research methods and research ethics, including confidentiality to PRA. PRA conducted convenience sampling, using word of mouth and snowball sampling, to recruit youth and elder study participants from their social networks. URDMC also shared study information with collaborators and other community agencies and community leaders.

Focus groups and individual interviews were conducted by trained qualitative researchers; a trained translator was present to translate from Juba Arabic to English if the participant did not speak English or Luganda (the two languages spoken by the researchers). Participants received an honorarium of 36,000 Ugandan shillings (~10 USD) to cover transportation, childcare, or other costs for travelling to and attending the data collection activities. In-depth interviews and focus group discussions explored key themes including, but not limited to, resource scarcity, gender roles, personal relationships, experiences of SGBV, and community responses to violence. The same questions were asked across data collection methods to enhance triangulation across data sources, including 'What is the situation of sexual and gender-based violence like in Bidi Bidi settlement?', 'What are some of the causes behind sexual and gender-based violence in your community?', 'Who is most vulnerable to sexual and gender-based violence in your community?', 'What is done to prevent violence in your community? How could these efforts be improved?' Focus groups lasted between 45 and 60 min and in-depth individual interviews lasted 30 min. Inclusion criteria were (a) identifying as a refugee living in Bidi Bidi; (b) for refugee youth, identifying as being aged 16–24, and for refugee elders, identified as being over 50 years old and/or someone who was an elder person; (c) fluent in English, Luganda, or Juba Arabic; (d) for youth individual interviews, identifying as ever having experienced SGBV in their lifetime; and (e) able to give informed consent.

Data management and analysis

Data were digitally recorded, transcribed verbatim, and then translated into English for analysis. Translations were shared with peer navigators to ensure accuracy and validity. We applied thematic analysis, an approach that is theoretically flexible and includes both deductive and inductive analysis (Attride-Stirling 2001; Braun & Clarke 2006). We followed the steps detailed in this analytic approach, including becoming familiar with the data by reading and re-reading across multiple authors, applying codes of water access/security and violence to the data systematically across the dataset, exploring the ways that codes could be organized into larger themes, reviewing the themes across the dataset to create a thematic map, refining the themes and the overarching narrative communicated by the analysis, and extracting quotations and presenting the final report (Braun & Clarke 2006).

We applied a contextual analysis informed by conceptualizations of social environments that are health enabling and comprised of (a) *symbolic contexts*, the ways in which socio-cultural norms, values, and expectations construct who and what is de/valued (e.g., in/equitable gender norms); (b) *material contexts*, including resources for survival, e.g., food, water, and employment; and (c) *relational contexts* that include social capital, social networks, and the ability to realize social participation and influence (Campbell & Cornish 2012; Gibbs *et al.* 2018).

RESULTS

Participant characteristics

Participant demographic characteristics are reported in Table 1. Among youth ($n = 60$; mean age: 20.7 years, standard deviation (SD): 2.16), half were young women ($n = 30/60$) and half young men ($n = 30/60$). Most were from South Sudan ($n = 50/60$), with the remaining from the Democratic Republic of Congo (DRC) ($n = 10/60$). Among elder participants (mean age 58.2 years, SD: 3.88; 4/8 women, 4/8 men), most were from South Sudan ($n = 7/8$).

Contexts of water insecurity-related SGBV

Key findings across participant narratives were (1) violence is gendered, whereby adolescent girls and young women (AGYW) were targets for violence (reflecting the *symbolic context* of gender ideologies and who is valued and respected and afforded dignity and worth (Campbell & Cornish 2012)), and this violence is intertwined with gender norms whereby AGYW's roles and expectations were to collect water for the household (signifying the *relational context*, where social systems of relationships are shaped by gender ideologies (Gibbs *et al.* 2017)) and (2) water scarcity resulted in AGYW walking long distances and late at night to collect water, often with limited visibility due to the lack of lighting and bushes, and this, in turn, exacerbated concerns of violence (exposing the *material context*, the ways in which agency among people in poverty is shaped by

Table 1 | Sociodemographic characteristics of IDI and focus group participants ($n = 78$) in Bidi Bidi Refugee Settlement, Uganda

