



Global Forum on Humanitarian Health Research

November 8-18, 2021

Meeting Report: Research in the Context of Concurrent Crises



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NOTETAKERS

The following individuals volunteered to take notes and assist facilitators throughout several breakout group discussions during the meeting. These notes formed the basis of much of this report.

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DISCLAIMER

The views expressed in this report are those of the case study authors, presenters, and GFH2R participants and do not necessarily represent any official position or policy of the GFH2R sponsor organizations, including the U.S. National Institutes of Health, the U.S. Department of Health and Human Services, the International Development Research Centre, the UK Medical Research Council, the Wellcome Trust, or any other institutions with which authors, presenters, or participants are affiliated.

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EXECUTIVE SUMMARY

Overview

The Global Forum on Humanitarian Health Research (GFH2R) was convened as a virtual meeting from November 8-18, 2021, to explore the theme of "Research in the Context of Concurrent Crises." This first meeting of GFH2R served as a pilot to help determine if there is sufficient interest and value in a recurring event in the future. GFH2R brought researchers, humanitarian non-governmental organizations (NGOs), and research funding agencies together to share experiences and promote collaboration around health research in humanitarian settings. The meeting was built around case study presentations by researchers from regions of the world directly affected by humanitarian crises. GFH2R featured 15 case study presenters and 81 additional participants, 70 percent of whom were from low- or middle-income countries (LMICs). Participants came from 31 different countries and 91 percent of them were identified as early- or mid-career researchers.

Discussion of Key Themes

Globally, humanitarian crises are becoming more frequent, more costly, and more interrelated, with many parts of the world dealing with multiple crises concurrently, including natural disasters, forced migration, armed conflict, and major outbreaks such as the COVID-19 pandemic. GFH2R explored the challenges of conducting research in settings facing concurrent crises, as well as strategies used by researchers to address those challenges. The meeting was organized around five cross-cutting themes with different sessions featuring case study presentations and interactive discussions, and an additional session related to funding research in humanitarian settings.

Intersectional Vulnerability in Humanitarian Crises

Many intersecting and multilayered vulnerabilities work individually and together to impact physical and mental health, yet they are poorly understood. In humanitarian settings, it is particularly difficult to understand the diversity of experiences of vulnerable groups within study populations. Case study presenters and GFH2R participants discussed several key principles and strategies to help consider intersectional vulnerability in humanitarian health research.

- Seek to understand local cultural norms, social dynamics, and hierarchies, especially with sensitive health topics. Acknowledge inequities between refugee and host populations.
- Prioritize community engagement and participatory research with advance planning and budgeting, for example through a community advisory board. Be aware that the loudest, most dominant voices are not always representative of the full community, especially vulnerable groups within the community.
- Partner with local organizations and recruit enumerators from host communities.
- Carefully consider ethical issues such as the risks facing study participants, obtaining consent, and offering incentives.

Inclusive and Participatory Research

Community engagement promotes the application of unbiased, representative research techniques in humanitarian contexts that can benefit the community. However, participatory research comes with its own challenges, one of which is ensuring inclusivity in the research. It is important to encourage the inclusion of members of a community who are often shut out of research participation. Case study presenters and GFH2R participants discussed several key principles and strategies for inclusive and participatory research in humanitarian settings.

- Engage with the community early, ideally before or during the development of research questions. Involve diverse sectors of the target community and seek to understand value systems, cultural norms, and family structures.
- Prioritizing community engagement helps build trust, overcome language barriers, improve data collection, and navigate obstacles as they arise.
- Involve local research partners throughout the study and be sure to consider the mental health of researchers and data collectors.
- Disseminate findings with communities; this may require creativity (e.g., storytelling) and cultural sensitivity.

Humanitarian Health Research in Context of COVID-19

The COVID-19 pandemic exacerbated the existing complexities and conditions of humanitarian settings all over the world. Researchers faced operational challenges, difficulties with partnerships, inability to visit project sites, issues with data quality and access, and ethical issues. Case study presenters and GFH2R participants shared several key principles, observations, and strategies for research in humanitarian settings during the pandemic.

- Use flexible research methodologies and processes to adjust to changing contexts, limited access, and political situations.
- Partner with local researchers and enumerators to help navigate uncertainties and connect with local communities.
- Utilize technologies such as WhatsApp messaging, remote sensing, and geospatial analysis when access is limited.
- While travel restrictions and remote work made global partnerships difficult, local research organizations played larger leadership roles in collaborative projects.
- Research funders were overly focused on the pandemic, limiting research on other critical health topics. On the other hand, mental health and health inequities received greater attention.
- To assist researchers with ethical issues and reviews during global crises, an independent international institutional review board (IRB), ethics help desk, or other form of guidance would be helpful.

“Nothing About Us, Without Us” – Ethical and Effective Community Engagement in Humanitarian Research

Community engagement in humanitarian research is only meaningful when it is inclusive, collaborative, and relevant. When done well, community engagement ensures the autonomy of communities and stakeholders, supports the consent process, and builds trust and relationships. It also helps researchers determine appropriate benefits and minimize risks, reach marginalized groups, and ensure the best quality data is derived from studies. In humanitarian crises, researchers should reflect on their power in relation to communities and carefully address the unique ethical issues that may arise. Case study presenters and GFH2R participants shared several key principles and strategies related to community engagement in humanitarian research.

- Involve communities in all stages of research.
- Early on, meet with community leaders and identify representatives and/or a community advisory board (CAB) in a transparent process. Strive towards diverse representation, but don't treat groups like "check boxes."
- Design studies to address questions of interest and importance to the community.
- Work with local academics and NGOs and use participatory tools throughout a study.
- Plan to share and discuss research results with the community and then co-design possible interventions tailored to local needs.
- If offering compensation, choose a form that is useful, convenient, easy to accept, and fair to distribute.
- Community-partnered participatory research is an ideal approach, where IRB processes and data management are localized in communities.
- Research grant budgets and timelines are often too limited to allow for meaningful community engagement. It would be helpful for research funders to build the time and resources needed for community engagement into grant programs, similar to what is already done for monitoring and evaluation.

Research in Complex Settings with Difficult to Reach Populations

Conducting research is especially challenging in complex settings where issues of access, protection, safety, and ethics come together. These include acute crises immediately following an event, settings where populations are on the move, areas where populations are difficult to access, and situations where the protection and safety of both the populations and researchers are compromised. Case study presenters and GFH2R participants shared several key principles and strategies for research with difficult to reach populations.

- Be prepared to work in settings with low resources, limited access to health services, and lack of internet or mobile services.
- Be flexible with research methodologies, survey instruments, and protocols. Make adjustments as needed and put study participants' needs first.

- Leverage technology in areas where internet is unavailable, such as mobile phones, two-way radios, audio recorders, and offline apps – and be mindful of privacy and security.
- Partner with local care providers and NGOs, especially those that can provide safety and resources. When appropriate, help connect research participants with health services and protections.
- Engage with communities to build trust and share findings with research participants. If this is not possible (e.g., with populations on the move) work with local organizations and community liaisons.
- Handle ethical challenges, such as obtaining consent, as ongoing issues that require relationship-building and time. Recognize that participants face stigma and communities may be distrustful of researchers.

Challenges and Opportunities for Funding Research in Humanitarian Crises

While there are very few dedicated funding opportunities related to humanitarian health research, there are opportunities for scientists to contribute to evidence gaps in the field. Representatives of research funding agencies and researchers shared common challenges for funding research in humanitarian crises, as well as opportunities for the future of the field.

Challenges

- Increasing complexity and concurrence of crises
- Timeframes for responding to humanitarian crises and funding research
- Low capacity for conducting research in crisis settings, as well as limited capacity for developing high-quality research proposals in a short time
- Limited opportunities for young and early-career researchers in the field
- Inequities in research partnerships
- Complex ethical issues and review processes; limited understanding of humanitarian contexts among IRBs
- Managing grant compliance with risk-averse funding agencies
- Safety and security of researchers and study participants
- Balancing new priorities with persisting challenges
- Supporting research uptake

Opportunities

- Demand for evidence by users of research findings is increasing
- Researchers should consider applying for funding opportunities that are not specific to humanitarian settings but are relevant (e.g., NCD research in humanitarian crises)
- Partnerships between researchers, practitioners, policymakers, communities, and frontline health workers can complement each other's skills and lead to more relevant, actionable research
- Prioritization of in-country ethical processes; Interest in strengthening ethical review panels to manage research in humanitarian settings and/or developing independent ethical review boards for humanitarian research

- Localization of research, South-South collaboration, multidisciplinary work, and strengthening research management are promising trends in global health research of importance to humanitarian settings
- Low-cost and digital technologies, the nexus of climate change and health, and research with mobile populations are increasingly of interest to funding agencies and very relevant to humanitarian research
- Rapid research funding opportunities

INTRODUCTION

Overview

The Global Forum on Humanitarian Health Research (GFH2R) was convened as a virtual meeting from November 8-18, 2021, to explore the theme of "Research in the Context of Concurrent Crises." This first meeting of GFH2R served as a pilot to help determine if there is sufficient interest and value in a recurring event in the future.

GFH2R brought researchers, humanitarian non-governmental organizations (NGOs), and research funding agencies together to share experiences and promote collaboration around health research in humanitarian settings. The meeting was built around case study presentations by researchers from regions of the world directly affected by humanitarian crises. GFH2R aimed to raise the profile of early- and mid-career researchers from low- and middle-income countries (LMICs)¹ by increasing their visibility in a global forum and providing opportunities for networking and mentorship with leaders in the field. Additionally, the venue allowed for open and inclusive discussions that explored important, cross-cutting themes.

The forum was supported by the Fogarty International Center of the U.S. National Institutes of Health (NIH), International Development Research Centre (IDRC), UK Medical Research Council (MRC), and Wellcome Trust. The meeting website and platform were hosted by CRDF Global.

Goals

The goals of the pilot meeting of GFH2R were to:

- Bring together researchers and humanitarian organizations
- Share research experiences and lessons learned about conducting research in humanitarian settings
- Promote collaboration, networking, and mentoring among this community
- Raise the profile of early- and mid-career researchers from LMICs
- Create a venue for open and frank discussion

These goal statements were used to evaluate the effectiveness of GFH2R.

Theme

Humanitarian crises² continue to proliferate globally and impact more people today than at any point in recorded history. To better meet the health needs of the people affected by these crises, humanitarian

¹ Defined to include countries categorized in "low-income economies," lower-middle-income economies," or "upper-middle-income economies" by the World Bank
<https://datahelpdesk.worldbank.org/knowledgebase/articles/906519>.

² For the purposes of this activity, "humanitarian crisis" is broadly defined to include: (1) man-made disasters, including armed conflict, forced displacement and refugee crises; (2) natural hazards and disasters, such as floods, hurricanes, earthquakes and droughts; and (3) large-scale epidemics and disease outbreaks, such as the COVID-19 pandemic and recent Ebola outbreaks.

organizations need to act on reliable evidence. Unfortunately, there is limited scientific evidence available for these organizations to draw upon. Conducting health research in a humanitarian context is complex and uniquely challenging and has often been limited to small-scale pilots in the past, which has resulted in a significant gap in evidence available to inform humanitarian policy and practice. GFH2R is a new and unique effort to support and strengthen the ability of humanitarian health research community to address this gap.

The pilot meeting of GFH2R focused on the theme of **“Research in the Context of Concurrent Crises.”** Humanitarian crises are becoming more frequent, more costly, and more interrelated, with many parts of the world dealing with multiple crises concurrently. For example, the 2018-2020 Ebola outbreak in DRC took place in an active conflict zone with large populations displaced from their homes. In August 2020, an explosion in Beirut devastated a country already reeling from economic turmoil and the COVID-19 pandemic. The world was already dealing with record numbers of people needing humanitarian assistance when the pandemic began, making delivery of health services and care even more challenging in places such as refugee camps. Furthermore, pandemic-affected communities around the globe have had to deal with hurricanes, wildfires, and other disasters on top of the health, economic, and social impacts of COVID-19.

Conducting health research in the context of a single humanitarian crisis is already extremely challenging. Researchers may need to deal with safety and security concerns, political sensitivities, damaged or overwhelmed health systems, and a wide range of logistical challenges. Working in a setting facing multiple, concurrent crises compounds these challenges, making research even more difficult. Hence, the quantity and quality of research in humanitarian settings is limited while the need for better evidence continues to rise. Accordingly, case studies selected for the pilot meeting involved settings beset with multiple, concurrent crises featuring research conducted with affected populations.

GFH2R Structure and Process

GFH2R was modelled after the successful Global Forum on Bioethics in Research (GFBR)³, a long-standing program led by several research funding agencies with similar objectives to GFH2R, albeit in a different topical area.

To start, a Steering Committee was convened to help plan and implement GFH2R. The Committee was comprised of leading researchers in the field of humanitarian health who were representative of academic institutions and NGOs and selected for their expertise in diverse health areas and geographic regions. More than half of the Committee members were from LMICs. The Steering Committee reviewed and scored participant applications, contributed to the development of the thematic sessions, served as mentors for case study authors, chaired thematic sessions, and helped evaluate GFH2R as a pilot meeting.

An open call for applications was distributed in four languages (English, Arabic, French, and Spanish) for two types of participants, case study presenters and general participants. Case study presenters

³ More information on GFBR at <https://www.gfbr.global/>.

submitted draft case studies with their applications. These were formatted to highlight the context in which research was conducted, provide a brief description of the study, discuss the research issues highlighted by the case, and provide specific recommendations and lessons learned for researchers in the field. Case study and general participant applications were reviewed by the Steering Committee according to selection criteria that prioritized early- and mid-career researchers from LMICs and encouraged geographic, discipline, and gender diversity. Case studies were selected with preference for presenters from the country or region where the research was conducted and relevance to the theme.

Successful case study applicants were grouped into five broad themes, around which the meeting was organized:

- Intersectional vulnerability in humanitarian crises
- Inclusive and participatory research
- Humanitarian health research in the context of COVID-19
- “Nothing about us, without us” - ethical and effective community engagement in humanitarian research
- Research in complex settings with difficult to reach populations

Case study presenters also received informal mentoring from members of the Steering Committee in the months preceding the meeting to strengthen their written case studies and prepare their oral presentations.

GFH2R took place over two consecutive weeks with each thematic session consisting of an introductory presentation by a session chair, three case study presentations, a question-and-answer period, and a 30-minute facilitated breakout group discussion.

An additional session was added to the meeting on “Challenges and opportunities for funding research in humanitarian settings.” Special “Meet the Expert” sessions were scheduled before and after each thematic session to allow participants to informally interact with leaders in the field of humanitarian health. Two networking sessions were also included in the agenda to allow participants to meet one another. The full agenda for the meeting is included in Appendix A.

Compared to traditional scientific meetings, GFH2R was limited in size and built around small group discussions of case studies of research conducted in these challenging settings. This format encouraged open discussion from diverse perspectives, highlighting the voices of LMIC researchers and providing opportunities for early- and mid-career researchers to get feedback from more senior leaders in the field. The variety of participants created opportunities for networking amongst diverse participants for whom few venues for interaction currently exist. Additionally, the involvement of funders in the meeting helped raise awareness among researchers of funding opportunities and helped funders understand the unique challenges of humanitarian research.

Participation Summary

Based on the formal Steering Committee review, 15 case study applicants were selected to present at GFH2R. An additional 81 general participants were invited to join the meeting, resulting in a very diverse group. Approximately 70 percent were from LMICs, 91 percent were early- or mid-career, and 44 percent were female (Figure 1). Participants came from 31 different countries around the world (Figure 2) and represented universities, NGOs, research institutions, governments, private sector, and multi-lateral agencies. However, the Latin American region was under-represented in the meeting.

In addition to applicants, additional guests were invited to join the forum including senior experts in the field, funding agency representatives, Steering Committee members, and the GFH2R Secretariat. GFH2R was hosted on a Moodle platform managed by CRDF Global and all sessions were conducted on the Zoom platform. Attendance varied between 61-100 attendees per session.

Figure 1: Career Level, Gender, and Location of Successful GFH2R Applicants

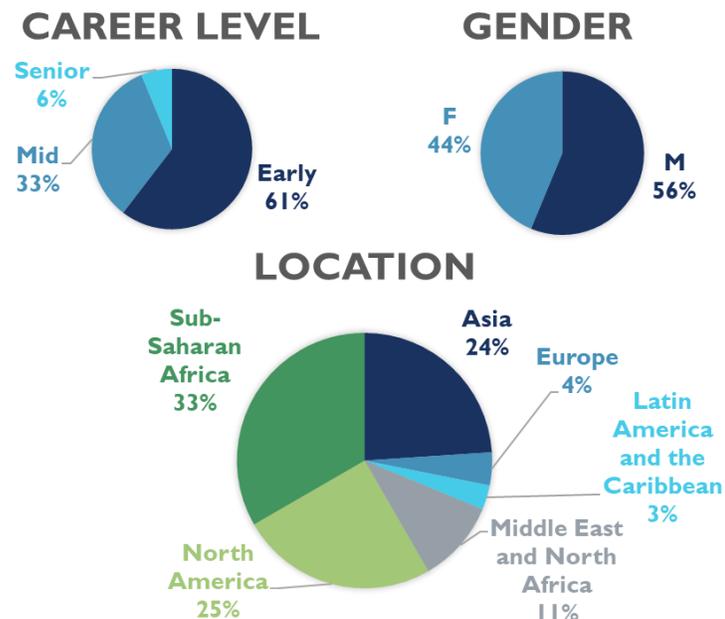
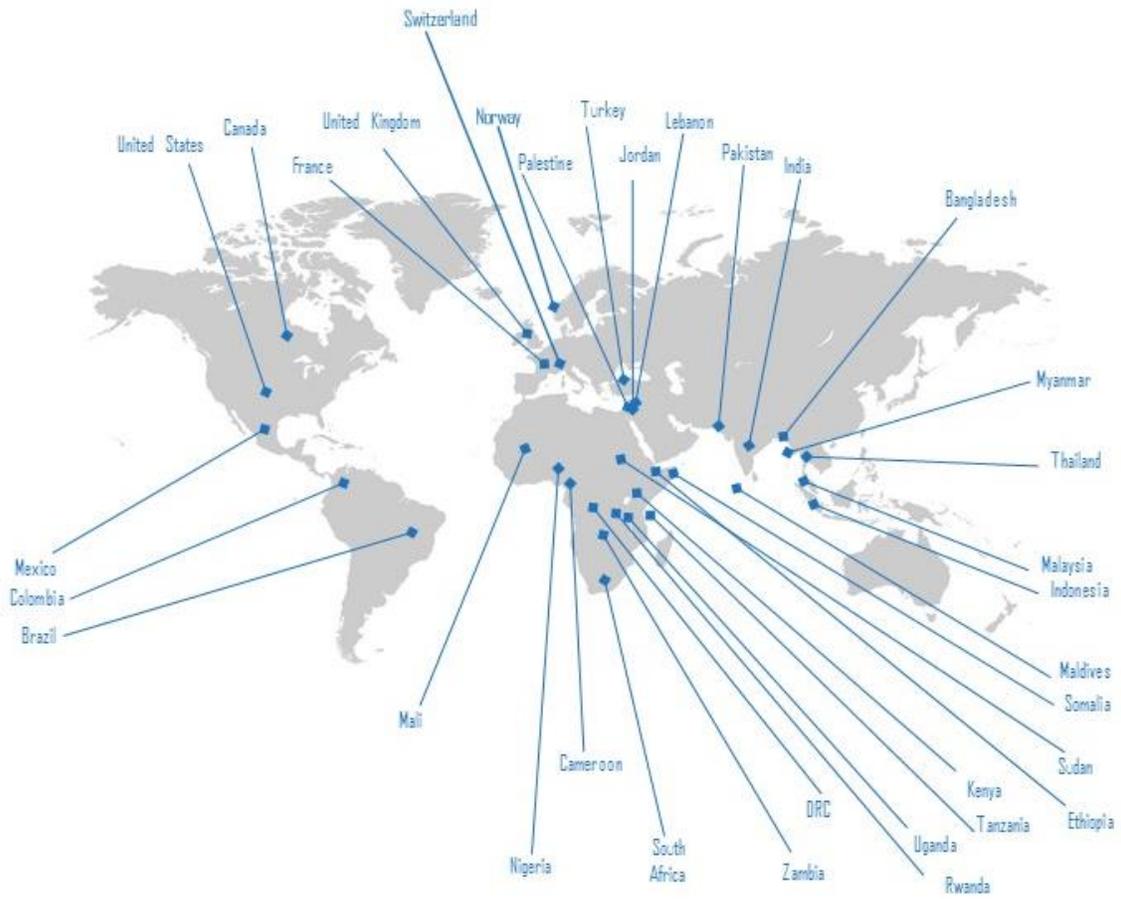


Figure 2: Map of GFH2R Successful Applicants' Locations



SESSION 1 – INTERSECTIONAL VULNERABILITY IN HUMANITARIAN CRISES

Each of the following chapters provides a high-level overview, including a description of the session theme, brief summaries of the three case studies presented, and highlights from the breakout discussions that took place during each session. Additional details can be found in the case studies in Appendix C or by viewing the session recordings, available by request to GFH2R@mail.nih.gov.

Session Co-Chairs

Montasser Kamal, International Development Research Centre, Canada

Fouad Fouad, American University of Beirut, Lebanon

Abdi Dalmar, Somali Research and Development Institute, Somalia

Introduction to Theme

The health of people forced to flee their homes is shaped by many complex factors, including the cause and duration of displacement, age, sex, race, refugee status, education, and access to care. Yet these intersecting and multi-layered vulnerabilities are poorly understood. These variables work individually and together to impact physical and mental health.