	Focus group youth ($n = 48$)	IDI youth ($n = 12$)	IDI elders ($n = 8$)
Age (mean)	20.9	19.9	58.2
Range (minimum–maximum)	16–24	16–24	50–62
Gender (n (%))			
Man	24 (50)	6 (50)	4 (50)
Woman	24 (50)	6 (50)	4 (50)
Country of birth (n (%))			
South Sudan	41 (85.4)	9 (75)	7 (87.5)
DRC	7 (14.6)	3 (25)	1 (12.5)
Duration of years in Uganda (mean)	2.05	2.4	2
Range (minimum–maximum)	0.5–4	1–4	1–5
Immigration status (n (%))			
Refugee	91 (91.7)	12 (100)	8 (100)
Undocumented	4 (8.3)	–	–
Level of education (n (%))			
Less than primary	15 (31.2)	3 (25)	2 (25)
Less than secondary	21 (43.7)	8 (67)	3 (37.5)
Completed secondary	8 (16.7)	–	2 (25)
Attended technical college	2 (4.2)	–	–
Some university	2 (4.2)	–	1 (12.5)
University degree	–	1 (8)	–
Current employment status (n (%))			
Unemployed	19 (39.6)	2 (20)	–
Looking for work	17 (35.4)	8 (80)	6 (75)
Employed	3 (6.2)	–	2 (25)
Student (not employed)	1 (2.1)	–	–
Self-employed	8 (16.7)	–	–

access to resources (Campbell & Cornish 2012)). These key themes are illustrated in Figure 1. We describe each of these contexts in the below sections.

Water insecurity-related SGBV: symbolic and relational contexts

The ways in which violence was gendered, overwhelmingly targeting girls and women, were discussed alongside the gender roles of girls and women as collectors of water and firewood that elevated their exposure to SGBV. A young woman explained, 'Here in Bidi Bidi the cases of SGBV are common as many girls and women are victims as they go to fetch firewood in the forest and also to fetch water such cases can be raped' (young women, focus group [FG] 2). A young man's statement corroborated this, also discussing how this violence can be directed toward young women collecting firewood/water in both the refugee settlement as well as in host national land: 'SGBV do happen in this community both among the host community and refugee settlement in Bidi Bidi as the girls face more of these cases of rape in their way to fetch water and collect firewood' (young men, FG 2).

Some participants described that sexual violence was increasing in Bidi Bidi, for instance: 'In Bidi Bidi settlement the sexual and gender-based violence happens here, for instance cases of rape are on high increase in this settlement especially when the girls go to fetch water' (elder, man, individual in-depth interview [IDI] 7). This perception of sexual violence as an increasing problem was also discussed alongside perspectives that violence, in general, toward women was increasing: 'The rate of sexual and gender-based violence is still on the rise in Bidi Bidi, these include child abuse, rape, fighting between a woman and a man, at times when these girls go to fetch water men try to rape them' (young man, IDI, 11). Despite perceived increases in SGBV, participants discussed a lack of justice:

> 'A survivor was among the many girls that were waylaid while from collecting water and she happened to be the culprit of rape. He[r] friend ran off and in the process the person scared her with a panga [machete] and raped her and she reported to her mother; unfortunately, she conceived after the incident. (Young man, IDI, 5).'

This narrative also described unplanned pregnancies as a negative consequence of sexual violence.

Water insecurity-related SGBV: material context

The physical environment was also discussed as a context that facilitated SGBV for girls and women who were collecting water and firewood. For instance, participant narratives spoke to limited visibility due to women's journeys in the night and a lack of lighting, as well as bushes. As an elder described:

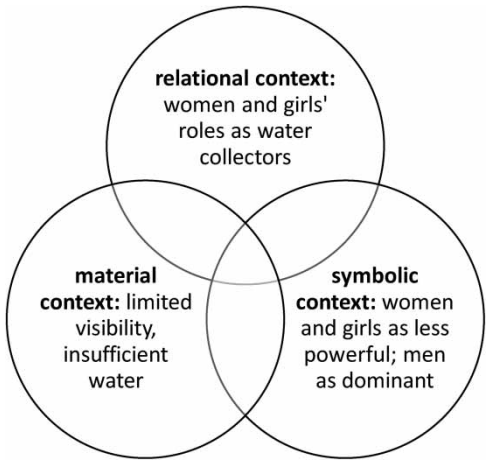


Figure 1 | Conceptual framework of water insecurity-related contexts of SGBV among refugee adolescents and youth in Bidi Bidi Refugee Settlement, Uganda.

'The young boys rape girls in the night who move to discos, video halls and even returning from fetching water, firewood. The places are bushy where they get firewood from, which is why the bad men can easily hide there waiting for the girls and women who at times move alone (elder, woman, IDI 2).'

This narrative also noted that risks were higher for women walking alone. Others discussed limited lighting and darkness as risks for violence, largely due to collection in the night: 'Rape cases occur when women return late from the market, when collecting firewood or fetching water' (elder, man, IDI 6) and 'SGBV doesn't only happen during collection of firewood but also at water sources, dark places and during disco dances etc.' (young women, FG 1).

Finally, participants noted that the long distances needed to walk to get water was a safety risk. In response to being asked about causes of violence, an elder (man, IDI 7) described: 'among the young girls, are the long distances to water places.' This may be particularly true in the dry season when persons may need to walk further: 'The water sources are insufficient due to dry season which exposes the women to dangers of being raped in the night as they fetch the water from far places' (elder, man, IDI 5).

Participant identified solutions to water insecurity-related SGBV

Participants also shared their perspectives on solutions for reducing water insecurity-related SGBV. In the relational context, participants discussed ongoing activities including dialogue, men sharing water collection responsibilities and/or accompanying girls and women during collection, and changing the timing of water collection. In the material context, narratives focused on unmet needs for water sources, lighting/visibility, and security. These findings, illustrated in Figure 2, are detailed below.

Solutions to water insecurity-related SGBV: relational context

Participant narratives discussed community-based initiatives underway to reduce the issues of water insecurity-related SGBV. A common discussion was regarding men walking with girls and women for collecting water, (violence) as discussed by an elder: 'Some men escort the women to collect firewood, fetch water, people are positive in supporting to prevent, by closing water sources early, to encourage women to return home early' (elder, man, IDI 6). This narrative also discussed closing water sources early, corroborated by another elder:

'The water sources are closed early to prevent women from fetching late in the night. We have tried to restrict the video halls and discos on ages of those that are allowed in, and the hours of operation. We have advised and sensitized families who employ their young girls to sell alcohol to stop. The men have been advised to move with their women to collect firewood. We have tried to hold frequent dialogues with the community members (elder, man, IDI 5).'

Another participant discussed a change in gender roles, whereby men collect the water and firewood: 'Men now go to fetch water and firewood in order to protect the women from being raped or assaulted during such scenarios' (young men, FG 3).

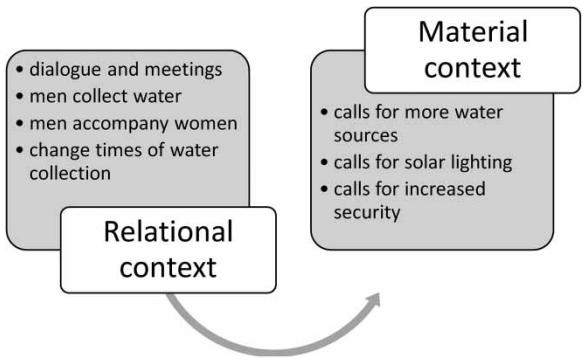


Figure 2 | Conceptual framework of water insecurity-related solutions to mitigate SGBV among refugee adolescents and youth in Bidi Bidi Refugee Settlement, Uganda.

Participants also discussed the centrality of community engagement in developing these violence mitigation strategies. For instance, an elder discussed community dialogue across multiple sites:

> 'There is sensitization to prevent violence through meeting, dialogues, churches, markets and even radio stations. The community dialogues normally have topics to do with co-existence with the host communities. They have stopped videos halls from operating till late to avoid the young girls who go there from getting trapped in the right. The men have been encouraged to escort their daughters and wives to fetch water and firewood. (Elder, woman, IDI 2)'

Another perspective recommended by a young woman included community awareness, physical accompaniment for water collection, as well as supporting survivors of violence and seeking justice and punishments for perpetrators:

> 'Creation of awareness and sensitization. Girls need to be advised not to move alone to fetch water or firewood, women not to stay alone in dark places. Immediate and appropriate punishments should be given to the perpetrators instead of providing continuous advice, some people take things for granted. Many partners also need to provide help as well for the victims for quick solutions (young woman, IDI 7).'

Solutions to water insecurity-related SGBV: material context

The most common solution raised regarding reducing violence when collecting water was additional water sources. Participants described wanting water sources in closer proximity to communities: 'I would like to see the water points brought closer to people especially in communities where most of girls and women are raped' (young women, FG 2) and 'implementing partners on issues of water should bring water closer to community' (young men, FG 3). Others noted the need for increased water supply: 'Water resources need to be increased to serve the community better' (elder, man, IDI 5).

The other aspiration was regarding the need for additional security. This was discussed in relation to security alongside lighting pathways to water sources: 'Security should be improved and tightened, dark places in the community, boreholes and water sources pathways should all be with light (solar)' (young women, FG 1). In another narrative, a young woman discusses community requests for closer water sources and security: 'The community sometimes talks to leaders to provide water sources near and they also talk about providing security in the area' (young women, FG 2).