Researchers in humanitarian settings often find it difficult to capture the diversity of experiences within study populations. Furthermore, research is needed in humanitarian settings because existing “ready-made” health interventions may not appropriately consider local context, social and cultural factors, and broader health issues. The case studies featured in this session demonstrated how researchers approached these issues in research with refugee populations from Myanmar, Venezuela, and Syria.

Case Study Summaries

Engaging with the most vulnerable groups in humanitarian crisis amid the COVID-19 pandemic: The case of Rohingya refugee crisis in Bangladesh

Ateeb Ahmad Parry

BRAC James P Grant School of Public Health

Bangladesh

The COVID-19 pandemic exacerbated the challenges experienced by Rohingya refugees in Cox’s Bazar, Bangladesh and increased tensions between refugees and host communities in the region. Intersectional vulnerabilities faced by these populations are often overlooked in planning humanitarian responses. This study aimed to identify the most vulnerable groups among Rohingya refugees and host communities, explore the reasons for their vulnerability, and uncover good practices for studying vulnerable groups in this setting. The research team conducted literature reviews followed by consultations and field visits with government officials, humanitarian workers, and community representatives. The research was conducted in a participatory manner involving “bridge-building” between local enumerators (recognized as “co-researchers”), respondents, and the research team. With consideration for deeply embedded patriarchal, gender, social, and cultural norms in the refugee and host communities, the most vulnerable

groups were identified as: pregnant and lactating mothers, adolescents, people with disabilities, single female household heads, and the elderly.

The author described strategies to address the challenges of working in this setting such as recruiting local enumerators from host communities and sharing findings with the implementation organization. These findings were then used to help develop training modules for local youth volunteers from host and refugee communities who then assisted with dissemination. The researchers noted the importance of localized community engagement and identification and inclusion of the most vulnerable groups to ensure participation in research activities.

Newborn health response in humanitarian settings: Venezuelan refugees and migrants in Colombia

Diana Pulido

Save the Children Colombia

Colombia

The political and economic crisis in Venezuela led to a large outflow of people to neighboring countries. For example, Colombia hosted 1.8 million individuals, the majority of whom were women and girls. Many Venezuelan migrants need sexual and reproductive care, yet they face significant barriers to accessing care. This study aimed to: (1) identify facilitators and bottlenecks to newborn health policy and strategy for Venezuelan migrants in Colombia; and (2) generate recommendations for advocacy, resource allocation, and technical assistance towards achieving newborn health targets. The research team used qualitative methods, including in-depth and remote interviews with healthcare providers, humanitarian or health implementation organizations, and government authorities.

The author noted several positive aspects of the research project, such as partnerships between researchers and NGOs and inclusion and leadership of local actors. Through collaboration between Stanford University and Save the Children Colombia, the research team was able to manage internet connectivity issues and the limited availability of key stakeholders due to COVID-19. The research team also made several recommendations based on their findings related to improving maternal and neonatal health policies, providing funding for local healthcare workers especially in rural and border areas, making records more publicly available, and tailoring education materials. The research team also highlighted the importance of having a local partner to help identify key stakeholders, their preference for in-person research when possible, and diverse sampling of interviewees.

Conducting interventional research to improve the sexual and reproductive health of adolescent Syrian refugee girls displaced in Lebanon: Challenges and lessons learned

Sasha Fahme

American University of Beirut

Lebanon

Adolescent Syrian refugees in Lebanon are an under-studied, highly vulnerable population at risk of adverse sexual and reproductive health (SRH) outcomes related to early marriage and low school

enrollment rates. This risk increased as the country faced compounding crises in recent years, including a popular uprising, economic crisis, the COVID-19 pandemic, and the Beirut port explosion of 2020. This study evaluated a multi-pronged intervention that aimed to mitigate the drivers of early marriage among Syrian refugee girls in Lebanon and improve their access to SRH information and services. Data collection and recruitment halted due to a pandemic-related national lockdown in March 2020 and resumed in August 2021.

The research team described ethical and pragmatic challenges related to retaining study participants who were facing imminent health risks and competing economic obligations. Their study was further complicated by the potentially controversial SRH topics the study entailed. The economic crisis and Lebanese labor laws made it difficult to pay the community health workers administering the intervention as they were Syrian refugee women. The case study also highlighted the challenge of sustaining the intervention benefits beyond the research study, which was limited due to funding constraints. Their research strategy involved working closely with community members, investing significant time and resources upfront to understand social dynamics and hierarchies, and utilizing non-monetary staged incentives to promote study retention.

Discussion

Ethical challenges in research with vulnerable populations

The case study presenters shared different ethical issues they faced in working with vulnerable populations. As researchers, they struggled to balance a personal desire to assist participants with the need to follow a study procedure. Their study populations experienced severe trauma, while also participating in many scientific studies (in some cases without tangible benefits). Study participants also experienced overlapping or intersectional vulnerabilities. As such, research teams were trained on self-reflection, took care in research methods, and offered appropriate incentives. Researchers also acknowledged inequalities between refugee and host populations in accessing care. During the COVID-19 pandemic, a new issue of electronic consent arose. Some populations did not fully understand what signing consent meant. More broadly, community engagement was difficult during the pandemic.

Localization of research

The discussion explored how including vulnerable populations within affected communities and host populations in the research process – at all stages – is important to understanding the impact of political economy and cultural factors on study populations. Participants noted that there may be particularly vulnerable groups within these vulnerable populations. Researchers should approach humanitarian contexts with a broad perspective. They should make space for exploratory work, utilize participatory approaches, and learn about the communities involved to be accepted.

Participants also noted that there are some risks to localization of research. Researchers should avoid “tokenistic” localization and be aware that the loudest, most dominant voices are not always the most representative of the community, especially when considering vulnerable groups.

Researchers should strive for research products that are mutually beneficial, not exploitative. This may involve balancing findings that are publishable with those that are more practical (e.g., responsive to community needs). Policymakers and other stakeholders should be involved to inform and influence policy and practice. Importantly, findings should be shared with community members after the studies are completed.

Ethical issues related to incentives

The use of incentives in research can raise ethical issues, especially as those most vulnerable may be driven to participate by their need to acquire these incentives. Participants recommended that researchers begin by working with communities to understand their needs, then choose incentives accordingly. This may be done through community meetings and working with community mobilizers. Participants suggested that food vouchers, transportation costs, and/or mobile phone airtime may be more useful to some communities than cash. Incentives should not be coercive but should be adapted to local cultures and context, ideally related to the research at hand. Benevolence may be a helpful lens as incentives should relate to care for participants.

GFH2R participants shared that researchers should take care not to put the incentive at the forefront of the study. They should thoroughly explain the role a participant is expected to play as well as any potential harm or benefit. There is a risk of vulnerable groups participating in research because of the incentive and not the actual study or its benefits to the community. Similarly, research findings should be presented to communities to empower them to act on the information.

Inclusive community engagement

Involving members of the community in research in a way that is both empowering and on equal footing is easier said than done. Participants expressed that community engagement should be planned for in terms of budget and resources and is often specific to the local context. A recommended strategy is to work with a community advisory board (CAB) that includes actual members of the community, not just leaders of faith-based and civil society organizations. Ideally, this should be established before a research proposal is submitted for funding to gain feedback on the research questions and institutional review board (IRB) protocols. If possible, research teams should include members of the community as co-investigators. Researchers should also consider cultural dynamics. For example, researchers involved in the case study from Lebanon paired mothers and daughters together to accommodate local culture.

Researchers should be aware of why participants are motivated, e.g., to share their experience in a safe place, to have their voices heard, and for their information to be passed onto policymakers. They feel validated when they build concepts with researchers. It is important to differentiate program implementation from program evaluation and research.

SESSION 2 – INCLUSIVE AND PARTICIPATORY RESEARCH

Session Chair

Adam Levine, Brown University, United States

Introduction to Theme

This session explored the importance of inclusive and participatory research in the humanitarian context, with a particular focus on refugee populations and people living with disabilities. Deep community involvement in research is possible in both quantitative and qualitative research. Community engagement promotes the application of unbiased, representative research techniques in humanitarian contexts that can benefit the community itself and people around the world through the generalization of results. Participatory research comes with its own challenges, one of which is ensuring inclusivity in the research. This comes from our current understanding that communities in the Global South and in humanitarian settings around the world are not homogenous populations. It is important to encourage the inclusion of members of a community who are often shut out of research participation. This includes women, the young and the old, sexual and gender minorities, ethnic and linguistic minorities, refugees, and undocumented communities among others.

The panelists drew upon their own experiences conducting research in disparate settings to elucidate common barriers to including affected communities in the design, management, and dissemination of humanitarian research, and shared strategies they utilized to overcome these challenges.

Case Study Summaries

Enhanced participation of Rohingya refugees to increase immunization coverage in a camp-based population in Cox's Bazar, Bangladesh

Nyo Yamonn

Community Partners International

Myanmar

This study examined immunization coverage among Rohingya refugees in Cox's Bazar, Bangladesh. Vaccination coverage in the camp population was low prior to the COVID-19 pandemic and vaccine rates declined precipitously by approximately 50 percent following the first reported cases of SARS-CoV2. The research team conducted an interim evaluation of a pilot program that aimed to improve vaccination coverage among Rohingya children and pregnant women. The pilot project aimed to use Rohingya community immunization volunteers to bridge the gap between vaccination services and the community. Preliminary results from the first several months of implementation of the pilot program suggested that 98% of refugee children and pregnant women were successfully vaccinated. The research team conducted the interim evaluation using a quantitative household survey of 86 households that included at least one potential beneficiary of the immunization pilot.

This case study highlighted the importance of including the community in the research process from project inception. Staff were recruited from the local community and volunteers were recruited from the

Rohingya community. The volunteers were consulted during the development of research questions and asked to provide feedback during training on data collection. The involvement of Rohingya data collectors meant they were present and trusted in a setting where access and trust are limited, in particular for perceived outsiders. Involving the community led to greater resilience and nimble responses to the various obstacles the researchers encountered amidst concurrent crises of COVID-19, violence, and secondary displacement due to fire in the refugee camp.

Strategies to address the challenges of humanitarian research: Lessons learned from refugee camps in Ethiopia

Wubshet Tsehayu

Project Gaia

Ethiopia

Exposure to high levels of household air pollution has been shown to increase the risk of several respiratory and cardiovascular diseases. The conditions in the Kebribeyah refugee camp, where access to clean fuel is limited, contribute to high levels of household air pollution. In most cases, homes and cooking areas are poorly ventilated and the close proximity of homes to each other contributes to transference of particulate matter and carbon monoxide between dwellings. The refugees' heavy reliance on firewood for cooking also causes tension and conflict with host communities over scarce natural resources for cooking fuel.

This research study was undertaken to assess the potential of ethanol cookstoves to reduce household air pollution in the Kebribeyah refugee camp. The methodology involved collecting data on kitchen concentrations of PM_{2.5} and CO in a pre-post study without controls. The baseline measurements were collected in households using firewood or charcoal and then post measurements were performed in the same households after the introduction of new ethanol stoves. Further information was obtained through a household survey regarding health outcomes such as the frequency of headaches, eye irritation, and burns in women and children.

The research team encountered multiple logistical challenges in the remote location, such as the absence of basic services (e.g., electric power to recharge monitoring equipment) and limited local lodging. The research team also worked hard to engage the refugee population and multiple stakeholders directly, which caused unforeseen delays of about two weeks in the timeline. The authors noted that prioritizing engagement required flexibility in scheduling and adjustments to the research process throughout the study.

Doing inclusive research in the context of the Cameroon Anglophone crisis or conflict: Perspectives from the Partnerships for Inclusive Research and Learning (PIRL) project

Louis Mbibeh

University of Bamenda

Cameroon

In the past five years, a conflict affecting hundreds of thousands of people has been unfolding in Cameroon. The conflict is deeply rooted in political, social, historical, and cultural differences between Anglophone and other primarily Francophone regions in the country. In this setting, the research team set out to investigate how information and communication technologies (ICT) are used in communities of practice focused on disability-inclusive development. The research team conducted a survey with 60 respondents and 17 interviews. The survey had a total of 72 questions related to disability, information and communication technologies, work, research, and involvement in the PIRL network. The interview questions were similar to the survey questions and gave participants a chance to provide more detailed answers and to share specific stories related to their experiences.

Notably, the Cameroon research team participated in all aspects of the research, including completing surveys and interviews, participating in data analysis and writing, and contributing to dissemination activities such as writing and presenting at conferences. The research process highlighted the importance of supporting the mental health of front-line researchers and others involved in collecting information and data in crisis settings. This case study also emphasized the importance of including people with a range of impairments and disabilities as researchers and participants in research to improve understanding of the intersectional nature of exclusion.

Discussion

Benefits and challenges of participatory research

The discussion emphasized how community-based participatory research has the potential to help represent more sectors of the target community. Researchers noted that in the context of displacement, structural inequities within a displaced community require formative work to circumvent challenges. Participants shared that involving the host community in designing research helps overcome language barriers, which in turn increases quality of responses. Participant engagement improves when questions are framed in a way that makes most sense to the community and in their language. Data collection is also easier when local communities are engaged as they can help find the right participants.

Researchers deliberated the challenge of defining the “community” in these settings, as groups like migrants or refugees don’t always fit in the traditional definition of the term and often aren’t stationary. Another challenge that was highlighted is how participatory research can increase the likelihood of bias in a research study, especially in humanitarian research involving focus groups as participants often self-select and can be unrepresentative of a community as a whole.

Some participants noted that a main challenge to conducting participatory research is funding. Sponsored research often has strict timelines and there may not be enough time dedicated to consult with the community.

Strategies for inclusive participatory research

The discussion explored strategies for involvement of community members in inclusive health research. Participants suggested that the involvement of community members as local researchers helps with translation and identification of study participants during study recruitment. Some researchers emphasized how it is essential to understand value systems, identify words that are taboo, and understand norms around privacy in family structures. Research teams should always be aware that terms and expressions are subject to interpretation and there may be gaps in communication that can be misleading.

Participants voiced that safeguarding research assistants and community members is of utmost importance, but conditions may make it impossible to work in certain crisis contexts. The use of technology is an effective way to keep in touch with mobile groups. Otherwise, it's hard to keep track of participants, especially when they want to be anonymous and unidentified. Researchers shared how storytelling forms can be utilized in the local context as a method for disseminating research results and recommendations. Participants felt research can have more influence when results are related in a way that makes sense to the communities, which may require cultural sensitivity and creativity.

Ethical considerations

This discussion centered around how researchers can avoid violations of research ethics in complicated humanitarian settings. Privacy and confidentiality are important concerns when using platforms like WhatsApp and Zoom to conduct research, especially in remote locations and under evolving conditions. Researchers expressed difficulty identifying the true leaders of a community, deciding who to engage, and determining who has legitimacy to speak on behalf of a community. GFH2R participants also discussed how NGOs often remain in close contact with a community, but academic partners will most likely engage at various points to collect their data and then leave as they see fit. The discussion emphasized how spending more time in a location before starting a research study would be helpful to get the lay of the land and allow time for thoughtful consideration of the ethical dimensions.

SESSION 3 – HUMANITARIAN HEALTH RESEARCH IN CONTEXT OF COVID-19

Session Co-Chairs

Shannon Doocy, Johns Hopkins University, United States

Seydou Doumbia, University of Bamako, Mali

Introduction to Theme

The COVID-19 pandemic exacerbated the existing complexities and conditions of humanitarian settings all over the world. Researchers and humanitarian organizations have experienced challenges in health research, and it is clear that each context faces its own unique difficulties. Numerous government shutdowns limited access and services and have sparked a variety of operational issues. Global partnerships have been affected, as has the ability to conduct research amidst a proliferation of Zoom calls and an inability to visit project sites. Capacity issues impacted the ability to conduct research in a quality-oriented way. While operating in situations that are increasingly complex, many researchers found themselves reliant on the government for surveillance data and reporting, which is already limited in humanitarian settings. The number of cases or deaths reported was not always accurate or there was not enough testing to identify correct figures. This session examined unique challenges to conducting health research amidst the pandemic in the three distinct contexts: northwest Syria, Somalia, and Myanmar. The cases addressed ethical constraints, accessing excess mortality data, and reach and efficacy of remote services.

Case Study Summaries

Constraints and ethics issues of mobile technologies: Use of technology and data in the response to Covid-19 in Myanmar

Phway Thinzar Chit

Community Partners International

Myanmar

The aim of this case study in Kayin State, Myanmar, was to explore the usage of mobile devices for COVID-19 epidemic control and how mobile devices can be used in implementing disease prevention and control programs. As the health system has been underfunded for decades, the COVID-19 pandemic raised many challenges for health facilities, healthcare workers, and medical suppliers. Additionally, there was a lack of reliable information on COVID-19 and the government's response due to intense state control of the media and the threat of fines and imprisonment for journalists who reported critical information.

The methodology of the study consisted of a media analysis, qualitative key informant interviews with non-government health care providers from ethnic health organizations, and in-depth interviews with community leaders and members in ethnic minority settings. This case study highlighted challenges surrounding ethical review. After the political coup, ethical review boards in Myanmar ceased to properly function, compelling the research team to seek ethical review from the Community Ethics Advisory Board (CEAB) in nearby Thailand. This case posits that researchers should work with international institutions to

develop an IRB that can provide useful guidance in humanitarian situations and help enable, rather than prohibit, important research that may be politically charged. This study also highlights the need for flexibility, as the original aims and methodology of the study had to be changed in light of the coup and the ensuing political situation.

Excess mortality during the COVID-19 pandemic: A geospatial and statistical analysis in Mogadishu, Somalia

Farah Ahmed

Somali Disaster Resilience Institute

Somalia

The COVID-19 pandemic emerged as the Benadir region of Somalia was already dealing with the complexity of civil war and terrorism. Due to low COVID-19 testing capacity, the potential stigma associated with COVID-19, and lack of physical security that complicates access to healthcare in many parts of the country, the government figures for cases and mortality from COVID-19 were not considered an accurate representation of the true burden of COVID-19. The Somali Disaster Resilience Institute (SDRI) set out to estimate COVID-19-attributable mortality over the entire span of the epidemic in Somalia.

The research team utilized remote sensing and geospatial analysis, employing very high-resolution satellite imagery to count the number of burials in cemeteries across the Benadir Region from 2017-2020. The study also used mathematical modelling to infer the likely introduction date of the virus, while supplementing their findings with key informant interviews to understand community perception on COVID-19 mortality, as well as community practice during the pandemic. The study highlighted the importance of recruiting local researchers and enumerators, as well as considering gender representation for focus groups and household surveys. This study also emphasized effective partnerships between local and international researchers and institutions, as SDRI led the research in collaboration with the London School of Hygiene and Tropical Medicine and the Satellite Applications Catapult.

Strengthening MHPSS services in Northwest Syria: The challenges of research prioritization and resource management in a context overwhelmed with need

Dana Townsend

SAMS Foundation

Syria

The humanitarian situation in Syria has continued to deteriorate over the past 10 years of civil war, only intensified by COVID-19. The overall scale and complexity of humanitarian needs in Northwest Syria have remained staggering, with an estimated 13.2 million people in need of health assistance. Most efforts to build mental health capacity in the region involve short-term, crisis-response trainings, which are insufficient for the severity of issues requiring treatment. The SAMS Foundation researched the effectiveness of a telepsychiatry program operated through mental health and psychosocial support services (MHPSS) in Northwest Syria, where local staff and patients receive a combination of synchronous and asynchronous remote support from a roster of international psychiatrists.

The researchers primarily utilized qualitative methods via semi-structured interviews with psychiatrists on the telepsychiatry roster and local staff at the MHPSS center. The research team also incorporated a systematic review of telehealth research in other contexts as a means of comparing program structures and procedures. In addition, an analysis of data collected at the center was used to quantify rates of mental disorders and treatment protocols. The case study highlighted several research issues including difficulties in measuring progress against standard metrics when the severity of the issue is high, difficulties accessing quantitative data when paper records are used for security reason and limited local resources resulting in the low prioritization of research.

Discussion

Ethical review processes

The discussion during this session explored the ways the COVID-19 pandemic has impacted ethical review processes and consequently GFH2R participants' research. In many countries where studies were being conducted, the IRBs slowed down or closed all together due to the pandemic. IRBs were forced to reassess the feasibility of certain studies amidst the pandemic, while some research projects had to be redesigned to move from in-person to remote. Many researchers had to change their existing protocols and engage in additional back and forth with IRBs to secure reapproval. The discussion also highlighted the political dimension of securing IRB approval. For example, Myanmar experienced a military coup and the pandemic simultaneously and there are currently no ethics committees functioning. Researchers had to rewrite proposals, put their research on hold altogether, or seek out IRBs in other countries. Some participants articulated how difficult it is for researchers to consider and balance the competing priorities of multiple IRBs. This happens frequently when IRB review is required at the local level for the local institution and also in the country where the funding is coming from. On the positive side, some ethics committee chairs and members who were not tech savvy before the pandemic have become more proficient with the internet and technology.

The changed nature of research partnerships

The COVID-19 pandemic presented new opportunities and devastating challenges for partnerships for health research in humanitarian settings. Some participants felt that forming new partnerships became extremely challenging in an environment where everyone is working remotely. Efforts to develop research proposals with the aid of planning grants and small funding to build partnerships were especially compromised. Some researchers asserted that it was much easier to set up remote collaborations based on existing and long-standing partnerships. However, managing ethical and methodological issues requires long conversations, which proved challenging to do virtually as day-long zoom meetings are not plausible.