DISCUSSION

Study findings revealed that refugee AGYW were often the targets for violence while collecting water and other household survival resources such as firewood, and this violence was interwoven with their social roles as water and firewood collectors. In this way, symbolic contexts of who is valued and afforded dignity – such as bodily autonomy – reflect inequitable gender norms whereby AGYW are largely targets of violence perpetrated by men (Tannenbaum *et al*. 2016). This violence is enacted during the fulfillment of socially prescribed gender roles for AGYW to collect water, thus reflecting the ways in which the relational context of gender norms that categorize AGYW's actions, roles, and expectations (e.g., as water collectors) are entangled with larger symbolic contexts that structure their inequitable access to power and constrain sexual well-being. Sexual health and well-being include the right to be free from violence and to realize sexual safety and security, sexual respect, and sexual rights (Mitchell *et al.* 2021). The physical environment and the lack of WASH infrastructure played a role in exacerbating SGBV exposure, as many persons had to walk long distances for water, dry seasons made water particularly difficult to access, and there was limited visibility during water collection due to a lack of lighting and thick bushes (Figure 1). At the same time, participants discussed the potential of community mobilization to mitigate risks of SGBV and articulated WASH infrastructure needs (Figure 2). Together these findings add to the larger WASH-GBV literature by highlighting the lived experiences and aspirations for change among refugee adolescents and youth.

Findings corroborate prior research in non-humanitarian contexts that reveal the interactions between socio-cultural (e.g., gender roles), structural (e.g., power relations), and environmental (e.g., distance) factors that shape risks for WASH-related SGBV (Nunbogu & Elliott 2022). Participant narratives also align with descriptions of WASH-related physical stressors (long distance walking to a water source, insufficient water), social stressors (fear and experiences of sexual assault), and stressors linked with perceived inequities (related to patterns of access and population- or group-specific water shortages) alongside coping (community dialogue and mobilization) (Bisung & Elliott 2017). Our findings of water-related SGBV vulnerabilities

add to the literature on environmental safety issues in refugee camps such as firewood collection and signal the need for additional focus on water insecurity-related SGBV (Robbers & Morgan 2017).

Findings from a scoping review in non-humanitarian settings identified individual and collective strategies enacted to cope with WASH-GBV, noting that women managed sanitation insecurity by defecating with the safety of accompaniment by husbands and male household members (Nunbogu & Elliott 2022). Our finding that girls and women engaged men in collecting water and/or accompanying them to collect water to increase safety similarly reflects men's engagement in challenging SGBV through shifting gender relations and gender roles. Other studies in different contexts note the shifting roles of men to address water insecurity-related SGBV. For example, adjusting gender roles within families emerged as an adaptive strategy to combat water challenges in India, where men participated in water collection to protect women from experiencing sexual violence (Singh & Singh 2015). Other coping strategies for water insecurity, including at the individual (e.g., water reuse) and community (e.g., water sharing) level (Nunbogu & Elliott 2022), did not emerge in participant narratives. Coping strategies that emerged among participants in our study included community mobilization to prevent water collection in the evening, community dialogues to raise awareness of water-related SGBV, and men's engagement in supporting women and girls in water collection. These coping differences could be due to our study's focus on youth compared to adults, or the refugee context itself, where the strategies that emerged focused on individual household relational contexts as well as on calls for external provision of infrastructure (more water points, solar lighting) and security.

Calls for additional lighting and security to reduce SGBV risks have been noted among youth in other humanitarian contexts, such as with forcibly displaced youth in Haiti (Logie *et al.* 2016). In fact, these calls shared by study participants align with recommendations in 'The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response' (Sphere Association 2018) for water points no more than 500 m from dwellings and for adequate lighting around WASH infrastructure to help with security. Our participants noted that changes in relational contexts were already underway – signaling the agency enacted even in situations with constrained access to resources and power (Logie & Daniel 2016; Nunbogu & Elliott 2022) – while participant suggestions for the material context were aspirational and expressed changes they wanted to see enacted by government, non-government, or other humanitarian actors.

Notably, participant narratives in our study regarding water insecurity-related SGBV reduction strategies did not discuss changing the inequitable gender norms that drive violence targeting AGWY – reflective of the symbolic context (Campbell & Cornish 2012). As water insecurity and its impacts are amplified by gender-unequal norms, water insecurity interventions need to address root causes of gender-inequity (Mushavi *et al.* 2020). Successful programs for addressing water insecurity in non-refugee contexts aim to increase high-quality water supplies and decrease distances to water. Not only does decreasing distance reduce SGBV risks, it addresses the time burden associated with water collection and increases the amount of water fetched, thereby impacting health outcomes that are affected by the lack of adequate and clean sources of water (Cassivi *et al.* 2018, 2019; Alexander & Córdova 2021). Reviews of programs to prevent and respond to sexual violence in refugee settings do not explicitly mention water security but do advocate for changing inequitable gender norms and community-based responses (Robbers & Morgan 2017) and address firewood-related SGBV (Spangaro *et al.* 2013, 2021). A review specifically on SGBV reduction and empowerment among adolescent girls in humanitarian settings notes a paucity of evidence-based interventions, with promising approaches focused on safe space creation and social asset building (Noble *et al.* 2019). Future research that integrates WASH-GBV issues focused on refugee youth is needed. This research can address the integration of youth-friendly WASH, SGBV prevention, and post-rape clinical care including self-care sexual and reproductive health strategies such as emergency contraception, HIV self-testing, and post-exposure prophylaxis (Logie *et al.* 2019b).

This study has limitations. We did not explicitly examine all dimensions of violence noted as important to WASH-GBV, including psychological and structural violence (Nunbogu & Elliott 2022). As the focus was on SGBV risk factors at large, we did not explicitly explore sanitation insecurity-related violence or menstruation insecurity. We did not interview humanitarian actors focused on WASH, and this could provide insights into contextually specific challenges and opportunities. Climate change and extreme weather events affect water insecurity (Thurston *et al.* 2021), and future research should explicitly examine impacts of climate change on WASH-GBV among youth in humanitarian contexts. Despite these limitations, our study shows the importance of examining and addressing water insecurity-related SGBV among refugee youth in a large humanitarian context. By triangulating refugee youth experiences across methods (individual interviews and focus groups) and perspectives (AGYW, ABYM, elders), we increased the robustness of findings.

CONCLUSION

These findings signal the urgent need to better understand and address water insecurity-related risks for SGBV among refugee youth. While WASH-GBV stressors are well articulated in non-humanitarian contexts (Bisung & Elliott 2017; Pouramin *et al.* 2020; Wutich 2020; Nunbogu & Elliott 2022), there is a dearth of literature on environmental-related SGBV risk factors in refugee contexts that include water insecurity. Refugee youth perspectives are also understudied in WASH-GBV, as youth is a key developmental phase and refugees already have elevated exposure to violence (Stark & Ager 2011; Stark *et al.* 2017; Logie *et al.* 2019a), addressing the water–gender–violence nexus among refugee youth is key to their long-term healthy development (Malti 2020). Empowerment in WASH programs can include capacity building – including collective problem-solving; community engagement in decision-making, with attention to the needs and rights of youth; and integration of WASH programming with sexual health and post-rape care services, including self-care options (Narasimhan *et al.* 2019; Dery *et al.* 2020; Tsekleves *et al.* 2022). Future research can engage refugee youth in ways that foster empowerment in WASH-SGBV prevention and care. Community-based programs that integrate contextually specific WASH-related SGBV risk reduction and SGBV care, gender transformative approaches for transforming inequitable gender norms, and youth leadership and empowerment, have the potential to advance sexual health, rights, and well-being for refugee youth.

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AUTHOR CONTRIBUTIONS

C.H.L. was the principal investigator and conceptualized the study and manuscript, led funding acquisition, wrote the article, and contributed to the data analysis. M.O. significantly contributed to the study design, funding acquisition, data collection, and contributed to the manuscript writing and data interpretation. M.C. helped with data analysis, literature review, and contributed to writing analysis. M.L. helped with data collection, data analysis, and contributed to writing the manuscript. M.N. contributed to writing and editing. D.K.M. and S.O.L. contributed to study design, led data collection and study administration, and contributed to data interpretation and writing. S.O.L. and N.K. also led participant recruitment. N.K., P.K., C.D., and L.T. contributed to data interpretation and writing. All authors read and approved the final manuscript.

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ETHICS APPROVAL

The study was approved by the Research Ethics Boards at the University of Toronto, Mildmay Uganda (#REC REF-0221-2019) and Uganda National Council for Science and Technology (#SS- 5273). All participants provided informed consent to participate in the study.

DATA AVAILABILITY STATEMENT

Data cannot be made publicly available; readers should contact the corresponding author for details.

CONFLICT OF INTEREST

The authors declare there is no conflict.