The new norms that include significantly more virtual work and less international travel can be somewhat beneficial to collaboration in humanitarian contexts. Some researchers observed that more work was turned over to local partners, promoting greater equity in the research process. The pandemic provided opportunities for researchers to engage in smaller scale research projects and be more fluid. It prompted

more ways of easily exchanging ideas with partners. One participant noted, “You have to be extremely collaborative when you cannot get to the field yourself.” The pandemic allowed some researchers and partners to participate in virtual meetings (like GFH2R) when an in-person meeting would be more difficult due to funding limitations or visa restrictions.

The profile of health research in crises

The discussion explored whether the COVID-19 pandemic helped raise the profile of health research in crises. The consensus was that the pandemic has both overshadowed and refocused health research in humanitarian crises. Mental health research and interventions are not always readily funded, but the pandemic increased attention to mental health issues globally. The pandemic raised the issue of health inequity, especially seen in the vaccine distribution process, which is useful considering inequitable access to care is more prominent in humanitarian settings.

However, some researchers found that they couldn’t do anything without addressing COVID-19 in their grant applications, regardless of the type of research application and location (including places where COVID-19 was not the priority of the community). In most humanitarian settings, COVID-19 was only one of many health issues, and not always the one that local communities cared the most about. In some cases, the community was more concerned with access to healthcare or necessities like food. COVID-related research proposals were fast-tracked and prioritized, while NCDs and other critical needs were neglected, especially in fragile contexts. Some participants felt that there is significantly less health research funding available, as much of it has been funneled to COVID-19 research and development. Funding agencies also shifted priorities, making it more difficult to access funding. Additionally, some researchers voiced that it became more difficult to publish, as some journals were overwhelmed with the volume of manuscripts related to COVID-19.

SESSION 4 – “NOTHING ABOUT US, WITHOUT US” – ETHICAL AND EFFECTIVE COMMUNITY ENGAGEMENT IN HUMANITARIAN RESEARCH

Session Co-Chairs

Isabel Garcés-Palacio, Universidad de Antioquia, Colombia

Veena Pillai, Diode Consultancy/Médecins Sans Frontières, Malaysia

Introduction to Theme

Community engagement is increasingly recognized as a critical element of global health research. It is expected and it should be expected. However, when community engagement becomes an item to check off a list in a global research study, it can be tokenistic and done simply for the sake of being done. Community engagement is only meaningful in a study when it is inclusive, collaborative, and relevant. This session explored what this means and what it looks like in the context of humanitarian settings. Due to the diverse nature of communities and differing methods of engagement, there is no universal method of community engagement and no one-size-fits-all approach. Even the definition of community varies from one setting to another. Community engagement is the ethical thing to do and when done well can ensure the autonomy of communities and stakeholders, supports the consent process, builds trust and relationships, and helps researchers determine appropriate benefits and minimize risks. Community engagement also supports justice as researchers are more likely to reach intersectional marginalized groups within communities. Community engagement also helps ensure the best quality data is derived from studies.

Researchers should reflect on their power and how pervasive it can be in humanitarian research, due to the unique nature of crises. The three case studies explored in this session discuss the importance of community engagement in humanitarian research, the ethical challenges that can occur, and how these can be addressed.

Case Study Summaries

Community engagement during One Health research amidst concurrent crises, including drought and animal disease: A case study in Somali Region of Ethiopia

Kuastros Belaynehe

National Animal Health Diagnosis and Investigation Center

Ethiopia

This case study explored ethical dilemmas encountered during an investigation into an outbreak of zoonotic disease in the Somali region of Ethiopia amidst chronic drought and the COVID-19 pandemic. In the Somali region, livestock are the principal livelihood of pastoral communities. To varying degrees, this region of Ethiopia has been characterized by limited veterinary services, civil disorder, logistical problems, poor infrastructure, and lack of awareness for the control and prevention of zoonotic diseases. Following notification of a disease outbreak, a team traveled to the research site and implemented a comprehensive approach for field outbreak investigation, including the collection of demographic and epidemiological

data and biological samples. A survey conducted to document ethical challenges faced by One Health researchers, reviewers, and regulators in African countries supplemented this outbreak investigation.

Community engagement was a key component throughout the study, though it was challenging. Community members helped recognize the outbreak, identify study sites, and assisted during sample collection. To engage the community, the research team held preliminary meetings with community leaders to assist in the selection of representatives through a transparent process. The team's epidemiologists also used participatory epidemiology and participatory disease searching tools with the community to carry out the investigation. Following the disease investigation, the researchers reported the results to the community and then co-designed possible interventions tailored to local needs. The case study highlighted several challenges to research including: the lack of national policy or guidelines for emergency research (particularly for disease outbreaks that require a rapid response), limited infrastructure in pastoral areas, and limited access to electricity, which made cold chain maintenance for collecting and transporting biological samples difficult.

Syrian refugee fathers' wellbeing, family involvement, and community engagement amidst the COVID-19 pandemic

Majd Al-Soleiti

Taghyeer Foundation

Jordan

Fathers are understudied and underappreciated as a subpopulation in humanitarian contexts. They are a very important and vulnerable part of these contexts and are likely to have witnessed trauma and suffered from stress, due to their position as the providers in their families. The study focused on a cohort of Syrian refugee fathers living in Jordan and sought to characterize their general wellbeing and family-directed behaviors. The research team also analyzed whether their mental health and types of interactions impacted family functioning and their children's attitudes towards reading. The fathers reported on their mental health and wellbeing through different measures including the Warwick Edinburgh Mental Wellbeing Scale (WEMWBS), the Parental Burnout scale, a shortened version of Center for Epidemiologic Studies Depression Scale (CES-D), and a shortened version of the Depression, Anxiety and Stress Scale-21 (DASS-21).

The research team built strong and effective partnerships by engaging a team of local academics and local NGOs, in addition to international researchers and experts. Community engagement enabled the researchers to build trust and more easily access the study population. Study participants wanted to voice their opinions and the engagement approach encouraged them to be more proactive and open. The research team established a plan to share the results with the fathers involved in the study and to discuss their implications, which boosted participant interest and engagement in the study.

The study highlighted how relatively little is known about how fathers influence their children's social and educational development, especially in contexts of war and forced displacement. This case study also raised several ethical considerations including offering participants appropriate compensation. The

research team overcame this barrier by establishing rapport in the beginning of interviews, in addition to choosing a form of compensation (phone credit cards) that was useful, convenient, and easier to be accepted than direct cash.

Family focused psychosocial support for the mental health of at-risk adolescents in Lebanon

Tania Bosqui

American University of Beirut

Lebanon

The many social and economic pressures facing displaced and other vulnerable families in Lebanon increases the risk of mental health and child protection issues through sexual and gender-based violence, domestic violence, child marriage, child labor, and recruitment into armed groups. While Lebanon has strong government support for improved child protection and mental health care, there remains a gap in the provision of family and systemic interventions. The research team was funded to develop and test a family systemic intervention that could be delivered alongside the existing UNICEF Focused-Psychosocial Support program for at-risk adolescents in Lebanon.

The research team employed a participatory, hybrid effectiveness-implementation design. Phase 1 of the study involved the development and piloting of a family-based intervention, with a randomized-control trial planned for Phase 2. The researchers also conducted thirty-two exploratory interviews in the Beddawi area of Tripoli, with adolescents aged 12-17 and their parents. Finally, the research team set up CABs and three intervention development workshops with international and local experts to integrate findings into the family program, which was then piloted with 10 families.

This case study highlighted the importance of allowing time and funding to set up a CAB as early as possible in the study process in order to build trusting relationships and to address practical and structural barriers to meaningful communication. The CABs were made up of at-risk adolescents and caregivers from Syrian, Palestinian, and Lebanese communities. CAB members informed the translation of the program review and interview findings into the module, the validation of measures for pre- and post- assessments, and strategies to engage and communicate with families who would potentially benefit from the program. Compensation for the time and effort of CAB members was challenging due to issues of fairness among other community members and too little compensation raising ethical concerns of exploitation. In the context of Lebanon, this has been particularly challenging because of the spiraling devaluation of the Lebanese currency and general economic distress. The economic crisis in Lebanon also impacted the study through staff salaries, compensation, the price of program materials and transport. In these challenging conditions, the research team needed to respond through realistic and collective planning, careful consideration of all moving parts, and re-visiting decisions and plans with key stakeholders regularly.

Discussion

Defining meaningful community engagement

The discussion highlighted how community engagement is more difficult in humanitarian settings, but by the same token more essential. Some participants suggested viewing community engagement as a continuum that could be compared to a human rights framework. They acknowledged that researchers should continue to strive towards it, but it will take time to achieve the ideal community engagement. Participants voiced how the ideal vision is to conduct community-partnered participatory research that includes having IRB processes and data management skills in the community itself to localize research processes. Others emphasized that community engagement should not be tokenistic. Researchers should be reflective about the limitations of working with communities, such as how diverse and representative their engagement is in actuality. Further discussion addressed differences across settings, where some researchers can immediately start a study while others with new partnerships with local stakeholders will take more time.

When and how to do community engagement

The discussion explored how community participation increased the ethical and scientific rigor for the case studies presented in the session. Some participants voiced concern over token engagement where communities often become “check boxes” like refugees, children, elderly, disabled, etc. and called for re-humanizing our approach to community engagement in research. Other participants expressed how community engagement creates bias, specifically self-selection bias, as those who work with researchers often think they’ll gain personal benefits from engagement.

There was overwhelming consensus that there is a need to involve the community at all stages of the research process, particularly at the initial design stage of a research study. More guidance is needed on how to involve a community early on given the unique complexities of humanitarian settings. The discussion included the importance of including the community at the beginning of study conceptualization to address questions that are of interest and important to the community. Community involvement is often not at the level of deciding the research questions, but about implementing the study.

Funding community engagement

Participants discussed misconceptions about funding community engagement in health research and how it may not be as well-supported as perceived. Much of the discussion around community engagement places the burden on the researcher. Participants highlighted how most grants have set budgets and timelines that are too limited to allow for meaningful community engagement. It is rare for research teams to have long-term relationships with communities in advance and sometimes communities are in flux. Some researchers felt if engagement is not valuable to the funders, it is hard for researchers to implement. The discussion suggested shifting some of this burden to funding agencies, who could allow time and budget for community engagement in grant programs, just as they do for monitoring and evaluation.

SESSION 5 – RESEARCH IN COMPLEX SETTINGS WITH DIFFICULT TO REACH POPULATIONS

Session Co-Chairs

Daniele Lantagne, Tufts University, United States

Yap Boum, Epicentre MSF, Cameroon

Introduction to Theme

Conducting research is especially challenging in complex settings where issues of access, protection, safety, and ethics come together. These include acute crises immediately following an event, settings where populations are on the move, areas where populations are difficult to access, and situations where the protection and safety of both the populations and researchers are compromised. Currently, there is limited evidence available for these settings. Over the past 20 years, protections for affected populations and researchers, as well as training and ethical approval processes, have improved. The case studies in this session describe how different groups of researchers have been able to complete needed research in complex settings ethically, safely, and with protections for themselves and study populations.

Case Study Summaries

Measuring hunger in migrants on the move, competing with crime, climate, and COVID

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Columbia University Medical Center
United States

Cesar Infante Xibille

National Institute for Public Health
Mexico

Migrants moving from Central America through Mexico to the U.S. face a myriad of challenges to their health. For example, food insecurity and undernutrition have negative impacts on mental and physical health, yet these impacts are difficult to assess with populations on the move. This study aimed to (1) document prevalence and severity of food security among migrants in transit from Central to North America and (2) understand potential predictors associated with exposure to severe food insecurity. The research team observed a range of food insecurity and related health issues and noted several methodological challenges and limitations of research tools for studying populations on the move.

Conducting research with a difficult to access and uniquely vulnerable population posed an ethical challenge for researchers. This was mitigated through a community-based participatory approach implemented in partnership with shelters that provide safety and resources to migrants. Existing data measurement tools were limited and did not fit the reality of immigrants on the move. As such, the research team modified interview questions and their approach to better examine the reality in the study population. Another challenge was distrust from and low literacy of the study population, which was mitigated by having shelter staff administer interviews. In general, the authors recommended including

community partners, such as migrant shelters, in a community-based participatory research (CBPR) approach and ensuring that data collection and research be conducted by staff experienced in working in humanitarian settings.

Challenges and lessons learned in implementing an abortion-related near-miss study in a fragile setting in Nigeria: The AMoCo study

Timothy Williams

Epicentre Médecins Sans Frontières

Nigeria

This study was conducted in northern Nigeria in an area affected by flooding, food shortages, malaria, and displacement from surrounding areas resulting from the Boko Haram crisis. Access to induced abortion and post-abortion care for complications is extremely limited and therefore, rates of complications are high. The study examined the magnitude, severity, and contributing factors of abortion-related complications in a comprehensive emergency obstetric and neonatal care hospital. The multi-site study entailed a prospective medical records review (573 participants) and quantitative survey (408 participants) of women who presented for any abortion complication. Additionally, in-depth, semi-structured qualitative interviews (68 participants) were conducted with women who experienced a life-threatening complication.

Recruiting research participants was challenging due to low awareness of research and skepticism of researchers from the community. It was also difficult to obtain consent in emergency wards in fragile contexts. To mitigate this, the team used an opt-out strategy for the medical records review component of the study (which collected routine clinical data) and clear communication of patients' rights to refuse review of their records. To enroll interview participants, researchers worked with hospital staff to increase awareness of the study and encourage participation. Low literacy, restrictive lifestyles for women, and the sensitive subject of the study also challenged the research team. To overcome these issues, the research team used an independently validated audio-recording in the consent process. Women who participated in the study were often accompanied by in-laws (who would be their primary caregivers), which presented a challenge in preserving their privacy and confidentiality. To address this challenge, the research team took care in how they approached women in the hospital and how they communicated with caregivers.

Improving the quality of maternal and new-born care in humanitarian settings: The Safe Delivery App in Puntland, Somalia

Jamal Warsame

Save the Children

Somalia

This study took place in northeastern Somalia where maternal and newborn mortality rates are high while essential service use is low. Save the Children Somalia conducted a program evaluation of the Safe Delivery App, a digital distribution tool that aims to improve the skills and knowledge of health workers,

such as midwives. The prospective pre-post implementation study enrolled 38 midwives and community midwives who used the Safe Delivery App on their phones. Researchers assessed confidence, knowledge, and skills in management of neonatal resuscitation, newborn danger signs, and low birth weights. The study showed that the app added value to the participants' learning experience and knowledge retention.

The research team addressed language barriers by translating materials and guidelines into the Somali language. Since remote health facilities did not have internet access, midwives were not able to access the application. To mitigate this challenge, materials were made available offline. The research team also faced security risks, which were managed by coordinating travel with Save the Children's security staff.

Discussion

Data collection methods and tools

This discussion highlighted how managing data collection, interviews, and research protocols is difficult when conducting research with populations on the move, such as people who are fleeing violence, poverty, and suffering. Participants noted that when designing studies, it is important to adjust to this context by planning ahead, being flexible, and putting study participants' needs first. Researchers should consider utilizing new tools and techniques, such as social media and data mining, flexible rapid assessments, and quasi-experimental data collection methods. Technology may also help researchers keep in contact with participants through biometric data, mobile phones, and SIM cards. However, technology-centric data collection requires researchers to be mindful of ethical issues such as privacy and security. Following up with research participants and sharing findings may be difficult or altogether impossible as populations are constantly moving. Researchers may need to be creative, for example by communicating research findings with migrant shelters or health networks who can then communicate to communities.

Meaningful consent

GFH2R participants agreed that obtaining consent is critical, but also challenging, with populations that have experienced suffering and may have low levels of literacy and distrust researchers. It is important to provide participants with enough information so they can make a well-informed decision about the study. But language is often a barrier, especially when participants are coming from different places. Participants suggested strategies such as providing audio recordings, using tiers of consent, creative demonstrations of consent, and using repeat-back procedures. There are ethical issues that need to be considered related to anonymity, security, opt-in vs. opt-out, studies involving minors, and the vulnerability of participants. Researchers should recognize that consent is an ongoing and voluntary process that requires relationship-building. Participants noted that researchers are not often trained in establishing rapport and building trust.

Preparation

GFH2R Participants shared that researchers need to be prepared to work in settings with low resources, limited access to health services, and lack of internet or mobile services. They should be able to help connect participants to services that they can benefit from but are not aware of, such as health services

and protections offered by humanitarian organizations. Researchers should take advantage of toolkits and manuals developed by the WHO. In terms of technology, offline applications that upload data when connected, two-way radios, beacon/locators, and audio recorders are important. Researchers should also collect field notes and conduct regular debriefs with their teams. Participants agreed that researchers should be prepared to document their own unique experiences and share and learn from each other. Researchers should also be flexible in case they need to adapt or change their approaches based on the context. They may need to adapt to the context through modified or shortened surveys, translations to local language, or other changes. During the COVID pandemic, for example, researchers used technology, virtual meetings, and tools like WhatsApp for their research.

Ethical challenges

The discussion explored how conducting research in complex environments often requires innovative solutions and special considerations for obtaining consent and providing compensation. Researchers need to build trust with communities, affected populations, and research partners. They should recognize that participants face stigma and their participation itself may put them at risk. Sensitive research topics also need to be carefully handled. This involves working closely with community members, health workers, and others as partners in research. Some participants noted that IRBs would benefit from a better understanding of conditions on the ground in affected areas.

SESSION 6 – CHALLENGES AND OPPORTUNITIES FOR FUNDING RESEARCH IN HUMANITARIAN CRISES

Session Co-Chairs

Jill Jones, Medical Research Council, United Kingdom

Nalini Anand, Fogarty International Center, National Institutes of Health, United States

Overview of Funding Issues

This session followed a different format from previous GFH2R sessions in that it featured three panelists from research funding organizations and two panelists with experience in applying for research funding. Each panelist presented on issues related to funding research in humanitarian settings, followed by a dialogue and discussion between funders and researchers. Several issues raised in prior sessions of the Forum were discussed further in this session, including the importance of strengthening capacity of early career researchers, ensuring ethical protections, and improving community participation.

Flora Katz – Fogarty International Center, National Institutes of Health, United States (Panelist)

NIH is the largest funder of health research in the world. The Fogarty International Center is one of 27 institutes focused on research and research training in LMICs. Dr. Katz described some of the challenges to funding research in humanitarian settings, including:

- Contrast between rapid timeline of crises and relatively long timeline for funded research
- Requirements from U.S. State Department clearance and ethical review
- Need to convince peer reviews of methodological considerations
- Increasing complexity and concurrence of crises
- Low capacity for research in crisis-affected settings

Dr. Katz noted that there are very few humanitarian-specific funding opportunities at NIH and as such, researchers are encouraged to look more broadly in health areas that could include humanitarian health research and research training. Across NIH, some areas of emerging research interest include opportunities for low-cost and point-of-care technologies, the nexus of climate change and health, and research with mobile populations (e.g., refugees). Researchers interested in applying for NIH funding are encouraged to contact the scientific contact listed in solicitations, check the “eligibility” section of solicitation to determine if foreign applicants are allowed, and sign up for the [FIC funding newsletter](#)⁴ to keep apprised of new opportunities.

Montasser Kamal – International Development Research Centre, Canada (Panelist)

The International Development Research Centre (IDRC) is a Canadian government agency with a mission of funding research and strengthening research capacity in LMICs. Dr. Kamal shared that the most relevant programs for humanitarian health research at IDRC are in two divisions: 1) global health, particularly related to maternal and child health, sexual and reproductive health, and rights for women and girls; and 2) democratic and inclusive governance, particularly related to legal empowerment, digital inclusion, and

⁴ <https://www.fic.nih.gov/Funding/News/Pages/default.aspx>

forced displacement. IDRC's new strategy prioritizes investing in research and innovation in developing countries, sharing knowledge to increase uptake of evidence-based solutions, and mobilizing alliances to grow international partnerships.

Of relevance to humanitarian crises, Dr. Kamal noted that IDRC is prioritizing South-South collaboration, research management, and in-country ethics. As an organization, IDRC is open to engaging with new actors, such as civil society and private sector, increasing donor coordination, and promoting LMIC leadership, for example in review committees. Its research opportunities emphasize the localization of research, consider who benefits from research activities, encourage interaction between disciplines, and creatively use digital technology.

Dr. Kamal described some of the challenges faced by IDRC including: imbalance in partnerships, lack of responsiveness to the realities of humanitarian crises among IRBs, managing long-term needs with annual budgets, handling the security of researchers, balancing new priorities with persisting challenges, and gender transformation.

Anne Harmer – Research for Health in Humanitarian Crises, Elrha, United Kingdom (Panelist)

Elrha is a UK-based NGO that finds solutions to complex humanitarian problems through research and innovation. Elrha's Research for Health in Humanitarian Crises (R2HC) program is funded by the UK government and the Wellcome Trust. Dr. Harmer shared that in addition to funding research, R2HC aims to identify evidence gaps and help set research priorities, synthesize learnings from research, and drive change by promoting evidence within the humanitarian system. R2HC is the only research initiative focused exclusively on humanitarian settings. It includes requirements for collaboration between academics and humanitarian practitioners, bi-directional capacity building, and a focus on research uptake.

Dr. Harmer discussed some of the challenges to research that the program has identified, such as: the safety and security of researchers, ethical issues, considering the needs of study populations, timeframes of research vs. humanitarian response, inequity in partnerships, supporting research uptake, and managing grant compliance with risk-averse funding agencies.

Dr. Harmer also shared many of the opportunities to improve humanitarian research as the demand for evidence is high. Recent efforts related to the localization of research and the decolonization agenda are very relevant to humanitarian settings. Partnerships between researchers and humanitarian organizations have the potential to bring together complementary skills.