REFERENCES

Alexander, K. & Córdova, A. 2021 Alleviating poverty through sustainable industrial water use: a watersheds perspective. In: *Sustainable Industrial Water Use: Perspectives, Incentives, and Tools*. IWA Publishing, pp. 25–34. https://doi.org/10.2166/9781789060676_0025.

Attride-Stirling, J. 2001 Thematic networks: an analytic tool for qualitative research. *Qualitative Research* **1** (3), 385–405. https://doi.org/10.1177/146879410100100307.

Bisung, E. & Elliott, S. J. 2016 'Everyone is exhausted and frustrated': exploring psychosocial impacts of the lack of access to safe water and adequate sanitation in Usoma, Kenya. *Journal of Water, Sanitation and Hygiene for Development* **6** (2), 205–214. https://doi.org/10.2166/washdev.2016.122.

Bisung, E. & Elliott, S. J. 2017 Psychosocial impacts of the lack of access to water and sanitation in low- and middle-income countries: a scoping review. *Journal of Water and Health* **15** (1), 17–30. https://doi.org/10.2166/wh.2016.158.

Braun, V. & Clarke, V. 2006 Using thematic analysis in psychology. *Qualitative Research in Psychology* **3** (2), 77–101. https://doi.org/10.1191/1478088706qp063oa.

Brewis, A., Choudhary, N. & Wutich, A. 2019 Low water access as a gendered physiological stressor: blood pressure evidence from Nepal. *American Journal of Human Biology* **31** (3), e23234. https://doi.org/10.1002/ajhb.23234.

Calderón-Villarreal, A., Schweitzer, R. & Kayser, G. 2022 Social and geographic inequalities in water, sanitation and hygiene access in 21 refugee camps and settlements in Bangladesh, Kenya, Uganda, South Sudan, and Zimbabwe. *International Journal for Equity in Health* **21** (1). https://doi.org/10.1186/s12939-022-01626-3.

Campbell, C. & Cornish, F. 2012 How can community health programmes build enabling environments for transformative communication? Experiences from India and South Africa. *AIDS and Behavior* **16** (4), 847–857. https://doi.org/10.1007/s10461-011-9966-2.

Cassivi, A., Johnston, R., Waygood, E. O. D. & Dorea, C. 2018 Access to drinking water: time matters. *Journal of Water and Health* **16** (4), 661–666. https://doi.org/10.2166/wh.2018.009.

Cassivi, A., Guilherme, S., Bain, R., Tilley, E., Waygood, E. O. D. & Dorea, C. 2019 Drinking water accessibility and quantity in low and middle-income countries: a systematic review. *International Journal of Hygiene and Environmental Health* **222** (7), 1011–1020. https://doi.org/10.1016/j.ijheh.2019.06.011.

Cooper-Vince, C. E., Kakuhikire, B., Vorechovska, D., McDonough, A. Q., Perkins, J, Venkataramani, A. S., Mushavi, R. C., Baguma, C., Ashaba, S., Bangsberg, D. R. & Tsai, A. C. 2017 Household water insecurity, missed schooling, and the mediating role of caregiver depression in rural Uganda. *Global Mental Health* **4**. https://doi.org/10.1017/gmh.2017.14.

Coughlin, L. L., Schurer, J. M., Umubyeyi, C., Sijenyi, S., Arif, K., Niyonkuru, V. U., Byiringiro, E., Lutz, N., Korukire, N., Murcott, S. & Amuguni, H. J. 2022 A one health evaluation of water, sanitation, and hygiene (WASH) services in Butaro Sector, Rwanda. *Journal of Water Sanitation and Hygiene for Development* **12** (3), 286–301. https://doi.org/10.2166/washdev.2022.204.

Cronk, R., Luh, J., Meier, B. J. & Bartram, J. 2015 *The Water, Sanitation, and Hygiene Performance Index: A Comparison of Country Performance in Realizing Universal WaSH*. The Water Institute at UNC, Chapel Hill, NC. https://waterinstitute.unc.edu/projects/wash-performance-index-report.

Dery, F., Bisung, E., Dickin, S. & Dyer, M. 2020 Understanding empowerment in water, sanitation, and hygiene (WASH): a scoping review. *Journal of Water Sanitation and Hygiene for Development* **10** (1), 5–15. https://doi.org/10.2166/washdev.2019.077.

Geere, J. L., Cortobius, M., Geere, J. H., Hammer, C. C. & Hunter, P. R. 2018 'Is water carriage associated with the water carrier's health? A systematic review of quantitative and qualitative evidence'. *BMJ Global Health* **3** (3), e000764. https://doi.org/10.1136/bmjgh-2018-000764.

Gibbs, A., Jewkes, R. & Sikweyiya, Y. 2017 'I tried to resist and avoid bad friends': the role of social contexts in shaping the transformation of masculinities in a gender transformative and livelihood strengthening intervention in South Africa. *Men and Masculinities* **21** (4), 501–520. https://doi.org/10.1177/1097184X17696173.

Hashemi, S. 2020 Sanitation sustainability index: a pilot approach to develop a community-based indicator for evaluating sustainability of sanitation systems. *Sustainability (Switzerland)* **12** (17). https://doi.org/10.3390/SU12176937.

Iribarnegaray, M. A., D'Andrea, M. L. G., Rodriguez-Alvarez, M. S., Hernández, M. E., Brannstrom, C. & Seghezzo, L. 2015 From indicators to policies: open sustainability assessment in the water and sanitation sector. *Sustainability (Switzerland)* **7** (11), 14537–14557. https://doi.org/10.3390/su71114537.

Krumdieck, N. R., Collins, S. M., Wekesa, P., Mbullo, P., Boateng, G., Onono, M. & Young, S. L. 2016 Household water insecurity is associated with a range of negative consequences among pregnant Kenyan women of mixed HIV status. *Journal of Water and Health* **14** (6), 1028–1031. https://doi.org/10.2166/wh.2016.079.

Logie, C. H. & Daniel, C. A. 2016 'My body is mine': qualitatively exploring agency among internally displaced women participants in a small-group intervention in Leogane, Haiti. *Global Public Health* **11** (1–2), 122–134. https://doi.org/10.1080/17441692.2015.1027249.

Logie, C. H., Daniel, C., Ahmed, U. & Lash, R. 2016 'Life under the tent is not safe, especially for young women': understanding intersectional violence among internally displaced youth in Leogane, Haiti. *Global Health Action* **10** (Suppl 2), 1270816. https://doi.org/10.1080/16549716.2017.1270816.

Logie, C. H., Okumu, M., Mwima, S., Hakiza, R., Irungi, K. P., Kyambadde, P., Kironde, E. & Narasimhan, M. 2019a Social ecological factors associated with experiencing violence among urban refugee and displaced adolescent girls and young women in informal settlements in Kampala, Uganda: a cross-sectional study. *Conflict & Health* **13**, 60.

Logie, C. H., Khoshnood, K., Okumu, M., Rashid, S. F. R., Senova, F., Meghari, H. & Kipenda, C. U. 2019b Self-care interventions could advance sexual and reproductive health in humanitarian settings. *BMJ* l1083. https://doi.org/10.1136/bmj.l1083.

Malti, T. 2020 Children and violence: nurturing social-emotional development to promote mental health. *Social Policy Report* **33** (2). https://doi.org/10.1002/sop2.8.

Mitchell, K. R., Lewis, R., O'Sullivan, L. F. & Fortenberry, J. D. 2021 What is sexual wellbeing and why does it matter for public health? *The Lancet Public Health [Preprint]*. https://doi.org/10.1016/s2468-2667(21)00099-2.

Mukasa, J., Olaka, L. & Said, M. Y. 2020 Drought and households' adaptive capacity to water scarcity in Kasali, Uganda. *Journal of Water and Climate Change* **11** (S1). https://doi.org/10.2166/wcc.2020.012.

Mukuhlani, T. & Nyamupingidza, M. 2014 Water scarcity in communities, coping strategies and mitigation measures: the case of Bulawayo. *Journal of Sustainable Development* **7** (1), 144. https://doi.org/10.5539/jsd.v7n1p144.

Mushavi, R. C., Burns, B. F. O., Kakuhikire, B., Owembabazi, M., Vořechovská, D., McDonough, A. Q., Cooper-Vince, C. E., Baguma, C., Rasmussen, J. D., Bangsberg, D. R. & Tsai, A. C. 2020 'When you have no water, it means you have no peace': a mixed-methods, whole-population study of water insecurity and depression in rural Uganda. *Social Science and Medicine* **245**. https://doi.org/10.1016/j.socscimed.2019.112561.

Narasimhan, M., Allotey, P. & Hardon, A. 2019 Self-care interventions to advance health and wellbeing: a conceptual framework to inform normative guidance. *BMJ* **365**, l688. https://doi.org/10.1136/bmj.l688.

Noble, E., Ward, L., French, S. & Falb, K. 2019 State of the evidence: a systematic review of approaches to reduce gender-based violence and support the empowerment of adolescent girls in humanitarian settings. *Trauma, Violence & Abuse* **20** (3), 428–434. https://doi.org/10.1177/1524838017699601.