R2HC issues an annual call for applications and can launch rapid research opportunities in response to specific crises, such as the COVID-19 pandemic. R2HC also offers webinars, guidance, and support during research grants. In addition, R2HC is developing reports around "Humanitarian Health Evidence Review" and "From Knowing to Doing."

Arturo Harker Roa – Universidad de los Andes, Colombia (Discussant)

Dr. Roa has more than a decade of experience working with international research funders and shared three points related to increasing capacity of LMIC researchers to apply for funding. First, partnerships are important to building long-term, collaborative relationships and improving knowledge diffusion. LMIC researchers and institutions often do not have the capacity to develop high-quality proposals in a short time, and as such, may need to partner with US or European partners. Dr. Roa suggested including more scientists from LMICs in review panels and emphasizing the localization agenda to support more South-South partnerships over time. Second, LMIC researchers would benefit from a better understanding of how research is translated into action. Framing research proposals in this manner will not only help researchers produce more meaningful research, but also improve the likelihood of success. Third, young researchers and institutions face many barriers in applying for grants, requiring them to invest a great deal of time to apply (and re-apply) for grants with limited success. It would be helpful to build the capacity of grant writing teams to support researchers in their applications.

Gloria Seruwagi – Makerere University, Uganda (Discussant)

Dr. Seruwagi is an experienced public health researcher in Africa. She highlighted the importance of partnerships, including those across academic teams, with humanitarian practitioners, and with policymakers who are critical to ensuring research findings can be impactful. Partnerships should also include other stakeholders, such as communities and frontline health workers such that research findings are better owned by local populations. There are capacity needs at the research team, individual, and institutional levels. For example, LMIC researchers would benefit from support in thinking about the uptake of their work long after their research concludes. The localization agenda for research is important and partnerships between LMICs and high-income countries (HICs) should be bi-directional. LMIC institutions continue to face longstanding challenges, for example related to eligibility and contracting issues. However, these institutions have a great deal to offer, and funders should be more flexible in their approach to funding humanitarian research.

Discussion

Decolonization in humanitarian health research

Research funding agencies are paying attention to the decolonization agenda. NIH is increasingly making direct awards for foreign institutions, enabling those institutions to lead awards and choose their partners. Fogarty also awards fellowships to junior faculty from LMICs. Other programs are designed to include a transfer of leadership from the HIC partner to an LMIC partner over time.

Generalizability vs. localization of research

The R2HC program has shifted from prioritizing generalizability in research proposals to promoting localization of research as humanitarian research is often very specific to the local context. The program has found that oftentimes, localized research can also be generalizable to other settings. For example, lessons from past research on Ebola were found to have relevance to the current COVID crisis.

Social science and qualitative methods

Social science research methods, including qualitative methodologies, offer clear advantages for some areas/topics of research. At IDRC, calls for proposals may specify inclusion of social sciences. Interested applicants are encouraged to contact the scientific officer listed with the call to discuss how well their proposal fits the call.

Independent ethical review boards

In principle, establishing independent ethical review boards for humanitarian research is very promising. Practically, however, this would be difficult to achieve considering appropriate representation, how busy reviewers are, and potential legal issues. An alternate approach could be the focus on strengthening existing review panels to manage research in humanitarian settings.

Non-academic organizations

Eligibility for NIH applications is explained within each call. Non-academic organizations may be eligible to apply for many calls as long as they have the capacity to handle ethical review, follow animal and human subject research guidelines, and manage financial administration of grants. In some cases, non-academic organizations may benefit from partnering with an academic institution on research proposals.

GFH2R Wrap-Up

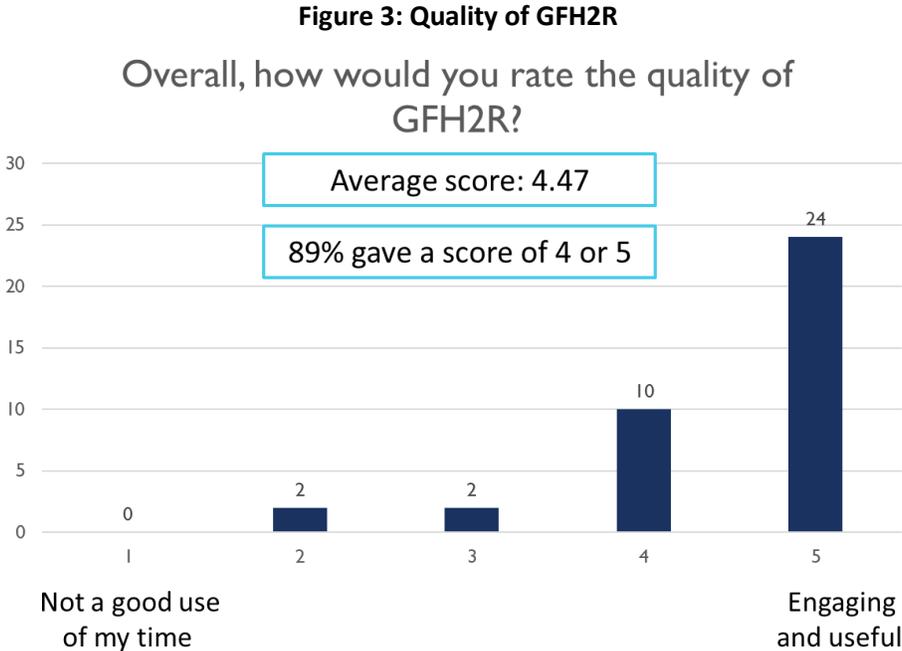
To conclude the meeting, a small number of GFH2R participants were selected to share their own key takeaway from the meeting in the form of a recommendation for early-career researchers.

- Community engagement is incredibly important from the start of study design through data collection and dissemination.
- Researchers should prioritize ethical issues in conducting research. For example, don't collect data if you don't need it, avoid re-traumatizing people, and ensure that research has a positive impact on the community.
- The ethical issues associated with conducting research in humanitarian settings are extremely challenging while IRBs aren't sufficiently resourced or prepared to address them. An independent ethical review board, ethics help desk, and capacity building would be helpful in this regard.
- It is very important to work with the ethics review process of the country in which you are working, consider longer timelines for engaging with communities, and encourage funders to provide quick-turnaround grants for emergency settings.
- It is important to distinguish between ethics from a regulatory perspective and the ethics from the "do the right thing" perspective. Both are important, though discussions around the latter can help clarify some of the very difficult ethical issues arising in humanitarian settings.
- Ethical issues should not be treated like a checklist, but rather as promoting a culture of ethical conduct and evidence generation rooted in respect. For example, informed consent should be considered an ongoing dialogue between researchers and communities.
- Research in humanitarian settings requires flexibility, nimbleness, creativity, transparency, and a culture of sharing learning.

- When unexpected crises occur, researchers have an obligation to examine if continuing their work is truly needed when considering what their partners and the study population are going through.
- When applying for funding, show the funder what you believe in. For example, if you believe in community engagement, demonstrate why it is important and how it will benefit your research.
- Avoid assuming that you know what the affected population wants or needs.
- In addition to the front-end of a research project (e.g., study design), pay attention to the back-end, including dissemination and impact.

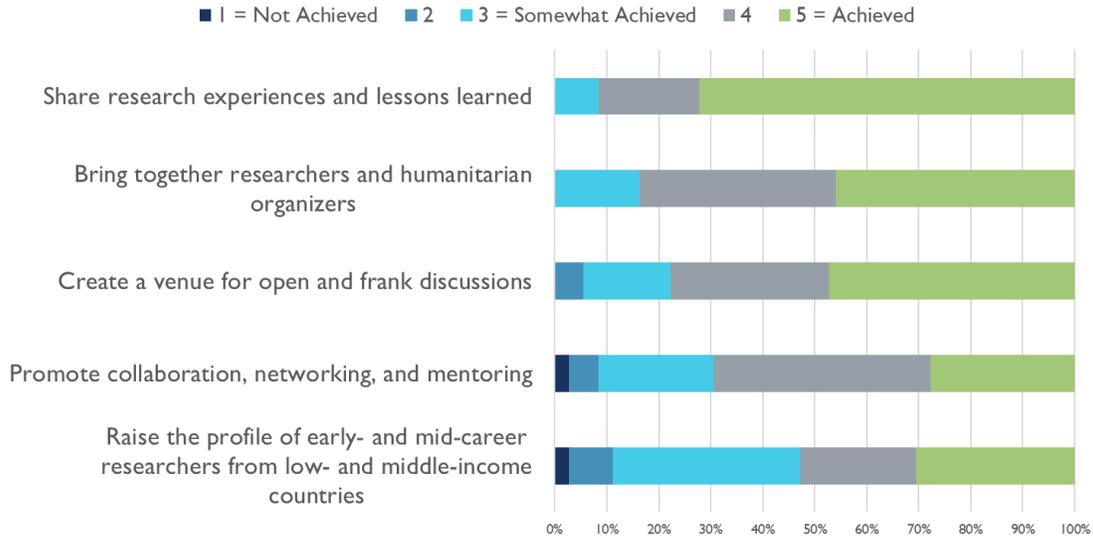
EVALUATION AND FEEDBACK

To evaluate how well GFH2R achieved its goals, a survey was administered to participants after the conclusion of the event. Additional feedback was collected before, during, and after GFH2R from participants, Steering Committee Members, and partners. Ultimately, 38 individuals responded to the survey. Respondents gave the overall quality of GFH2R an average rating of 4.47 on a 5-point scale, with the highest score characterizing the meeting as “engaging and useful” (Figure 3).



Participants were also asked to evaluate how well GFH2R achieved its goals. Goals related to “sharing research experiences and lessons learned,” “bringing together researchers and humanitarian organizations,” and “creating a venue for open and frank discussions” were rated as most achieved with more than 78 percent of respondents giving a rating of 4 or 5 (Figure 4).

Figure 4: How well did GFH2R achieve its goals?



The application process for GFH2R was given an average rating of 3.86 on a 5-point scale with 5 corresponding to “very easy.” Additional comments suggested the process was complicated and time consuming.

Feedback on the thematic sessions was very favorable and all sessions received a score of 4.5 or higher on a 5-point scale with 5 corresponding to “engaging and useful.” When asked which session was most useful and/or interesting, “Inclusive and participatory research,” “Nothing about us, without us: ethical and effective community engagement,” and “Complex settings with difficult to reach populations” received the most votes.

Meet the Expert sessions received favorable ratings with an average of 4.06 on a 5-point scale with 5 corresponding to “Very beneficial.”

Comments from participants, survey respondents, and others noted that GFH2R was successful in prioritizing the voices of early- and mid-career researchers from LMICs, facilitating dialogue across disciplines, and providing good opportunities for small group discussions. The meeting was also very well organized and run smoothly. Some commenters felt that the meeting should have been more focused, and some felt that the meeting should have been open to a larger audience. Some noted that the quality of the presentations and breakout group discussions varied throughout the program. While most participants had minimal difficulties in joining the meetings, there were some who had difficulty joining due to bandwidth challenges or time zone differences. Several respondents noted that the lack of follow-on opportunities for funding and networking diminished the value of the meeting.

CONCLUSIONS

The pilot meeting of the Global Forum on Humanitarian Health Research was successful in bringing researchers together to share their experiences and engage in dialogue around important, cross-cutting themes.

Several key points came across clearly across all six GFH2R sessions:

- **Community engagement** is a critical throughout humanitarian health research process. It not only allows researchers to better understand and access study populations, but also yields more rigorous and relevant research.
- **Humanitarian research should be localized** through partnerships with local NGOs and care providers and engagement with local data collectors, enumerators, and researchers.
- **Ethical issues** in humanitarian health research – such as consent, compensation, and approval processes – are complicated and require careful consideration and planning.
- **Flexibility, creativity, and use of technologies** are important attributes of successful research strategies in humanitarian settings.

GFH2R is a promising model to support humanitarian health researchers, especially early- and mid-career researchers from LMICs. Participants, partners, and Steering Committee members found the meeting to be engaging and useful and the goals were, for the most part, achieved. They appreciated the prioritization of LMIC researchers, robust small group discussions, and dialogue across disciplines and sectors. Ideas for improving the meeting in the future include:

- Utilize a hybrid format that allows broader reach through virtual components and more focused mentoring and networking for in-person participants
- Build the meeting around more focused topics and themes
- Encourage team applications from academic/NGO collaborations and local-global partnerships
- Provide follow on opportunities to support mentoring, networking, and seed funding for research
- Increase outreach to engage Latin American researchers

As of August 2022, the GFH2R Secretariat is exploring some of these ideas with the expectation of organizing a meeting in 2023.

LIST OF ACRONYMS

CAB – community advisory board
CBPR – community-based participatory research
GFBR – Global Forum on Bioethics in Research
GFH2R – Global Forum on Humanitarian Health Research
HIC – high-income country
ICT – information and communication technologies
IDRC – International Development Research Centre
IRB – institutional review board
LMIC – low- or middle-income country
MHPSS – mental health and psychosocial support services
NGO – non-governmental organizations
NIH – National Institutes of Health (United States)
R2HC – Research for Health in Humanitarian Crises program
SRH – sexual and reproductive health
UKMRC – United Kingdom Medical Research Council

APPENDIX A: MEETING AGENDA

Global Forum on Humanitarian Health Research (GFH2R): 'Research in the Context of Concurrent Crises'

**Tuesday 9 – Thursday 11 November &
Tuesday 16 – Thursday 18 November**

The GFH2R will be centered on six thematic sessions. All sessions will take place at **1:00pm – 2:30pm GMT** (8:00am USA EST and Colombia | 1:00pm UK | 3:00pm Lebanon | 4:00pm Kenya | 7:00pm Bangladesh). Each session will be 90 minutes, of which 30 minutes will be small breakout discussions.

In addition, optional networking sessions and informal “Meet the Expert” sessions will take place before and after the thematic sessions.

OVERVIEW

GMT	8-Nov	9-Nov	10-Nov	11-Nov	12-Nov
12:00 PM			Meet the Experts	Meet the Experts	
12:30 PM					
1:00 PM		Session 1: Intersectional vulnerability in humanitarian crises	Session 2: Inclusive and participatory research	Session 3: Humanitarian health research in context of COVID- 19	
1:30 PM	Networking Session				
2:00 PM					
2:30 PM		Meet the Experts	Meet the Experts	Meet the Experts	
3:00 PM					
3:30 PM					

GMT	15-Nov	16-Nov	17-Nov	18-Nov	19-Nov
12:00 PM	Meet the Experts	Meet the Experts	Meet the Experts	Meet the Experts	
12:30 PM					
1:00 PM		Session 4: “Nothing about us, without us” - ethical and effective community engagement in humanitarian research	Session 5: Research in complex settings with difficult to reach populations	Session 6: Challenges and opportunities for funding research in humanitarian crises	
1:30 PM	Networking Session				
2:00 PM					
2:30 PM		Meet the Experts	Meet the Experts	Meet the Experts	
3:00 PM					
3:30 PM					

DETAILED AGENDA

Tuesday 9 November

Theme 1	<p>Intersectional vulnerability in humanitarian crises</p> <p>Researchers in humanitarian settings often face challenges in capturing the diversity of experiences within the study populations. Understanding the multi-layered vulnerabilities is key to building both trust and high-quality research. The case studies featured in this session will demonstrate how researchers have approached these issues in three different settings.</p> <p>Co-chairs: Montasser Kamal – IDRC, Canada Fouad Fouad – American University of Beirut, Lebanon Abdi Dalmar – Somali Research and Development Institute (SORDI), Somalia</p>
5 min	Welcome – <i>Amit Mistry</i>
10 min	Introduction to the theme – <i>Montasser Kamal</i>
10 min	Engaging with the most vulnerable groups in humanitarian crisis amid the COVID-19 pandemic: The case of Rohingya refugee crisis in Bangladesh <i>Ateeb Ahmad Parray – BRAC James P Grant School of Public health, Bangladesh</i>
10 min	Newborn health response in humanitarian settings: Venezuelan refugees and migrants in Colombia <i>Diana Pulido – Save the Children Colombia, Colombia</i>
10 min	Conducting interventional research to improve the sexual and reproductive health of adolescent Syrian refugee girls displaced in Lebanon: Challenges and lessons learned <i>Sasha Fahme – American University of Beirut, Lebanon</i>
10 min	Plenary discussion – moderated by Fouad Fouad
30 min	Breakout group discussion
5 min	Plenary wrap-up – Abdi Dalmar

Wednesday 10 November

Theme 2	Inclusive and participatory research In this panel session, we will discuss the importance of inclusive and participatory research in the humanitarian context, with a particular focus on refugee populations and people living with disabilities. Panelists will draw upon their own experience conducting research in disparate settings to elucidate common barriers to including affected communities in the design, management, and dissemination of humanitarian research, as well as strategies they have utilized to overcome these challenges. Chair: Adam Levine – Brown University, United States
5 min	Welcome – <i>Adrienne Hunt</i>
10 min	Introduction to the theme – <i>Adam Levine</i>
10 min	Enhanced participation of Rohingya refugees to increase immunization coverage in a camp-based population in Cox’s Bazar, Bangladesh <i>Nyo Yamonn, Community Partners International, Burma</i>
10 min	Strategies to address the challenges of Humanitarian Research: lessons learned from Refugee Camps in Ethiopia <i>Wubshet Tsehayu – Project Gaia, Ethiopia</i>
10 min	Doing inclusive research in the context of the Cameroon Anglophone crisis or conflict: perspectives from the PIRL project <i>Louis Mbibeh – University of Bamenda, Cameroon</i>
10 min	Plenary discussion – <i>moderated by Adam Levine</i>
30 min	Breakout group discussion
5 min	Plenary wrap-up – <i>Adam Levine</i>

Thursday 11 November

Theme 3	<p>Humanitarian health research in context of COVID-19</p> <p>The COVID-19 pandemic exacerbates the existing complexities and conditions of humanitarian settings all over the world. In this session we examine unique challenges to conducting health research amidst the pandemic in the three distinct contexts of northwest Syria, Somalia, and Myanmar.</p> <p>Co-chairs: Shannon Doocy – Johns Hopkins University, United States Seydou Doumbia – University of Bamako, Mali</p>
5 min	Welcome - <i>Blythe Beecroft</i>
10 min	Introduction to the theme - <i>Shannon Doocy</i>
10 min	<p>Constraints and ethics issues of mobile technologies: Use of technology and data in the response to Covid-19 in Myanmar</p> <p><i>Phway Thinzar Chit – Mahidol University, Thailand</i></p>
10 min	<p>Excess mortality during the COVID-19 pandemic: A geospatial and statistical analysis in Mogadishu, Somalia</p> <p><i>Farah Ahmed – Somali Disaster Resilience Institute, Somalia</i></p>
10 min	<p>Strengthening MHPSS services in Northwest Syria: The challenges of research prioritization and resource management in a context overwhelmed with need</p> <p><i>Dana Townsend – SAMS Foundation, United States</i></p>
10 min	<p>Plenary discussion - <i>moderated by Seydou Doumbia</i></p>
30 min	<p>Breakout group discussion</p>
5 min	<p>Plenary Wrap-up - <i>Seydou Doumbia</i></p>

Tuesday 16 November

Theme 4	<p>“Nothing about us, without us” - ethical and effective community engagement in humanitarian research</p> <p>In our session we look at community engagement conducted in three different ways and the three different contexts of Lebanon, Ethiopia and Jordan. We will discuss the importance of community engagement in humanitarian research, the ethical challenges that can occur with engaging communities and how these can be addressed. Our discussion will center around feasible, meaningful and effective community engagement.</p> <p>Co-chairs: Veena Pillai – MSF/Diode, Malaysia Isabel Garcés-Palacio – Universidad de Antioquia, Colombia</p>
5 min	Welcome - <i>Blythe Beecroft</i>
10 min	Introduction to the theme - <i>Veena Pillai</i>
10 min	Community engagement during One Health research amidst concurrent crises, including drought and animal disease: A case study in Somali Region of Ethiopia <i>Kuastros Belaynehe – National Animal Health Diagnosis and Investigation Center (NAHDIC), Ethiopia and Global One Health initiative (GOHi), The Ohio State University, Ethiopia</i>
10 min	Syrian refugee fathers' wellbeing, family involvement, and community engagement amidst the COVID-19 pandemic <i>Majd Al-Soleiti – Taghyeer Organization, Jordan</i>
10 min	Family focused psychosocial support for the mental health of at-risk adolescents in Lebanon <i>Tania Bosqui – American University of Beirut, Lebanon</i>
10 min	Plenary discussion - moderated by Veena Pillai
30 min	Breakout group discussion
5 min	Plenary wrap-up - Veena Pillai

Wednesday 17 November

Theme 5	<p>Research in complex settings with difficult to reach populations</p> <p>Conducting research is especially challenging when the study population is difficult to reach. In this session, presenters will share their experiences conducting research with migrants in Central and North America, fragile settings in Nigeria, and war-torn Somalia</p> <p>Co-chairs: Daniele Lantagne – Tufts University, United States Yap Boum – MSF Epicentre, Cameroon</p>
5 min	Welcome – <i>Amit Mistry</i>
10 min	Introduction to the theme - <i>Daniele Lantagne</i>
10 min	<p>Measuring hunger in migrants on the move, competing with crime, climate, and COVID <i>Cesar Infante Xibille - National Institute for Public Health, Mexico</i> <i>Manuela Orjuela-Grimm – Columbia University Medical Center, United States</i></p>
10 min	<p>Challenges and lessons learned in implementing an abortion-related near-miss study in a fragile setting in Nigeria: The AMoCo study <i>Timothy Williams – Epicentre-Medecins Sans Frontieres, Nigeria</i></p>
10 min	<p>Improving the quality of maternal and new-born care in humanitarian settings: The Safe Delivery App in Puntland, Somalia <i>Jamal Warsame – Save the Children Somalia, Somalia</i></p>
10 min	Plenary discussion - <i>moderated by Yap Boum</i>
30 min	Breakout group discussion
5 min	Plenary wrap-up - <i>Yap Boum</i>

Thursday 18 November

	<p>Challenges and opportunities for funding research in humanitarian settings Co-chairs: Jill Jones – UK Medical Research Council, UK Nalini Anand – Fogarty International Center, US National Institutes of Health, United States</p>
60 min	<p>Welcome – <i>Adrienne Hunt</i></p> <p>Introduction to the session: <i>Jill Jones – UK Medical Research Council, UK</i></p> <p>Panelists:</p> <ul style="list-style-type: none">• <i>Flora Katz, Fogarty International Center, US National Institutes of Health, United States</i>• <i>Montasser Kamal, International Development Research Centre, Canada</i>• <i>Anne Harmer, Research for Health in Humanitarian Crises, UK</i> <p>Researcher discussants:</p> <ul style="list-style-type: none">• <i>Arturo Harker Roa, Universidad de los Andes, Colombia</i>• <i>Gloria Seruwagi, Makerere University, Uganda</i> <p>Plenary discussion</p>
30 min	GFH2R Wrap-up and discussion of key themes
	Meeting close

APPENDIX B: RESOURCES

The following are recommended resources for anyone interested in health research in humanitarian crises.

- [Advancing Health Research in Humanitarian Crises](#) – a project led by the NIH Fogarty International Center to share learning and strategies on conducting health research in the context of humanitarian crises in low- and middle-income countries (LMICs).
- [Elrha](#) – a global charity that finds solutions to complex humanitarian problems through research and innovation. See the [Research for Health in Humanitarian Crises \(R2HC\) Programme](#) for funding opportunities and other resources.
- [Evidence Aid](#) aims to save lives and livelihoods in disasters by providing decision-makers with the best available evidence and by championing its use.
- [NIH Disaster Research Response \(DR2\)](#) provides training, funding, and a Resources Portal of tools to empower human health research in response to disasters and public health emergencies.
- NIH National Institute of Mental Health (NIMH) [Global Mental Health and Human Mobility Research Program](#) supports research on the increasing mental health challenges faced by mobile populations at all stages of migration.
- [Nuffield Council on Bioethics and the Global Health Network](#) have developed an e-learning course covering the core ethical issues that arise when conducting research in global health emergencies.

To request access to the GFH2R meeting platform, which includes video recordings of all sessions and downloadable case studies, please contact GFH2R@mail.nih.gov.

APPENDIX C: CASE STUDIES

Each of the 15 case studies presented at GFH2R are listed below, followed by PDF versions of each document.

Session 1.1: Engaging with the most vulnerable groups in humanitarian crisis amid the COVID-19 pandemic: the case of the Rohingya refugee crisis in Bangladesh

Ateeb Ahmad Parray, BRAC James P Grant School of Public Health, Bangladesh

Session 1.2: Newborn health response in humanitarian settings: Venezuelan refugees and migrants in Colombia

Diana C. Pulido, Save the Children Colombia, Colombia

Session 1.3: Conducting interventional research to improve the sexual and reproductive health of adolescent Syrian refugee girls displaced in Lebanon: Challenges and lessons learned

Sasha Fahme, American University of Beirut, Lebanon

Session 2.1: Enhanced participation of Rohingya refugees to increase immunization coverage in a camp-based population in Cox's Bazar, Bangladesh

Nyo Yamonn, Community Partners International, Myanmar

Session 2.2: Strategies to address the challenges of humanitarian research: lessons learned from refugee camps in Ethiopia

Wubshet Tsehayu, Project Gaia, Ethiopia

Session 2.3: Doing inclusive research in the context of the Cameroon Anglophone crisis or conflict: perspectives from the PIRL project

Louis Mbibeh, University of Bamenda, Cameroon

Session 3.1: Constraints and ethics issues: use of mobile devices in the response to Covid-19 in Myanmar

Phway Thinzar Chit, Community Partners International, Myanmar

Session 3.2: Excess mortality during the COVID-19 pandemic - a geospatial and statistical analysis in Mogadishu, Somalia

Farah Ahmed, Somali Disaster Resilience Institute, Somalia

Session 3.3: Strengthening MHPSS services in Northwest Syria - the challenges of research prioritization and resource management

Dana Townsend, SAMS Foundation, United States

Session 4.1: Community engagement during One Health research amidst concurrent crises, including drought and animal disease: a case study in Somali region of Ethiopia

Kuastros Belaynehe, National Animal Health Diagnosis and Investigation Center (NAHDIC), Ethiopia and Global One Health initiative (GOHi), Ethiopia

Session 4.2: Syrian refugee fathers' wellbeing, family involvement, and community engagement amidst the COVID-19 pandemic in Jordan

Majd Al-Soleiti, Taghyeer Organization, Jordan

Session 4.3: Family focused psychosocial support for the mental health of at-risk adolescents in Lebanon

Tania Bosqui, American University of Beirut, Lebanon

Session 5.1: Measuring hunger in migrants on the move, competing with crime, climate, and COVID

Manuela Orjuela-Grimm, Columbia University Medical Center, United States

Cesar Infante Xibille, National Institute for Public Health, Mexico

Session 5.2: Challenges and lessons learned in implementing an Abortion-related Near-miss study in a Fragile setting in Nigeria: The AMoCo study

Timothy Williams, Epicentre-Medecins Sans Frontieres, Nigeria

Session 5.3: Improving the quality of maternal and new-born care in humanitarian settings: The Safe Delivery App in Puntland, Somalia

Jamal Warsame, Save the Children Somalia, Somalia

Engaging with the most vulnerable groups in humanitarian crisis amid the COVID-19 pandemic: The case of Rohingya Refugee Crisis in Bangladesh

Ateeb Ahmad Parray¹, Rafia Sultana¹, Kazi Sameen Nasar¹, Bachera Aktar¹, and Sabina Faiz Rashid¹

¹ The Center of Excellence for Gender, Sexual and Reproductive Health and Rights, BRAC James P Grant School of Public Health, BRAC University, Dhaka-1213, Bangladesh

Aim of the study

This case study identifies the most vulnerable groups (MVGs) of people within the Rohingya refugees and the host communities of Cox's Bazar, Bangladesh, amid the COVID-19 pandemic. Furthermore, based on communities' perspectives and that of humanitarian workers, we elucidate why these groups are most vulnerable.

Source of funding support

International Development Research Centre, Canada

Description of the research context

The Rohingyas are the world's largest refugee population who reside in 34 camps in the Teknaf and Ukhiya sub-districts of Cox's Bazar, Bangladesh (1). These camps are congested, and people live in cramped conditions, with five to six members living in single-room shelters (2). The terrains are hilly and often at risk of fires, floods, and mudslides which puts the entire population at risk (3).

The Bangladeshi host population lives alongside the Rohingya and is one of the poorest population groups in the country, with many of them living below the poverty line (4). Before the arrival of Rohingyas, this population was economically vulnerable due to the scarcity of resources in the area. Since the last Rohingya influx in 2017, the Bangladeshi host community has become especially vulnerable due to a constant competition for opportunities between them and the refugees.

Since the arrival of Rohingyas in Bangladesh, there has been a hike in health risks whereby preventable diseases such as Diphtheria and Cholera have resurfaced. The labor market has become competitive with the Rohingya laborers reducing wages by agreeing to work for lower wages; overall living expenses have increased as daily essentials are now more in demand (5). Moreover, the host community perceives that they do not receive humanitarian aid as the Rohingyas do while bearing many of the costs of the influx. The pandemic has somewhat exacerbated these episodes of rising tension between the two communities (3).

Location of the study

Ukhiya and Teknaf sub-districts of Bangladesh (Annexes-1) are close to the Bangladesh-Myanmar border. After the exodus of Rohingyas from Myanmar in 2017, they were provided shelter in makeshift camps (34 in total) by the government of Bangladesh and the humanitarian community.

This study was conducted in the Rajapalong union (Annexes-1) of the Ukhiya sub-district of Cox's Bazar, Bangladesh, including Rohingya refugee camps 1 to 10 and wards - 2, 5, 6, and 9. The selection of study sites was guided by the coverage areas of the larger project that this study is derived from (6).

Description of the concurrent humanitarian crises affecting the study population

The COVID-19 pandemic has had adverse impacts on the studied communities, which have been well documented in the literature. However, the groups of people rendered most vulnerable¹ and marginalized during the pandemic and how COVID-19 impacted them have not been studied.

Such groups in these communities have been facing many daily issues that the pandemic has now exacerbated. For instance, the women and girls face an increase in unpaid care work as more family members stay at home due to the lockdown (7). Due to the patriarchal constraints which limit their access to information and restricts mobility, the instances of intimate partner violence (IPV) and gender-based violence (GBV) increased, and the women and girls faced more significant safety risks in and out of their homes coupled with mental health issues (7).

Description of the research project

This study is derived from a larger participatory action project - 'Bridging Communities in Cox's Bazar: Mitigating Risks and Promoting Gender, Governance, and Localization of Humanitarian Responses in COVID-19 Era' (6). This project is led by BRAC James P Grant School of Public Health (BRAC JPGSPH) in partnership with the Center for Peace and Justice (CPJ), BRAC University in the Rohingya, and host communities of Cox's Bazar with funding from the International Development Research Center (IDRC), Canada.

This project aims to provide specific evidence to influence policymaking and interventions that promote tolerance and peacebuilding, encourage civic engagement, facilitate the psychosocial well-being of the communities, establish gender transformative approaches, and encourage more excellent localization of humanitarian aid interventions.

Description of the specific research questions explored by the study

This case study explores the following research questions:

1. Who are the MVGs in the context of COVID-19 in the host and Rohingya settings of Cox's Bazar Bangladesh, and why are such groups considered most vulnerable?
2. What are the specific experiences and good practices related to studying the MVGs in the host and Rohingya settings of Cox's Bazar Bangladesh?

Brief methodology of the study

We conducted a thorough literature review to identify the potential groups of most vulnerable people in the studied context and the reasons behind their vulnerabilities. Following this, BRAC JPGSPH and CPJ jointly invited the government officials, humanitarian workers, and community representatives from the studied communities to participate in consultation workshops wherein focus group discussions were conducted to capture their perspectives on the literature review findings. The reasons provided by the experts were recorded and consolidated into two separate matrices - host and Rohingyas. The expert consultation also helped the researchers understand the local terminologies that helped build rapport with the studied communities during the field visits that followed the consultation workshops. The final list of MVGs was prepared after conducting field visits with the host community members and Rohingya camp residents and interviewing the following types of informants from both communities; community leaders (n=4), religious leaders (n=4), community health workers/volunteers (n=4), adult men (n=4), adult women (n=4), adolescent boys (n=4), adolescent girls (n=4).

Description of public health challenge studied

In the context of humanitarian crises, the intersectional nature of the vulnerabilities faced by the beneficiaries is often ignored while planning responses. The interventions are accessible to the people

¹ We define the notion of vulnerability as the situation of individuals, households, or communities who are exposed to potential harm from one or more risks.

who meet the most common vulnerabilities that implementers know and thus do not penetrate the deep hidden pockets of communities. As a result, many populations tend to remain underserved and gradually become 'most vulnerable'.

While the inclusivity of pandemic responses is imperative, it is paramount to identify marginalized groups, study, analyze, and consider their vulnerabilities while planning responses. However, identifying such groups continues to be a conceptual and methodological challenge because the extent and impact of vulnerabilities differ from person to person and community to community. Thus, it warrants a participatory and inclusive approach to exploring the MVGs in such settings from both the etic and emic perspectives.

Importance of the study

- Case study is unique as it identifies specific groups of people within the host and Rohingya communities that are perceived as 'most vulnerable' by both the community people and the humanitarian workers who provide services to them. Unfolding such hidden pockets within communities is crucial in response planning and designing.
- The most critical aspect of this study is that it is a product of the "bridges" that the local enumerators (co-researchers) helped us build with the respondents and those which they made themselves with the refugees, as host communities.
- This case study offers a tested methodological approach to identify MVGs in humanitarian settings using participatory approaches and considering etic-emic perspectives to triangulate the results. This methodology has the potential to work in other humanitarian settings as it considers both demand and supply-side perspectives and engages all respondents as co-researchers to identify, analyze and reach out to the MVGs.

Discussion of research issues

The researchers explored community peoples' perceptions of what they considered vulnerable and who they perceived as vulnerable. Once this information was collected, the researchers cross-checked the findings with MVG lists derived from literature review and consultation workshops and triangulated the final list of the MVGs. Table 1 presents the final list of the MVGs, along with the reasons behind their vulnerabilities.

Table 1: Final list of MVGs from the studied communities, their definition, and the reasons behind their vulnerabilities

Most Vulnerable Groups (MVGs)	Description
Pregnant and Lactating Mothers (PLM)	Currently pregnant or lactating mother with a child < 2 years
<p>The PLM was considered most vulnerable as they require proper nutrition for the development of a healthy baby. This meant having three meals a day in the host context, while in the Rohingya context, it meant having two meals a day. However, COVID-19 had massively affected the livelihood opportunities such that many of the respondents in both communities had to skip one meal a day to survive during the lockdown.</p>	
Adolescents	Both boys and girls within the 10-19 years age group
<p>Adolescent boys were considered most vulnerable because the community people feared they might indulge in drugs, human trafficking, or other criminal activities. Adolescent girls were considered most vulnerable as there was an increase in child marriage events in both communities. The difference was that in the host community; adolescent girls were being married as the schools were shut while the Rohingya girls were being married to reduce the family size as Rohingyas considered larger families a “burden” and difficult to feed.</p>	
People with Disabilities (PWDs)	A person with any disability and age 18+ years
<p>PWDs were considered most vulnerable as they were dependent on their caretakers and required constant medical attention in many cases. These caretakers were usually women and girls. However, the COVID-19 pandemic had increased the caregiving responsibilities of women and girls in our studied communities. This indicated that the caretakers wouldn’t be able to respond to the need of the PWDs completely.</p>	
Single female household heads (SFHHs) without income	Women who are widows/divorced/abandoned by their spouse and have no source of income
<p>The SFHHs were considered most vulnerable due to the lack of male persons in the house. In both communities, the SFHHs were considered the poorest groups. The communities mentioned stories of community members aiding them during the pandemic. In Rohingya camps, neighbors shared their food ration with them, while in the host communities, the community people donated cash to them. However, the lack of a male person in the house also meant they were more vulnerable to GBV and quid-pro-quo harassment. Thus, the SFHHs in our studied contexts were living extraordinary vulnerable life.</p>	
Elderly people	Both male and female of age 64+ years
<p>The elderly were considered most vulnerable due to their age and preexisting comorbidities that put them at risk of contracting COVID-19. Hence, they were in complete isolation and suffered most significantly from the mental health impacts of the pandemic.</p>	

Conclusion

This case study identified MVGs in the studied contexts; pregnant and lactating mothers, adolescent boys and girls, single female household heads, PWDs, and the elderly. The reasons behind their vulnerabilities are intersectional and represent deeply embedded patriarchal, gender, social, and cultural norms that exist in both communities, and their poor economic capacities. The presence of multiple MVGs in a household further increases their vulnerabilities. Coupled together, these factors

exhibit severe effects on these groups that make them complex populations requiring special attention of implementers.

Engagement of all community groups should be considered a necessary objective in planning responses, without which, there are often gaps in how and which interventions are planned and executed.

This case study presents the following lessons learned:

1. Engaging local resources: The research team recruited local data enumerators from the host community to better engage with the communities and build a good rapport. These enumerators helped the team with language translation as they understood the Ruáingga dialect and the communities and their norms. The data enumerators acted as the bridge between the research team and the community, thus ensuring acceptance and quality data collection.
2. Evidence-based interventions: The preliminary and final findings of the study were shared with the implementing partner (CPJ) and were utilized to develop training modules for the studied communities to create awareness regarding COVID-19 and its safety protocols.
3. Local volunteers as agents of change: The training modules that were developed based on findings from our study were used to train the local youth volunteers from both communities. These local volunteers ensured that the knowledge generated through research was disseminated in the communities. This would ensure the acceptance and effectiveness of the interventions since these local people have better access to the community, and the community was more receptive to knowledge from local volunteers.

Additionally, this case study makes the following recommendations for researchers in the field of humanitarian health:

1. Principles of localization: To ensure localization and the most significant community engagement, local data enumerators and volunteers should be prioritized. This ensures maximum community engagement as community people trust local people and are more likely to abide by their recommendations.
2. Identification and inclusion of MVGs: Before engaging with the communities in humanitarian crises, it is essential to identify different cadres of MVGs from both etic and emic perspectives to ensure the participation of all. These MVGs could be identified with the help of key community members like community health workers, local leaders, schoolteachers, religious leaders, and community people themselves.

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Annex 1: Ukhiya and Teknaf sub-districts of Cox's Bazar



Source: ISCG, Cox's Bazar (<https://www.humanitarianresponse.info>)

Newborn Health Response in Humanitarian Settings: Venezuelan Refugees and Migrants in Colombia

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Description of the research context

For the past decade, Venezuela has suffered from political and economic crises that have led to a deterioration of its health system, including medicine shortages, lack of water, electricity, and emigration of health personnel, resulting in worsening health outcomes and a large outflow of people to neighboring countries. Between 2015 and December 2020, approximately 6.5 million Venezuelans have fled their country (1), with Colombia hosting a total of 1.8 million (2), the majority of whom are women and girls. To facilitate movement, Colombia has put various enabling policies into place (3), which are vital as Venezuelans who lack regularized migration status are especially vulnerable, as they are unable to receive basic primary or reproductive health care and often do not seek medical attention until there is an emergency.

Many of the migrants arriving in Colombia are in dire need of sexual and reproductive health services. Colombia's neonatal mortality rate (NMR) is currently estimated at 7.5 per 1,000 live births, while Venezuela's is at least double that - estimated at 14.6, but likely much higher among displaced Venezuelan populations. Colombia has a strong policy framework¹ for maternal and newborn health (MNH) that includes refugees and migrants, intended to extend access to care to Venezuelans in Colombia, especially pregnant women, and newborns. Unfortunately, Venezuelan migrants continue to face significant barriers to accessing comprehensive care. These include the inability of Colombian systems to provide prenatal care for women who crossed the border late in pregnancy; limited financial resources for government-provided health services to this expanding population; limited migrant and refugee knowledge about the availability of healthcare and/or fear that accessing services could lead to deportation; the migratory nature of this population that makes continuity of care a challenge; and xenophobia from the public at large (4).

Description of the research project

The aims of this project were to identify facilitators and bottlenecks to newborn health policy, strategy, and action plan implementation in Colombia, specifically for the Venezuelan refugee and migrant populations, and to generate recommendations on how to adapt advocacy, resource allocation and technical assistance to accelerate progress towards ENAP (Every Newborn Action Plan) targets. Findings from this case study were synthesized alongside findings from 6 additional case studies to ultimately inform global-level discussion on how complex dynamics of humanitarian and fragile contexts affect newborn health policy/action plan implementation. This case study utilized qualitative methods, specifically in-depth and remote interviews were undertaken with key informants in Colombia: healthcare providers or professional associations (3 interviews), humanitarian or healthcare-implementing partners (4 interviews), and government and local authorities (3 interviews). Current policies and care practices that affect newborn health of Venezuelan migrants and refugees were examined, and obstacles and ways of facilitating improvement in these areas were identified. Due to limitations of time and resources, Venezuelan refugees themselves were not interviewed for this case study.

¹ For example, Law 1997, Resolution No. 8470 of the National Civil Registry granting Colombian citizenship to babies born in Colombia to Venezuelan parents after January 1, 2015. This law helps prevent statelessness and ensures newborns' access to healthcare and other services.

Discussion of research issues

This case study highlights many positive components of research in a humanitarian setting, such as effective research partnership (within researchers and NGOs, especially locals as Save the Children Colombia), inclusion and leadership of local actors and resilience to ensure that the appropriate community perspective and key stakeholders were included. Through a collaborative relationship, the teams from Stanford University and Save the Children US agreed on a general set of questions, which were then discussed with technical advisors of the Save the Children Colombia team and refined to be specific to the humanitarian crises faced by the country. Thanks to the acceptance and recognition at national, regional, and local level, Save the Children's Colombia team led the coordination of interviews: 10 leaders and key stakeholders participated as informants. Through this collaborative partnership, we managed key barriers to conduct the research in this emergency setting, specially, difficulties with Wi-Fi connection and availability of key stakeholders due to the COVID-19 response. Although interviews were necessarily done over Zoom or What's App due to COVID, interviewees were generous with their time and open with their answers.

Key findings highlighted that the Colombian government and its public health and healthcare professionals have prioritized access to care for Venezuelan mothers and newborns, as evidenced by their policies, services, and personal commitments to this population. Despite many challenges, Colombia's government, with support from multilateral agencies and NGOs, has largely directly attended mothers and newborns, as well absorbed vulnerable populations into their health system. Due to the complexity of the crises, several multilateral agencies have provided MNH services nationwide, including Save the Children that is part of coordination mechanisms. Throughout humanitarian coordination platforms the agencies have encourage an effective partnerships relationship that was a key point for the collaboration between researchers and humanitarian actors. On the other hand, local dissemination to both humanitarian and in-country stakeholders were also hampered by COVID, as the usual research presentation and group wrap-up events were not possible. Nonetheless, the Colombian and Stanford teams worked together on the full case study, and discussions about further dissemination, both locally and globally, are ongoing.