Nunbogu, A. M. & Elliot, 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*. https://doi.org/10.1016/j.wasec.2022.100113.

Patrick, H. O. 2021 Climate change and water insecurity in rural uMkhanyakude district municipality: an assessment of coping strategies for rural South Africa. *H2Open Journal* **4** (1), 29–46. https://doi.org/10.2166/H2OJ.2021.009.

Pommells, M., Schuster-Wallace, C., Watt, S. & Mulawa, Z. 2018 Gender violence as a water, sanitation, and hygiene risk: uncovering violence against women and girls as it pertains to poor WaSH access. *Violence Against Women* **24** (15), 1851–1862. https://doi.org/10.1177/1077801218754410.

Pouramin, P., Nagabhatla, N. & Miletto, M. 2020 A systematic review of water and gender interlinkages: assessing the intersection with health. *Frontiers in Water*. https://doi.org/10.3389/frwa.2020.00006.

Refugee Statistics February 2022 – Bidibidi 2022 Available from: https://data2.unhcr.org/en/documents/details/91322 (accessed 26 May 2022).

Robbers, G. M. L. & Morgan, A. 2017 Programme potential for the prevention of and response to sexual violence among female refugees: a literature review. *Reproductive Health Matters* **25** (51), 69–89. https://doi.org/10.1080/09688080.2017.1401893.

Singh, N. & Singh, O. P. 2015 Climate change, water and North-Eastern Hills of India. *International Social Work* **58**, 375–384. https://doi.org/10.1177/0020872814556826.

Spangaro, J., Adogu, C., Ranmuthugala, G., Davies, G. P., Steinacker, L. & Zwi, A. 2013 What evidence exists for initiatives to reduce risk and incidence of sexual violence in armed conflict and other humanitarian crises? A systematic review. *PLoS ONE* **8** (5). https://doi.org/10.1371/journal.pone.0062600.

Spangaro, J., Toole-Anstey, C., MacPhail, C. L., Rambaldini-Gooding, D., Keevers, L. & Garcia-Moreno, C. 2021 The impact of interventions to reduce risk and incidence of intimate partner violence and sexual violence in conflict and post-conflict states and other humanitarian crises in low and middle income countries: a systematic review. *Conflict and Health*. https://doi.org/10.1186/s13031-021-00417-x.

Sphere Association 2018 The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response, fourth edition. Sphere Association, Geneva, Switzerland. http://www.spherestandards.org/handbook

Stark, L., Asghar, K., Yu, G., Bora, C., Baysa, A. A. & Falb, K. L. 2017 Prevalence and associated risk factors of violence against conflict-affected female adolescents: a multi-country, cross-sectional study. *Journal of Global Health* **7** (1), 10416. https://doi.org/10.7189/jogh.07.010416.

Stark, L. & Ager, A. 2011 A systematic review of prevalence studies of gender-based violence in complex emergencies. *Trauma, Violence & Abuse* **12** (3), 127–134. https://doi.org/10.1177/1524838011404252.

Tannenbaum, C., Greaves, L. & Graham, I. D. 2016 Why sex and gender matter in implementation research. *BMC Medical Research Methodology* **16** (1), 145. https://doi.org/10.1186/s12874-016-0247-7.

Thurston, A. M., Stöckl, H. & Ranganathan, M. 2021 Natural hazards, disasters and violence against women and girls: a global mixed-methods systematic review. *BMJ Global Health* **6** (4). https://doi.org/10.1136/bmjgh-2020-004377.

Tsekleves, E., Braga, M. F., Abonge, C., Santana, M., Pickup, R., Anchang, K. Y., de Pippo, T., Semple, K. & Roy, M. 2022 Community engagement in water, sanitation and hygiene in sub-Saharan Africa: does it WASH? *Journal of Water Sanitation and Hygiene for Development* **12** (2). https://doi.org/10.2166/washdev.2022.136.

UNHCR 2021a *Global Report 2021*.

UNHCR 2021b *Global Trends in Forced Displacement*. https://doi.org/10.1007/978-3-030-68364-1_10.

Wutich, A. 2020 Water insecurity: an agenda for research and call to action for human biology. *American Journal of Human Biology* **32** (1), 1–16. https://doi.org/10.1002/ajhb.23345.

Wutich, A., Brewis, A. & Tsai, A. 2020 Water and mental health. *WIREs Water* **7** (5), e1461. https://doi.org/10.1002/wat2.1461.

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