Identifying facilitators and bottlenecks to newborn health policy, allow us to recognize at national and subnational level recommendations that could strengthen the Colombian health system, especially to respond to future crises such as emergency disasters, recrudescence of internal conflict and/or other epidemics or pandemics, then contributing to health system sustainability and resilience. Considering that, the following recommendations were identified for humanitarian policy and programming, including:

1. Ensure MNH policies provide access to quality preventive, routine, and emergency care.
2. Provide sufficient and timely funding for local healthcare workers and organizations to provide both primary and emergency care to pregnant women and their newborns, particularly in rural and border areas.
3. Make registry of vital records more publicly available and share reports with healthcare stakeholders and community partners.
4. Provide more and tailored health education materials about how to access prenatal, pregnancy, birth, and postnatal care in sending, receiving and transit locations.

Conclusions and recommendations for researchers

At the beginning, we faced limitations with regards to sample size. However, the decision to have a recognized in-country partner as Save the Children, allowed us to convene national, regional, and local leaders and stakeholders. In addition, COVID's restrictions did not allow the Standford research team to carry out the research in situ. However, having a reliable partner in-country made possible the identification of key stakeholders that collaborated with the interviews due to the strong relationship

with technical advisors from Save the Children. We strongly suggest convening with a local organization to develop research in a humanitarian context.

Due to COVID-19 travel restrictions, interviews were conducted remotely over video call when possible, and occasionally over the telephone. This presented a challenge on many fronts, including increased probability of miscommunication and difficulty creating rapport, spotty internet access, background noise, distorted sound quality, and fewer body language cues to provide context. Further research should consider in-person methodologies to enrich the study.

Larger numbers of interviewees would likely have provided further insights. In addition, many of our interviewees came from one border region in Colombia; ideally other border regions would have had better representation. Further research should consider a larger and more diverse group of interviewees. We suggest considering the geographical areas where there is greater representation of the most relevant communities or situations of the humanitarian crisis, sometimes sub-national policies, cultural differences, and socio-political situations can impact the results and research conclusions and considered gender and inclusive lens.

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Conducting interventional research to improve the sexual and reproductive health of adolescent Syrian refugee girls displaced in Lebanon: Challenges and lessons learned

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Description of research context

Approximately one in four persons in Lebanon is a refugee.(1) The tiny eastern Mediterranean country hosts the world's highest per capita refugee population, with an estimated 1-1.5 million persons displaced from Syria and roughly 250,000 Palestinian refugees.(1, 2) Unlike "traditional" models of camp-based displacement of the mid-20th century, modern-day refugees, including Syrians and Palestinians in Lebanon, experience protracted displacement in primarily urban and semi-urban settings as a consequence of extended, unresolved crises.(3)

Concurrent humanitarian crises occurring over the past several years in Lebanon have disproportionately impacted vulnerable populations, including and particularly adolescent Syrian refugees. In 2019, a popular uprising against the Lebanese government quickly gave way to political and civil instability, engendering widespread school closures and accelerating the country's financial decline.(4) The economic crisis, characterized by hyperinflation and a roughly 85% depreciation of the Lebanese Pound, was further exacerbated by the nation-wide lockdown implemented in response to the COVID-19 pandemic.(5) To safeguard its dwindling foreign reserves, the Lebanese state lifted subsidies on food, medications and fuel, leading to worsening food insecurity, a critical shortage of essential medications, and significant disruptions to electricity and internet connectivity.(6, 7) These crises were acutely worsened by the explosion of the Beirut port in August 2020, which claimed the lives of at least 220 individuals, displaced 300,000 persons from their homes, and inflicted severe damage on the health infrastructure of the capital city, impacting 82 facilities.(8-10)

As a consequence of these compounding crises, 9 out of 10 Syrian refugees in Lebanon live in extreme poverty.(11) Nearly 50% of Syrian refugee households were food insecure in 2020, representing a 20% increase from the preceding year.(12) Furthermore, the prolonged closure of schools has disproportionately impacted Syrian adolescents in Lebanon, who even prior to the pandemic had among the lowest school enrollment rates in the world, with nearly 65% of children ages 6-14 and 92% of those aged 15-18 out of school.(13, 14) Unlike their Lebanese counterparts, the vast majority of Syrian refugee students were unable to participate in virtual learning due to lack of internet accessibility.(12) This nearly two-year schooling hiatus has subsequently led to a troubling rise in both child labor and early marriage among adolescent Syrian refugees.(15, 16)

Adolescent Syrian refugee girls in Lebanon are a particularly vulnerable population at risk of adverse sexual and reproductive health (SRH) outcomes related to early sexual debut, which occurs primarily in the context of early marriage.(17-21) In Lebanon, roughly 35% of young Syrian women married prior to reaching 18 years of age, a figure that may be higher as compared with pre-conflict Syria.(19, 20) Early marriage, which globally is associated with intimate partner violence and sexually transmitted infections,(22-24) disproportionately affects girls,(12) who are more likely to drop out of school and suffer negative health consequences, including those related to adolescent pregnancy.(17, 25-28)

Description of research project

Project *Amenah* is a community-based interventional study funded by the International Development Research Centre that aims to mitigate the drivers of early marriage among adolescent Syrian refugee girls in Lebanon and improve their access to SRH information and services. The multi-pronged intervention includes a novel, rights-based, peer-led SRH educational curriculum for adolescent Syrian

refugee girls irrespective of marital or schooling status, and additional components separately engaging their mothers and spouses.

The intervention, developed specifically for the context of Syrian displacement in Lebanon, was informed by extensive formative research conducted in this community, as well as adaptations of programs implemented in similar low-resource settings.(29-33) In 2018, a pilot intervention led by female Syrian community workers which integrated life-skills and health curricula to promote education retention and reduce early marriage was conducted among 210 adolescent Syrian refugee schoolgirls. This experience showed that study participants have low knowledge around even basic SRH topics such as menstruation and puberty, prompting a more explicit focus on SRH in the larger intervention. Exploratory focus group discussions and in-depth interviews conducted with adolescent girls, their mothers, and community stakeholders working in the health and education sectors further demonstrated that girls in this community have limited SRH knowledge before menarche and marriage, as well as poor access to health services despite having a perceived high burden of reproductive tract infections, unintended pregnancy, and health issues related to sexual violence.(34, 35)

Adapting models of SRH educational programs administered elsewhere in MENA, we recruited and trained Syrian refugee youth to lead and implement this intervention. These peer educators also reviewed the SRH curriculum and offered insight on how to further tailor the content to this context; for instance, they provided practical menstrual hygiene recommendations in the setting of insufficient water, sanitation, and hygiene infrastructure in the tented settlements where the majority of study participants live. We also assembled an eight-member Community Advisory Board, which included an adolescent Syrian refugee girl and her mother, and which helped both inform and review the SRH curriculum, taking into consideration literacy, educational experiences, cultural norms, and even legal doctrines, while preserving the comprehensiveness of the material.

The study follows a quasi-experimental evaluation design. In early 2020, we successfully recruited and conducted a baseline evaluation on 429 11-17-year-old Syrian refugee girls and 310 households in the Beqaa governorate of Lebanon, a semi-rural region that borders Syria to the east. Among the girls surveyed were 143 participants from the pilot study, representing a 68% retention rate roughly two years after their original enrollment. Due to the Covid-19 pandemic, Lebanon entered a national lockdown in mid-March 2020, leading to a suspension of data collection and postponement of the intervention. Data collection and recruitment resumed in August 2021, and the full intervention is anticipated to begin in November 2021.

Description of research issues

A major challenge that has arisen in our research with Syrian refugee populations in Lebanon is participants' competing economic interests that not only jeopardize study retention, but also demonstrate conflicting priorities between academic researchers and the communities they serve. Put differently, in a context fraught with multiple crises that threaten imminent risks such as famine, it becomes ethically and pragmatically challenging to implement any research agenda that does not explicitly meet participants' immediate needs, namely food, income, and shelter. For instance, fathers of study participants could not be easily retained in the pilot intervention due to competing economic obligations, which often included seasonal agricultural work.

This imbalance is further magnified when researching adolescent SRH, a potentially controversial topic that has traditionally been given little attention. In reality, the health of adolescent Syrian refugees is suffering tremendously as a result of these concurrent crises, particularly in the setting of prolonged school closures, paradoxically making our research now timelier and more critical than ever before. Nonetheless, we have to ask ourselves how to continue our focus on these more longitudinal health outcomes while also acknowledging shorter-term needs. To some extent, incentivization helps to bridge this gap; for instance, we offer non-monetary incentives such as English language support

sessions for girls. This staged incentivization strategy serves not only to promote study retention but also to address community priorities, as these sessions were requested by parents, who were concerned that their daughters' English proficiency may be a barrier to academic success, given differences in schooling between Lebanon and Syria.

Further, we as researchers have an obligation to the community health workers implementing the intervention, who too are members of the Syrian refugee community. Particularly given cultural sensitivities around adolescent girls' SRH, the active involvement of women from this community as leaders of the intervention is critical to its success. For many of these women, this study may be their primary source of income, as 86% of Syrian women in Lebanon, compared with roughly 25% of Syrian men are unemployed.(12) Yet, a 2014 Lebanese labor law which restricts Syrian refugees from working in sectors outside of agriculture, construction and cleaning,(36) precludes us from hiring and paying our community health workers as employees of the university. The sanctions imposed on the banking sector since the economic crisis began in 2019 have meant that we are unable to access funds and pay the community workers until many months after their work is completed. Such delays are not only unjust given the growing threat of food and shelter insecurity, but also may threaten these women's continued participation in this work and therefore the future of our study.

Another significant challenge to conducting interventional research in settings of concurrent crises is related to the continuation of such projects beyond the scope of the funding period. While perhaps common to other, non-refugee contexts in the Global South, the need for community acceptability and sustainability is especially important for Syrian refugee populations which are often "over-exposed" to redundant research studies without experiencing tangible positive outcomes or improvement in their quality of life.(37, 38) Particularly in community-based studies like ours, investigators carry ethical obligations not only to participants but also to the study implementors, of whom the community may hold high expectations as a result of their leadership positions. This lack of sustainability may be in part due to how we as researchers measure the impact of our work and disseminate our findings, as well as to the hierarchical systems of health research funding that expose conflicting priorities and agendas between funders and investigators in low- and middle-income countries.

Conclusions and recommendations for researchers

Adolescent Syrian refugees in Lebanon are an under-studied, highly vulnerable population at risk of adverse SRH outcomes related to early marriage and low school enrollment rates. This risk has increased in the setting of multiple concomitant crises that have interrupted schooling over a prolonged period of time and impacted fundamental health determinants including food, income, and shelter security. While these disparities merit interventional research to generate solutions, concurrent crises pose multiple practical challenges to our research, which may be under-prioritized in the setting of more pressing health needs. To address these concerns, we have worked closely with the community to clarify priorities and ensure we are adopting an ethical approach while maintaining scientific rigor. My main recommendation for researchers in similar contexts is thus to actively involve members of the study population in the design and implementation of their studies. While community-based participatory research (CBPR) studies lend themselves naturally to this inclusivity, other forms of research may not. Regardless, it's important that investigators include community members in some capacity so that their research may be informed by and respond to community priorities, particularly in humanitarian crises where there may be a significant gap between researchers and participants. To do so effectively, researchers should invest significant time and resources upfront, prior to developing their intervention, to meaningfully understand the unique social forces and hierarchies of the specific community with which they seek to work. Researchers should be aware of these complicated - and often gendered - social and structural inequities within refugee communities, which have been cited as barriers to conducting CBPR in emergency settings,(39-44) and carefully navigate these dynamics in order to advance their research agendas. Additionally, and particularly when working with mobile populations such as refugees, I would recommend utilizing non-monetary staged incentives to promote study retention. Such an approach has been adopted in research with other underserved

populations and warrants periodic reflection by researchers in humanitarian settings to ensure that incentive structures are ethical and preserve participants' autonomy.

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Enhanced participation of Rohingya refugees to increase immunization coverage in a camp-based population in Cox's Bazar, Bangladesh

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Description of the research context

The research is being conducted in Cox's Bazar, Bangladesh. In late 2017, 671,000 Rohingya fled from widespread violence in Rakhine State, Myanmar, creating the largest resettlement area in the world near Cox's Bazar. The population of >850,000 is overcrowded (93% live below the emergency standard of 45m²/person) and has experienced outbreaks of measles, diphtheria and SARS-CoV2. Immunization efforts have struggled to achieve vaccination targets, and coverage after SARS-CoV2 fell below 20%.

Vaccination coverage in the camp population was low prior to the COVID-19 pandemic, and vaccine rates declined precipitously – by approximately 50 percentage points – following the first reported cases of SARS-CoV2. In the Fall of 2020, the United Nations High Commissioner for Refugees (UNHCR) and the World Health Organization (WHO) approached Community Partners International (CPI) to leverage its network of Rohingya community health workers (CHWs – locally referred to as 'volunteers') to increase vaccination coverage. CPI is the immediate past co-lead of the Community Health Working Group of the Health Cluster and is recognized by the humanitarian community in the camps for the quality of its engagement with the local Rohingya population.

In October 2020, an outbreak of "gang related" violence resulted in several deaths, terrified residents and further strained humanitarian programming. In April, a significant fire displaced thousand more from within the camps, several hundred families settling into the project area. A "third wave" of rising SARS-CoV2 transmission in April and May led to "lockdowns" of Cox's Bazar, placing further constraints on humanitarian programming, vaccinations, and related research.

Description of the research project

In October 2020, CPI initiated a pilot program among 1703 children under three years old and 365 pregnant women living in 3859 households in 2 camps (1W and 4). The pilot aimed to improve vaccination coverage among Rohingya refugees after SARS-CoV2 resulted in a dramatic decline in coverage to under 20% of eligible beneficiaries. The project aimed to use Rohingya community immunization volunteers to bridge the gap between vaccination services and the community, collecting information and reporting on it in real time.

Preliminary results from the first several months of implementation of the pilot suggest that 98% of refugee children and pregnant women were successfully vaccinated (the other 2% either died or moved out of the pilot program area). If confirmed, these results would represent a tremendous success for the pilot and would increase the likelihood that UNHCR and WHO would support a scale-up of the pilot.

CPI is conducting an interim evaluation of the pilot, including a household survey (already completed) to determine whether program data are likely to be accurate. The primary purpose of the interim analysis is to improve pilot program quality and implementation, and to inform ongoing plans by CPI, the WHO, UNHCR and other camp stakeholders as they plan for possible expansion of the pilot program throughout the refugee camps that are home to nearly 900,000 refugees.

Quantitative household survey: CPI conducted 86 surveys in households that included at least one potential beneficiary of the immunization pilot (pregnant women or child under 3 years old); 2 in each of 43 sub-blocks that comprise the pilot target population.

The co-primary dichotomous outcomes are whether or not it is unlikely (probability 0.05 or lower) that vaccination coverage is at least 90, using two definitions of vaccination coverage:

- Overall vaccination coverage, calculated as the total number of individuals up-to-date on their vaccinations divided by the total number of individuals potentially eligible for one or more vaccines.
- Success rate of the pilot, calculated as proportion successfully vaccinated, among those identified by the enumeration mechanism/census
 - Among 86 households surveyed 85 reported vaccination accompanied by a Community Immunization Volunteer, meeting pre-specified criteria for determining adequate (high) coverage of the program

As of now, the cross checking of the collected data with existing Expanded Programme on Immunization (EPI) database was finished and found 5% data mismatched and 36% missing data. The main reasons for data mismatched and missing data include lack of data on new arrivals and relocations in camps and CPI cannot get updated data immediately if the beneficiaries were vaccinated in a different vaccination site. Therefore, CPI did a demographic survey to fill these information gaps in September 2021. Currently, the EPI database of CPI is updating and will continue to do further analysis.

The project is supported from CPI core funding.

Discussion of research issues

Barriers and strategies to address them

The project has overcome a number of challenges facing research during concurrent crises of SARS-CoV2, violence and displacement due to fire in a refugee camp:

- First, limited financial resources were available to support research due to humanitarian funding frameworks that were poorly suited to the urgent timeline required to inform programming for routine vaccinations and anticipated COVID-19 vaccines. Proposals were rejected for lack of pilot data at the time of application; 'rapid response' funding mechanisms were not available.
 - CPI used its own unrestricted funds to support a smaller scale assessment with revised / innovative methods (see below)
- Second, COVID-19 transmission dynamics created rapidly shifting priorities for local evaluation partners. For example, a "third wave" of transmission caused WHO to indefinitely postpone a large-scale household survey to precisely estimate vaccination coverage and validate pilot program results.
 - CPI conducted a revised survey with a smaller sample size and a modified objective: to assess whether vaccination coverage is unlikely (less than 5% probability) below an adequate threshold (90% coverage), using methods from Lot Quality Assurance Sampling (LQAS).
- Third, COVID-19, outbreaks of arson and violence, and restrictions on mobile communications created multiple challenges to safe and secure in-person training and data collection. CPI staff were infected with COVID-19; several were threatened with extortion by violent actors.
 - CPI conducted remote training of research staff, using videos, phone calls and messages. Survey protocols and interviews were modified to accommodate COVID-19 guidelines and hyper-local day-to-day changes in the security situation.
- Fourth, research has to navigate a sensitive and shifting political landscape. For example, whether collecting information following and related to gang violence, or asking questions about the role of government (and non-government) authorities in power, all must be done carefully and safely.

Research priorities had to be balanced with the program's ability to remain politically acceptable to government officials whose authority over camp-based activities is augmented by their country not being a signatory to the Refugee Convention.

- The research team included national staff from Cox's Bazar and Rohingya volunteers, who were familiar with the local political environment and how to phrase questions to avoid upset.
- Fifth, rules and regulations in Bangladesh prevent Rohingya from using electronic devices, and from traveling between camps. This precluded use of tablet computers for data collection and placed limits on the independence of surveyors who performed interviewed households in their catchment areas.
- Rohingya collected data on paper forms; data entry was performed by national staff.

Community engagement, and achieving greater resilience

- As mentioned above, communities were included in both research and the project itself from inception. This has been central to the success of CPI's model for practice and research.
- Staff were recruited from the local community and volunteers were recruited from the Rohingya community. During the recruitment, CPI ensured the staff to meet the criteria of the CPI's standard of selection. Selected staff and volunteers were provided with relevant trainings along the way. During the development of the research questions, the volunteers were consulted as appropriate. During the data collection training, they provided feedback on questions and process and therefore, adapted as necessary.
- The involvement of Rohingya data collectors who are also health volunteers meant that data collectors were present and trusted in a setting where access and trust are limited, in particular for perceived outsiders. The close collaboration between the project and research side therefore made this research possible and much more effective than a standalone research project.
- This led to greater resilience and nimble responses to all of the many obstacles imposed in the last year. It also meant CPI were able to ask questions and to continue to learn and inform practitioners throughout times when obstacles might have prevented many.

Conclusions and recommendations for researchers

The project appears to be a very successful and resilient way to improve vaccination rates among communities that have been historically skeptical of vaccinations. That rates have remained high through violence, fire and COVID-19 is remarkable, and appears to have been strongly linked to the role of local volunteers as the gateway managers.

We recommend two key messages for other researchers:

1. Involve the community and program staff when framing and revising research questions and methods to improve uptake and make research more timely, resilient and useful.
2. Innovative virtual training for data collectors can overcome pandemic- and communication-related challenges, but it requires preparation and multiple rounds to be effective and answer all data collectors' questions.

Strategies to address the challenges of humanitarian research: lessons learned from refugee camps in Ethiopia

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Description of the research project

Research question

What are the levels of household air pollution experienced by refugee households in Kebribeyah Refugee Camp? Can a cleaner burning ethanol cookstove provide reduced exposure to harmful pollution?

Public health challenge

According to the World Health Organization (WHO), approximately three billion people globally cook their meals with solid fuels. A majority of these live in low- and middle-income countries, such as Ethiopia. Cooking with biomass produces high levels of household air pollution and a range of health-damaging pollutants, including small soot particles that penetrate deep into the lungs (PM_{2.5}). Exposure to household air pollutants increase the incidences of cardiovascular and pulmonary diseases. Exposure of women and children to fine particulate matter (PM_{2.5}) and carbon monoxide (CO) emission from cooking with dirty fuels affects reproductive, maternal, newborn and child health substantially.

Exposure to household air pollution (HAP) also increases the risk of several respiratory and cardiovascular diseases, including childhood pneumonia, chronic obstructive pulmonary disorder, ischemic heart disease, lung cancer, and stroke. It is important to note that the relationship between HAP and disease risk is not linear – that is, a 10% reduction in HAP does not result in a 10% reduction in risk for these diseases. Instead, to reduce risk for these diseases from HAP, exposure to HAP must be near zero, which means that emissions from all sources of pollution must be reduced.

Importance of study

The situation is dire in refugee camps, where access to clean fuel is very limited. The conditions in Kebribeyah refugee camp area and housing structures contribute to high levels of household air pollution. In most cases, entrances to homes are the only access to fresh air, and most homes/cooking areas are poorly ventilated. Predominant use of solid biomass cooking stoves indoors and the lack of ventilation results in high levels of household air pollution. The close proximity of the homes contributes to transference of particulate matter and carbon monoxide from one house to another.

The study was undertaken to assess the potential of an ethanol cookstoves to reduce household air pollution in Kebribeyah refugee camp. Kitchen concentrations of PM_{2.5} and CO were monitored in a before and after study without controls. Baseline (before) measurements were made in households using a firewood or charcoal stove. After measurements were performed in the same households upon the introduction to new ethanol stoves. We explored differences in household air pollution levels and compared them to WHO standards. We also obtained information via survey regarding the frequency of headaches, eye irritation and burns in women and children.

Sources of funding

The research and intervention were conducted through a financial support from Grand Challenges Canada and United Nations High Commissioner for Refugees (UNHCR). Ethiopian government Agency for Refugees and Returnees Affairs (ARRA) provided logistical support while Clean Cooking Alliance provided technical support. Gaia Clean Energy lead the research and intervention project supported by its sister organization Project Gaia.

Description of the research context

The average of the set of 31 24-hour average kitchen PM_{2.5} concentration was 1.04 mg/m³ during the Baseline (metal charcoal stove). The average minimum PM_{2.5} concentration was 0.22 mg/m³ and the average maximum PM_{2.5} concentration was 69.33 mg/m³. The average 24-hour kitchen CO concentration measured by the HOBO CO logger is 18.35 ppm and the average maximum CO concentration was 248.27 ppm. The table below summarizes the results in comparison to WHO guidelines.

Comparison of kitchen concentrations to WHO guidelines

	Metal charcoal stove	WHP interim target-1	WHO Air Quality Guideline
PM _{2.5}	1,040 ug/m ³	75 ug/m ³ (24-hr mean)	25 ug/m ³ (24-hr ave)
CO	21.01 mg/ m ³	NA	10 mg/ m ³

Location of study

Kebribeyah refugee camp is a UNHCR camp located in eastern Ethiopia. Kebribeyah camp was established in 1991 and is currently home to more than 16,000 refugees from Somalia. Refugees receive food assistance from World Food Program (WFP) and most other amenities are provided by UNHCR and implementing partner NGOs. Ethiopian government agency, ARRA, administers the camp and provides basic services to the refugees.

Description of the concurrent humanitarian crises affecting the study population

Ethiopia hosts close to 800,000 refugees from troubled neighboring countries. Refugees from Somalia account 26.8 % (213,418) of the total refugee population residing in Ethiopia. Eight refugee camps in Eastern and Southern Ethiopia are hosting refugees from Somalia. Kebribeyah refugee camp, opened in 1991, is one of the oldest camps in the country. Kebribeyah refugee camp is next to the town of Kebribeyah. The town has over 5,000 residents and the camp hosts more than 16,000 refugees from Somalia. The continued conflict and instability in Somalia are expected to force refugees from Somalia to remain in Ethiopia for the foreseeable future.

Relevant facts about host community

Refugees' heavy reliance on firewood for cooking causes tension and conflict between host communities and amongst refugees themselves over scarce natural resources for cooking energy. This is evidenced by incident reports and Participatory Assessments of UNHCR. Reducing firewood and charcoal dependence for cooking with ethanol alleviates tension with the host community and between refugees themselves. Refugee hosting environments are experiencing massive deforestation due to an annual demand of more than 3 tons of firewood per household per year for cooking.

Gaia Clean Energy, an Ethiopian resident charity organization, has been an implementing partner of UNHCR since 2006. Gaia together with UNHCR and ARRA worked with women refugees from Kebribeyah camp and women from the host community (Kebribeyah town) to transform energy provision. The intervention was expected to shift energy programming from a short-term delivery model to a development initiative that will increase energy access in the camp. Prior and after the intervention, Gaia and its partners, conducted research to evaluate the level of household air pollution and its health impact in the camps.

Discussion of research issues

*What are the key **barriers and challenges** to conducting research in such settings? What **strategies** may be used to address these challenges?*

Barriers and challenges

The research process in humanitarian settings is fraught with challenges, but provides invaluable data that can influence policy and improve the lives of those living in humanitarian situations. Successful projects grounded in inclusive and participatory research practices, aim to collaborate with local community members in all aspects of the research including the planning, implementing, and analysis. Although we believe these to be best practices, research in humanitarian settings, especially with intentional inclusion of stakeholders and community members, provides many unique challenges. For example, we experienced several challenges in our work:

- a) The inclusion of multiple stakeholders and refugee community members in the research process took additional week to coordinate and may be difficult on a short research timeline.
- b) The research engaged the refugee population directly and multiple stakeholder participation causing unforeseen delays of about two weeks. This required flexible rescheduling and amendments through continuous engagement of partners.
- c) Utilizing local refugee individuals to help conduct the research helps to ensure participation of the community in activities. In our case, finding qualified surveyors was a challenge and surveyors required significant training and support. The surveyors had to be trained with the basics of conducting surveys and had to practice for three days prior to going out to the field. Additionally, given various languages spoken in humanitarian settings, even in one specific refugee camp, translators are often needed to communicate both within the refugee population and to outside stakeholders. Translators available in the camp lacked adequate language skills that made conveying the research purpose and explaining about monitoring equipment deployed to refugee participants difficult.
- d) The remote location of the research setting introduces additional logistical challenges. Logistical arrangements required significant time and extra effort than anticipated. The absence of basic services such as electric power to recharge monitoring equipment and local lodging were a challenge.

Strategies to address challenges

- a) Reciprocity between all stakeholders.
 - The collaborative nature of research based in humanitarian settings requires significant dedication to building a successful research project. All engaged partners must find value in the work and clearly communicate the timeline, tasks, and outcomes of the desired research. Refugee populations and communities should feel a sense of ownership of the project and value the importance of the work. The on-ground experience of the implementing partner was quite valuable in bringing all research partners to common understanding of the realities of the research setting and working environment.
- b) A clear timeline and tasks (but with built in flexibility!) with a prior understanding of the on-ground facts and working with partners with actual experience in targeted areas.
 - It is important to be as detailed as possible in a timeline. For example, the research team may outline a large timeline for the entirety of the research project. Smaller details can then be added with specifics about travel days, training hours, data collection, and data analysis. On what days will fieldwork be conducted? How many households, and what households will be visited?
 - Patience: Researchers need to be patient and accept delays and be prepared to “re-work” plans and ideas as the situation changes. What happens if rain makes a road impassible; how will you make up for lost time? Having an open mind about delays and communicating effectively can help reduce the stress associated with setbacks. This is also a strength of inclusive community research; host communities can provide excellent insight into current situations and details about possible delays and how to work around issues that arise.
- c) Utilization of the refugee population.

- In refugee populations, it is ideal to provide jobs or tasks to the population themselves. They are experts on their communities (including topics, language, cultural norms, etc.) and research without their involvement is sure to fail.
 - Researchers should provide ample time to properly explain complex tasks and train field staff and translators (including human subject's research ethics and "research" methods).
- d) Communication and preparation: stakeholders should all participate in conversations prior to commencement of the research and continuously during the study. This helps solving road blocks and tackling challenges as stakeholders in the refugee camps have different roles and varying engagements with the community.
- Having clear methods of communication coupled with ample time for preparation is critical to success. Logistics such as safe transportation, housing, and food are all necessities in remote situations. The team had to travel to the nearest town, Jigjiga for accommodation and relying with the transportation provided by the local organization. However, this limited the time spent at the field due to security requirements to leave the camp at 4 pm, at latest, to travel back. If the research team is comprised of those outside the local area, it may be helpful to have one local staff person support the logistics, especially at the beginning of the research.

Conclusions and two recommendations for researchers

Successful health related research in humanitarian settings, such as refugee camps, requires a unique set of considerations. Refugees are communities in exceptional situations facing various social, economic, and psychological challenges on a day-to-day basis. Researchers should utilize inclusive and participatory research practices to truly understand their study population and their ever-evolving situations. To that note, researchers should be fully invested in the community, and welcomed by the local population. Additionally, clear communication, understanding and ownership of the research is needed by all involved. For example, organizing an early consultation meeting with participants and community representatives is important to express respect to the community, to clear research doubts, and clarify roles of research participants. The meeting provides an opportunity to explain how the research might benefit the community to address the challenges they are facing. A budget to make available small gifts at the end of the research to the participants is also important. This helps to express appreciation and support the community even in small way as they live in extreme situation where everything is in short.

Sufficient time and consideration should be allocated to preparation for field work and flexibility should be expected throughout the course of the research. Finally, we believe that research results should be shared with local leaders and policy makers to ensure the research benefits the participants.

Doing inclusive research in the context of the Cameroon Anglophone Crisis or conflict: perspectives from the PIRL project

Louis Mbibeh (University of Bamenda, PIRL Project) (presenter), Lesley Sikapa (University of Toronto) (back-up presenter), Lynn Cockburn, Shende Kometa, Mary Atanga, Sama Chick, Che Dieudonne, Veronica Ngum, Ellen Murray, Soomin Lee, Mahadeo Sukhai, Jane Davis, Deb Cameron, Julius Nganji, and others on the PIRL Team

Description of the research context

Location of study

This is an international study. The Partnerships for Inclusive Research and Learning (PIRL) Project is a network of researchers committed to a participatory community of practice (CoP), working together from several locations around the world. The PIRL focus is on global and international development research that includes people living with disabilities (PWD) as *researchers*, and that attends to the role of information and communication technologies (ICT) in the social learning of researchers and research teams. The core team of 25 people is primarily Cameroonian and Canadian researchers, and our broader network is made up of over 100 people who are in over 10 countries. The team in Cameroon functions as a sub-group of the PIRL team.

Description of the concurrent humanitarian crises affecting the study population

In the past 5 years, a conflict affecting hundreds of thousands of people has been unfolding in Cameroon. The conflict is deeply rooted in political, social, historical, and cultural differences and events between the Anglophone regions (Northwest and Southwest) and the other 8 primarily Francophone regions, that existed well before the start of the current crisis.

The Anglophone Crisis has negatively impacted people living in all parts of Cameroon in a multitude of ways, including the economy, health services, and infrastructure, particularly in the Anglophone regions, and extending to the West and Littoral Regions. As a result, pre-existing problems and disruption of essential services for ICT such as electricity and stable internet have been exacerbated, which creates additional barriers to ICT use and general research work in the NW region. In the PIRL project, we are conducting research on several of these issues.

Human Rights Watch has documented the violence by government and armed non-state actors, and the effects on Cameroonians (2020), including the impacts on persons living with disabilities (Human Rights Watch, 2019; 2021). The crisis not only impacts PIRL researchers in Cameroon but constrains the PIRL CoP from realizing its' full potential, including carrying out all the activities originally planned. Our research is examining this situation.

Description of the research project

The specific health research questions explored by this study is: When, how, and why are information and communication technologies (ICT) used in communities of practice (CoP) focused on disability inclusive development (DID)?

Research design and methodology

Recognizing the importance of communication and technologies in health-related research, we conducted a survey with 60 respondents and 17 interviews with PIRL Team and Network members. The survey had a total of 72 questions related to disability, ICT, work, and research, and involvement in the PIRL network. The survey was developed by the research team, adapted from the Canadian Internet Use Survey (Individual) (Canadian Internet Use Survey; 2013), and the ITU ICT household survey (International Telecommunication Union, 2014), with additional questions developed based on our review of the literature and goals for the study. The research team also drew from the CHERRIES (Checklist for Reporting Results of Internet E-Surveys) guidelines (Eysenbach, 2012). The survey was

reviewed and trialed by team members. We used The Washington Group Short Set of 6 questions to ask about difficulties with functioning, as a starting point to discuss disability. Specific questions about the PIRL Network were developed and included.

17 interviews were conducted, and 10 of these participants were based in Cameroon. Interview questions were similar to the survey questions and gave participants a chance to provide more detailed answers and to share specific stories related to their experiences. Questions were refined using cognitive interviews (with PIRL members and others). In the interviews, participants were also given the opportunity to comment on the impact of the COVID-19 pandemic on CoP participation.

Brief overview of the study results to date

Despite the problems, the Cameroon research team has participated in all aspects of the research, including completing surveys and interviews, participating in data analysis and writing, and contributing to knowledge sharing activities such as writing and conference presentations. We are currently in the process of analysing the survey and interview results. The Anglophone Crisis in Cameroon added another layer of challenge for our PIRL CoP to engage in collaborative analysis, and our processes have continually been assessed and revised.

Relatively little research has been done on disability issues in the crisis in general, as one interview participant said: *“I mean the effects of the crisis on persons with disabilities, I’m sure that is research.... I’m sure this is the first time [that people with disabilities have been included as researchers] (P09).* Another woman with a disability talked about not wanting to be left behind; she said: *“the digital world is an invisible world [that I want] to belong to” (P15).*

One Cameroon survey respondent, when asked to comment on accessing the internet at home, said the *“[e]lectricity blackout causes the internet to be ineffective and this is very common with the Northwest Region [where] we are experiencing the humanitarian crisis. Lock downs and sporadic gun shots may cause you not to be able to get out [to load data on your card]”.*

Sometimes Cameroonian CoP members cannot engage in what might be considered basic research team activities such as attending Zoom meetings, answering emails, or responding to WhatsApp messages because the power is out (sometimes for days at a time) and they are unable to recharge their devices. Several members work in the night when access is better. This limited access negatively impacts their contributions, voice, and ability to share knowledge in the CoP.

There is also an emotional and interpersonal toll of these combined challenges that is more subtle and difficult to document which we are still in the process of analysing. This toll impacts individuals and interpersonal relationships within the CoP, and requires more nuanced analytic processes.

Discussion of research issues

We have chosen to focus on 1) the skills and capacities needed for researchers; 2) Strategies that can be used to address some of the challenges; 3) priorities; and 4) engaging with community members using an intersectional understanding.

What skills and capacities are needed for researchers to work effectively in contexts affected by multiple, concurrent humanitarian crises?

We have seen the need for capacity building for all team members, especially in relation to understanding the impact of the humanitarian crisis on disabled team members in Cameroon. Before the crises erupted participation and collaboration in research ventures were often done in person with limited use of devices and internet. With a move to having more online meetings and work, team members need much more patience, the ability to succinctly communicate their current understandings and experiences, and to easily change from one platform to another to continue

the work flow. It is necessary to make financial implications more explicit; this kind of discussion can at times feel very personal to people who are not comfortable putting monetary values on their work. In the context of the communication challenges, it is even more difficult to talk about economic disparities. Individual experiences are impacted by broader systemic forces and these forces are understood by team members in very different ways.

It has been challenging to change old habits as many of the Cameroon team members continue to prefer paper-based work. Within the crises, having paper-based work is no longer practical. For example, for our survey we used the online platform Survey Monkey but there were people who had not heard about it and did not have the IT support to be able to use it.

How should scientists prioritize research focus areas in such complex settings? What are some experiences and lessons learned from joint processes of priority setting?

While we understand that there are many priorities in local areas, we believe that in all complex settings a priority should be the inclusion of people with a range of impairments and disabilities; they are always present and need to be included as researchers and as participants in research, and with an understanding of the intersectional nature of exclusion.

Every study can include people with disabilities in design and priority setting. Disabled people include women, rural women, poor people, and many other identities that can present challenges for inclusion. It can take longer for disability inclusion, and the project might be smaller than hoped for, but the results are better, more robust, and more inclusive.

A second priority is the mental health of front-line researchers and others involved in collecting information and data.

Barriers and challenges to conducting research in such settings

Key challenges include:

- Limited to no access to crises-stricken areas for outsider colleagues.
- Limited to no power supply.
- Limited access to ICT tools, and to support when tools break down.
- Limited capacity for full engagement and participation.
- Poor access to services (social, medical, civic).
- Emotional toll on researchers (mental health is at risk).

What strategies may be used to address these challenges?

- Use of applications that require lower bandwidth (which can also be more inclusive – e.g., if no one uses video in Zoom calls, it is easier to include those with vision impairments).
- Provision of devices such as smartphones and laptops.
- Support for access to infrastructure such as communication stipends for internet; solar chargers for phones; changing location at times to increase access (e.g., providing funds to travel to an area with less conflict).
- There is need for training at the beginning of research projects and progressively continue to find ways to support people to develop their digital skills, especially their capacity related to the use of ICTs in research.
- Livelihood and employment are very challenging in conflict situations, and many people have lost their jobs. There are high levels of poverty, and many professionals and others who have access to funds have left the Regions or the country, and/or have many family members that they are responsible for. Research budgets can take these realities into account when deciding on remuneration.

How can researchers better engage with communities living in humanitarian crises? Experiences and good practices

- Relationships and trust are important, nuanced, and take a lot of time. Researchers need to explicitly plan to take time to have conversations about topics beyond the specifics of the research study, and to discuss implications about intersectional understandings of why and how people are engaged or not engaged, especially from the perspective of various impairments and disabilities.
- There are many logistical issues which require significant attention for accommodations, time, and flexibility, and good practice is for researchers in a team to find ways to engage with community members in inclusive and accessible ways.

Importance of the study and its significance to the field of humanitarian health

It is not only the people who live with disabilities that have problems when access is not addressed; everyone on the team needs to be aware of how technology and applications are being used. There is also a strong and growing global community examining the use of ICT for international development goals; often abbreviated as ICT4D (Heeks, 2006). Scholars in ICT4D are beginning to address issues of disability and access yet much of this work focuses on people with disabilities as recipients/users, rather than examining their roles as professionals, as researchers, and in knowledge creation. Our team is aiming to find ways to truly include researchers with disabilities as full members of research teams. In conflict and humanitarian settings, this aim adds another important consideration.

Our findings support the work of others. The social dynamics of learning within CoPs are relevant, interesting, and complex to study (Serratt, 2008; Etienne Wenger et al., 2002). Globally, communications in CoPs are increasingly mediated by technologies such as phones, internet, and applications such as Facebook and WhatsApp (G3ict, n.d.; Gilbert, 2016; Harniss et al., 2015; International Telecommunication Union, n.d.; Marques et al., 2016; Willemse, 2015a). We are interested in how teams use applications and assistive technologies to ensure that all members of the team are included; all of us are learning all the time, and we are sure that it is a similar situation in other research teams engaged in humanitarian situations.

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Conclusions and two recommendations for researchers

Through our research in the context of this humanitarian crisis, we have identified that research must be done in very painstaking ways to include people with disabilities in meaningful ways. For example, disabled women living with disabilities can experience more marginalization than men and have less access to technology and training than men.

Our recommendations are to:

1. Consider the contexts and circumstances of the study so people can take on the roles that they are able to take on, and adjust expectations accordingly while still working as a team.
 - a. Include smaller projects to build understanding and capacity for engagement.
 - b. Provide devices. Devices such as laptops and phones are expensive, and the economic effects of the crisis make access to hardware more and more difficult.
 - c. Expectations and timelines need to be adjusted to reflect longer timelines. It is difficult to be efficient with time due to these circumstances.
 - d. There can be acute scarcity of food and water because of little or no access to farmlands and limitations in water governance by the authorities, therefore these basic needs must be factored into meeting plans and other research planning.

e. Education is tremendously affected with very few schools (including universities) operating; those that are open have a series of interruptions and limitations, therefore the involvement of faculty and students can be limited or not possible.

2. Find ways to connect with people outside of the local contexts. These connections help people to maintain perspective and hope.

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Constraints and ethics issues: use of mobile devices in the response to Covid-19 in Myanmar

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Description of the research context

In Myanmar, the first two waves of Covid-19 occurred in March 2020 and August 2020. As the health system has been underfunded for decades, the pandemic raised many challenges for the health facilities, healthcare workers, and medical supplies. Accurate reporting about the Covid-19 pandemic in the media is a key element to keeping people informed about the disease and their government's response. However, in Myanmar journalists who report facts or critical editorials that show the government in a negative light can be arrested and punished with fines and imprisonment. In 2011, although the restrictions of the media were eased somewhat, the press did not fully get the freedom of expression under the military government or democratic government, resulting in journalists self-censoring many stories that would not support the government in power.

Given the challenges faced by mainstream media and the rapid expansion of mobile phone use in Myanmar, mobile technologies are an important alternative source of COVID-19 information. Mobile phones have successfully been used in Myanmar to support epidemic control previously. For example, a mobile phone app for Malaria Case-Based Reporting (MCBR) enabled the provision of more accurate, complete data, timely notification of malarial cases and real time reporting compared with paper-based reporting (PBR) (1). Similarly, digital contact tracing apps for mobile devices have been developed and used for Covid-19 pandemic control around the globe. The apps are used to identify exposure to Covid-19 to reduce transmission. However, there are some issues about using applications such as privacy concerns around personally identifying information and geolocation data, and user consent to be tracked. These concerns have particularly affected conflict-affected populations in the ethnic minority states in Myanmar like Kayin State, where military forces have historically used data to target civilians and opposition forces.

The aim of this study was to explore reporting about the usage of mobile devices for responding to the Covid-19 pandemic in Kayin State, Myanmar. Findings were intended to give concrete information about how mobile devices can be used in implementing disease prevention and control programs. However, reports or publications on the perspectives of people on the use of mobile devices for Covid-19 response were limited.

The methodology consisted of two parts: (1) a media analysis and (2) qualitative key informant interviews with non-government health care providers from Ethnic Health Organizations, and in-depth interviews with community leaders and community people in ethnic minority settings.

There were several constraints when starting to conduct this study. Before the Covid-19 pandemic, ethical review processes in Myanmar were paper-based and there was no reliable timeline for obtaining ethical approval; after the coup, ethical review boards stopped functioning. The main implementation constraints were the political context and limited information about the mobile devices used for disease response in online media which necessitated adaptation to the current humanitarian situation and media exploration.

Description of the research project

In Myanmar, the very first case of Covid-19 was announced on 23rd March 2020 and the second wave began in August 2020. As of 31st December 2020, there were 124,630 cases and 2,682 deaths across every state and region of the country (2). These figures were likely underestimated, given the lack of widespread testing and limitations in the vital statistics reporting system in the country. The Ministry

of Health and Sports (MoHS) extended testing sites and labs, opened temporary Covid-19 quarantine and treatment facilities and encouraged quarantine centers in every township.

Myanmar media and freedom of the press have been oppressed since 1962. Books, poetry, films, news, broadcasting media and journalism underwent strict censorship and regulation under military rule, and reporting news that could affect the government's image were completely banned. Thus, the real news about disasters, armed conflicts, and political situations had been insubstantial. Media reform surfaced after the democratization process under the new civilian-led government in 2011. Although Myanmar's media environment became open afterwards, the prosecution and prison charges were still practiced and journalists were issued with charges for criticizing the authorities or government officials. Under the military or the democratic governments, Myanmar remained one of the countries in which freedom of expression and freedom of media were still violated (3).

In Myanmar, access to mobile phones was highly constrained for decades, but has rapidly increased in the past few years. Before the year 2012, the high price of SIM cards put mobile phones out of reach for the vast majority of the population. In 2014, the price of the SIM card dropped to about US\$1.50 and two international telecoms companies, Telenor and Ooredoo, were able to obtain licenses to invest in the development of the Myanmar telecoms sector. After the democratic government won the election in 2015, the mobile 3G network became widespread. The number of internet service providers and internet usage increased rapidly (4). By January 2020, the number of mobile cellular subscriptions rose to 68.24 million and the number of internet users was 22 million out of a population of 54 million people (5).

Given that the mobile phone was used for infectious disease like Malaria and mobile phone subscriptions increased rapidly nowadays, this study intended to explore the usage of mobile devices for Covid-19 epidemic control in Myanmar. The methodology consists of two parts: a media analysis and qualitative research method. Media analysis was used to explore (1) how the mobile devices and applications were used for Covid-19 response in 2020 (2) the main spokesperson of the news, and (3) the topics that are being covered and ignored. Between August and December 2020, the keywords "Covid-19, mobile devices, applications, telecoms" were used to collect data from online media (newspapers, journals, and social media) for the period of 1st January to 31st December 2020. All articles had to be published in daily/weekly local public or private newspapers, journals in English and/or Myanmar languages which were accessible online.

However, we identified only a small number of articles about the mobile devices and applications used for responding to Covid-19. The news published in 2020 mostly covered Covid-19 disease control and response, such as stay-at-home lockdown announcements. Therefore, a qualitative study component was added to identify the perspectives of ethnic minority communities about the usage of mobile devices for disease response which were not covered by the media. Key informant interviews will be conducted with ethnic health providers and in-depth interviews with community leaders and community people from Kayin State after getting ethical approval.

The funding of the study is from "Research Council of Norway (NFR) SAMRISK" via the Centre for Development and the Environment (SUM), University of Oslo.

Discussion of research issues

Commentary on ethics and constraints

The study was built upon one humanitarian crisis: the Covid-19 pandemic that ensued in Myanmar, which exacerbated already high levels of poverty. It aimed to look at how the community perspectives varied in conflict-affected (previously humanitarian) areas. It transformed the conflict affected area into humanitarian settings, and required significant shifts in the research approach.

Prior to Covid-19, a significant constraint was the ethical review process in Myanmar. The ethical process runs paper-based and there is no definite timeline for submission and review process. It means that the time taken for getting ethical approval cannot be estimated. As a result, it affects the management of the research study timeline. Besides, if one wants to publish in Myanmar research papers or present the research findings in conferences managed by the governmental departments, the ethical approval must be achieved from the suitable ethical review board.

When Covid-19 occurred in 2020, the Institutional Review Board (IRB) of the Defence Services Medical Research Centre (DSMRC) ran an online ethical review process. This proposal was submitted to the DSMRC in December 2020. During the presentation of the proposal, they raised a question if permission was requested from the respective media group. It can be assumed that the ethical review board members might not have experience of media analysis. They sent a rejection letter in mid-January without mentioning a specific reason for the rejection, and then suggested submitting to another ethical board.

Now, it has already taken 10 months to choose and decide where to submit. Then, the study team got information that it is possible to submit the proposal at the Community Ethics Advisory Board (CEAB) located at the Mae Tao clinic in Mae Sot, Thailand and the board members are experts of the humanitarian settings at border areas. They set a particular timeline to review the ethical documents and run online ethical process so that it makes it easier to manage the research period.

Some newspapers were printed rather than published online and some media uploaded pdf versions of newspapers. It was not easy to search the news manually when the search box did not work. So, we could not get the required information from online media. Some collected news from online media cannot be accessed anymore after the coup because some media groups' websites were interrupted.

The original aims and research methodology had to be changed while doing the media exploration because the information about the technology used for Covid-19 disease response was very limited throughout the data collection from the online media. Before the coup, the study team planned to interview the government health staff and telecoms service providers for the qualitative research approach. However, after the coup, it was not possible to interview them due to the safety of the interviewers and interviewees in these political situations. Consequently, the study population was changed to interview only the ethnic health providers and community people and sample size reduced from 36 to 24 interviews. Additionally, as the proposal for qualitative research has not received ethical approval due to the above-mentioned difficulties in the ethical process, the key informant and in-depth interviews had not started yet until now.

Conclusions and recommendations for researchers

This project so far has concluded that the media before the coup rarely focused on the community perspective in Myanmar. Part of the research aimed to demonstrate this gap to media development projects and media organizations themselves, to try to highlight and promote community experiences to the national policy maker level. The researchers from this project would make two recommendations for other researchers when experiencing something like this:

- First, plan for flexibility in the project. In such settings, one must plan for the possibility of change, rather than continuing for the sake of the original project. Methods and aims must change to ensure ethical and safe research and useful outputs.
- Second, researchers should work with international institutions to develop IRB systems that can provide useful guidance in humanitarian situations, which enable rather than prohibit research that may be politically charged.

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Excess mortality during the COVID-19 pandemic: a geospatial and statistical analysis in Mogadishu, Somalia

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Description of the research project

Somalia was already grappling with an unprecedented series of challenges prior to the arrival of COVID-19. In 2017-2018, a drought-triggered crisis led to large scale population displacement and widespread outbreaks of cholera and measles. In February 2020 a state of emergency was declared as the tenuous food security situation was threatened by a once-in-a-generation desert locust infestation. On 16th of March 2020, the first case of COVID-19 was confirmed in the country. As of 6th May 2021, the Somali government has reported 14,368 cumulative COVID-19 confirmed cases and *745 cumulative confirmed deaths due to COVID-19*. However, due to low COVID-19 testing capacity, the potential stigma associated with COVID-19, and insecurity that complicates access to healthcare in many parts of the country, these figures may not be an accurate representation of the true burden of COVID-19, including mortality. We wished to estimate COVID-19 attributable mortality over the entire span of the epidemic, which began in March 2020 for Somalia. We assumed that the epidemic will have waned by end February 2021 (one year later) but may terminate the study earlier if consistent surveillance evidence suggests the epidemic is largely over countrywide. In order to establish a baseline of mortality against which to compare 2020-2021 findings, we will also analyse, for each location, a period of time going back up to 5 complete years from end February 2020 (i.e. starting in March 2015).

Our research utilized remote sensing and geospatial analysis, using very high-resolution satellite imagery to count the number of burials in cemeteries across Mogadishu, Benadir Region from 2017-2020. We compared the number of burials prior to COVID-19 (January 2017- February 2020) with those in the pandemic period (March 2020- September 2020). Based on this data we also used mathematical modelling to infer the likely introduction date of the virus, if assuming excess deaths were due to COVID-19. Lastly, we supplemented our findings with key informant interviews to understand community perception on COVID-19 mortality, as well as community practice during the pandemic and challenges associated with controlling the pandemic. There were also ground verification approaches where the observation of graves was undertaken using checklists and taking field photos. The combined method outlined the mortality conditions of the pandemic.

Burial rates increased during 2020 with a ratio to pre-pandemic levels averaging 1.5-fold and peaking at 2.2-fold. Given the well-known delay from infection to death, our research suggests a much earlier introduction of COVID-19 into Somalia, possibly as far back as late 2019. Furthermore, the excess death toll between January and September 2020 ranged between 3,200 and 11,800. While most of these deaths are likely to be directly due to COVID-19, some may be attributable to the indirect effects of the pandemic, e.g., socio-economic disruptions or reduced access to health services due to social distancing restrictions and overwhelmed or repurposed health facilities.

Key informant interviews revealed that preventative social measures such as lockdowns were not effectively implemented. Public gatherings continued to function as normal as hotels, teashops, mosques, and other public places remained open.

Possibly due to these limitations, informants reported an increase in the number of deaths in the month of Ramadan. There were reports some of these deaths were being caused by a flu-like disease. Additionally, weaknesses were identified in the capacity of health care professionals as well as the inadequacy of health equipment such as ventilators, personal protective equipment, and other rudimentary equipment.

Key challenges we have tackled include

- Collecting the missing baseline data for Benadir region which can service as option for crisis areas;
- Some of the graves were hard to detect since they are very similar to the ground;
- Some of the areas are hard to access zones, so that we have used very local approaches to make sure the safety of research personnel.

The Foreign, Commonwealth and Development Office (FCDO) has provided the funding for this research activity, but it was only limited to the Benadir Region. The idea still needs to be expanded across the country, specifically to the areas badly affected the COVID-19. The anecdotal reports show that Buroa city in Somaliland was severely affected by the pandemic.

Description of the research context

The study was implemented in Benadir region of Somalia where humanitarian crisis coupled with long term conflicts exist. The COVID-19 emerged as the country was already dealing with huge humanitarian crisis and complexity of civil war and terrorism. Also, the country's entire governance structure and institutions were destroyed by the civil war, including the health systems and infrastructure. A large portion of the country is managed by Al Shabab, a terrorist group that prevents access to humanitarian and government interventions. Recurrent floods and droughts still remain a major threat to the livelihoods of millions of people. Internally displaced persons (IDP) figures has been skyrocketing from year to year due to the climate disasters and insecurity.

Discussion of research issues

The main issues to consider when doing research in Somalia are:

- The safety of research personnel in fragile areas;
- Gender roles in rural and remote communities, as on some occasions elders may not join a focus group discussion session or a meeting with their female counterparts. Also, some of the female respondents prefer to talk to female researcher/enumerator;
- The capacity of research personnel is also necessary to consider.

Conclusions and recommendations for researchers

The problems in fragile contexts will remain for some time, but this shouldn't limit the research activities and their connection to other parts of the world including the research programs. Therefore, we recommend the following suggestions for the future researchers to consider when conducting research in Somalia:

- Recruiting local researchers and enumerators can bridge the issue of security and access to the crisis areas. This is also a cost-effective approach for a research project.
- Emails and formal communications are not the only methods that can work in this field. There has to be an informal approach to deal with local communities, authorities, and other actors on the ground, which will enable smooth data collection processes.
- Gender consideration is important during focus groups and household surveys. Researchers must pay particular attention to the local norms. For example, it is good if you are a male researcher to interview a female respondent outside of her house or a very convenient area. Also, if her husband is around you should let him know about the research process, so he is inclined to grant access to the household. Space between genders during meetings is essential. Certain elderly males may not choose to provide information in meetings where women are present since they don't feel that women belong in male forums.
- Partnerships can be very effective when they involve local and international researchers and institutions. Humanitarian agencies can also rely on local research institutions and researchers to achieve humanitarian impact. For instance, this project has been led by local institutions

named SDRI in collaborations with LSHTM (London School of Hygiene and Tropical Medicine) and SAC (Satellite Applications Catapult) and it was funded by the FCDO under UK's Evidence Fund.

- Capacitating national and local research centers should be prioritized.

Strengthening MHPSS services in Northwest Syria: The challenges of research prioritization and resource management

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Description of the research context

Currently in its tenth year, the humanitarian situation in Syria continues to deteriorate. An estimated 6.2 million people are internally displaced, including 2.5 million children. The overall scale and complexity of humanitarian needs in Northwest Syria remain staggering in terms of magnitude and severity, with an estimated 13.2 million people in need of health assistance. The majority of those displaced live in Aleppo and Idlib governorates in the northwest, though humanitarian assistance to these areas is limited due to the closure of nearby border crossings. One crossing currently remains open but will need to be renewed in the coming months. Many individuals live in overcrowded camps or sleep out in the open, and they face the combined stressors of economic collapse, COVID-19 restrictions, aerial bombings, and severe food and water shortages. Conflict-related injuries, toxic stress, complex PTSD, and poor management of chronic conditions have severely affected the population. Some data show that more than half are experiencing moderate to severe mental symptoms, and rates of psychosis have skyrocketed.

There are numerous barriers to the successful delivery of care, including a sharp decrease in the number of health professionals who remain in the area and frequent attacks on health facilities. Many have been displaced or killed, and interruptions to higher education have prevented new cohorts of health professionals from emerging. Some private universities are operating in the region, though none offer advanced education in mental health specialties. Most efforts to build mental health capacity are given through short-term, crisis-response trainings. This is insufficient for the severity of issues that they need to treat. There are currently two psychiatrists serving the entire northwest region of 4 million people, as well as around 20 psychologists and 100 psychosocial workers with varying levels of experience and qualification. Individuals with severe mental illness, psychotic or personality disorders, and developmental disabilities have few services available to them. Stigma toward mental health issues and a distrust of the medical system further prevent many from seeking out available services.

Description of the research project

With funding from the French Ministry for Europe and Foreign Affairs, SAMS is operating an MHPSS Center in Idlib (Alnafsa Almotma'ana Center) to reduce the burden of mental illness and functional limitations of people affected by the conflict. This is an outpatient center and one of only three specialized MHPSS centers in the northwest; the others are in-patient hospitals in Aleppo and Sarmada. Included at this center is a telepsychiatry program to help bridge the mental health gap and provide technical support for local staff who are treating individuals with advanced mental health and neurological problems. The telepsychiatry program began in 2013 by Dr. Saleem Al-Nuaimi with the support of UOSSM, a medical relief organization focused on healthcare in Syria. The program has evolved to include two medical doctors trained in WHO's Mental Health Gap Action Programme (mhGAP), four psychologists, a psychiatric nurse, and a pharmacist. Through this program, the local staff and patients receive a combination of synchronous and asynchronous remote support from a roster of international psychiatrists. The roster includes ten board-certified, bilingual psychiatrists who all have a Syrian background and currently live in the US or Canada. They volunteer their time through regular on-call hours where they make themselves available to meet with new patients and attending staff via WhatsApp or Skype. They also meet with staff weekly to discuss case follow-ups and treatment changes. This program has been largely successful, and much can be learned from its successes and limitations.

SAMS has dedicated some funds toward researching the effectiveness of the telepsychiatry program. Research questions include: (1) How is the telepsychiatry program organized, and what procedures

are used? (2) How open are local patients to using telepsychiatry services? (3) How has the program evolved over time, and what lessons have been learned? Telepsychiatry is still a new and developing field, and little research has been published in this area. These questions, however foundational, can be informative for others working in telehealth.

Methods

The researchers primarily utilized qualitative methods via semi-structured interviews (N = 18) with psychiatrists on the telepsychiatry roster and local staff at the MHPSS center. As a supplement, the researchers are also incorporating a systematic review of telehealth research in other contexts as a means of comparing program structures and procedures; and an analysis of data collected at the center to quantify rates of mental disorders and treatment protocols. Basic research on mental health needs within Syria is still lacking, so this documentation can be valuable. The research is being led by SAMS MHPSS Specialist based in Washington, DC (Dana Townsend) in collaboration with the architect of the program (Saleem Al-Nuaimi) and SAMS field staff in Turkey and Syria (particularly Samer Al-Sayed).

Findings

The research is still ongoing, but a number of lessons have been identified thus far:

(1) It is not enough for outside psychiatrists to be highly trained and bilingual. They must also be *consistent* – making themselves available to the center on a regular basis during specified times, and *knowledgeable about the situation on the ground* – so they can understand what patients are grappling with and interpret symptoms accurately.

(2) Strong relationships among the team have been more important than the system itself. The team follows a model of collegiality that is not hierarchical or paycheck oriented, with high levels of trust. They believe that the cohesive nature of the team and their deep dedication to the work is what has made the program so successful.

(3) Flexibility is critical. Life in an active conflict zone is unpredictable, including ongoing bombings, shifting frontlines, food and water shortages, and electricity that comes and goes. Funding fluctuates, and there have been times when medication is not accessible or off-label. Because everyone on the roster is board-certified, they know how to flow with these changes and remain flexible without causing harm.

(4) Stigma toward mental illness and distrust of doctors was an issue when the program began, but many in the community are hearing about positive outcomes and seeing that mental healthcare actually works. The team has noticed more openness toward the doctors, with many patients expressing that they feel humanized by the team's psychotherapeutic approach.

Discussion of research issues

Measuring progress against standard metrics

There are multiple metrics available for assessing mental health symptoms and evaluating the effectiveness of treatment protocols. Many assessments have been translated and validated for use with Arab populations, but they do not accurately capture the experience of those living in Northwest Syria. The social and psychological context is such that symptoms can manifest differently than they normally would. The typical rules and checklists may not always apply and could lead to misdiagnosis. For example, patients may frequently report “trouble sleeping” but it is not immediately clear if this is due to depression or due to bombs and sirens. The staff makes accurate diagnoses through in-depth conversations, but from a research perspective, it is difficult to analyze quantitative data when the tools are unreliable.

Accessing quantitative data

As the telepsychiatry program has been ongoing since 2013, a massive amount of data has been collected through intake forms and other documentation. However, all forms are still completed using paper and pencil, which makes it incredibly difficult to access and analyze data. This is done on

purpose, as paper documentation is easier to destroy in case of a frontline shift. Such a situation happened in East Ghouta, leading many health facilities to protect their staff and patients by burning all records. Some data have been electronically backed up and encrypted, but it is inconsistent and difficult to access remotely. Implementing a secure EMR system would be beneficial if funds could be obtained.

Prioritizing research over other needs

Some components of this project have been delayed due to a low prioritization of research at the center. Although the staff does believe in the importance of documenting this program, their priority is – and should be – on service provision. The center has just enough resources to meet the constant stream of incoming patients, and they prefer to spend their scarce extra time for self-care or technical training and capacity building. It has been difficult for them to find time to arrange interviews and organize data entry and cleaning.

Conclusions and recommendations for researchers

(1) ***More operational research.*** To ethically justify the use of research in a context where time and resources are so precious, it is critical to prioritize research that is directly and immediately relevant to the populations taking part in it. Researchers often make efforts to ensure that their research is *useable*, but frequently stop short of making sure that it is actually *used* and truly *relevant*. It is the researchers' responsibility to make sure that they communicate with local stakeholders and policymakers and take follow-up action in the advised directions.

(2) ***Mainstreaming qualitative research.*** Donors and publishers in mental health tend to prioritize quantitative research or mixed methods that include a strong quantitative component. In practice, the value of focused and rigorous *qualitative* research is often undersold. Strong qualitative methods can shed light on important nuances in the context and overlooked issues. As mentioned above, the “normal” rules do not always apply in humanitarian settings, which creates uncertainty when using and interpreting common metrics. Relying too heavily on quantitative tools in these settings can lead to inaccurate conclusions.

Community engagement during One Health research amidst concurrent crises, including drought and animal disease: a case study in Somali region of Ethiopia

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Description of the research project

The current case study explores ethical dilemmas encountered during investigations into an outbreak of animal disease, hereafter referred to as 'outbreak investigation', in the Somali region of Ethiopia in the midst of chronic drought and the COVID-19 pandemic. The ethical challenges faced while engaging with the local community to tackle the investigation and the levels of communication established at the community level are described. Finally, the opportunities and advantages encountered while engaging the community are described here.

Community animal health workers (CAHWs) play an essential role in the investigation of outbreaks. Following a disease outbreak, notification went out from the regional animal health bureau. A team from the federal offices comprised of a veterinarian, epidemiologist and microbiologist was organized and travelled to the outbreak site. We used a comprehensive approach for field outbreak investigation, including the collection of demographic and epidemiological data, and the collection of biological samples.

To varying degrees, these areas of Ethiopia have been characterised by limited veterinary services, civil disorder and logistical problems, poor infrastructure, and lack of awareness for the control and prevention of zoonotic diseases. These constraints were also highly relevant to the current disease investigation situation in the area, and it was one of the points looked into during the case study.

To supplement this outbreak investigation, results from a survey conducted to document ethical challenges faced by One Health researchers, reviewers and regulators in African countries are included. The survey came from the "One Health Ethics and Regulatory Procedures (OHEARP)" research project. This case study explores the ethical challenges faced when conducting research in fragile areas where the population was mostly pastoral communities, the need for multiple One Health ethics committees to approve such studies, and the need for ethical approval from the bordering countries.

The survey respondents affirmed that One Health researchers, reviewers and regulators in Africa, and specifically in Ethiopia, face ethical challenges, which hinder timely and appropriate implementation, review and regulation of One Health research projects, including in emergency situations, such as disasters and pandemics.

The outbreak investigation was financed by the European Union–Health of Ethiopian Animals for Rural Development (HEARD) project and Ethiopia's National Animal Health Diagnosis and Investigation Center (NAHDIC). The survey was funded by the National Institutes of Health (NIH), Fogarty International Center (FIC), grant number 3D43TW008650-08S1.

Description of the research context

The pastoral way of life is extensively practiced in Ethiopia, including in the Somali region. The livelihood of pastoral communities in Ethiopia is mainly dependent on livestock production. Since pastoralists have an intimate relationship with their animals, zoonotic infections are associated with pastoralism. Due to concurrent droughts and disease outbreaks, many of the pastoralists lose their livestock. Pastoral societies rely on their livestock for food (meat, milk, and blood), leather for clothing,

and faeces as fuel for cooking. During such dire situations, the foundation of their livelihood is disrupted and such situations lead to livestock theft and displacement of vulnerable subjects, such as women and children.

The disease outbreak study focused in Liben Zone, one of eleven Zones of the Somali regional state of Ethiopia. It is bordered on the south west by Mandera County of Kenya and Somalia on the south east. The area is frequently affected by drought since it experiences a very short rainy season. There is low vegetation coverage for small ruminants to graze or browse, except for small areas along the side of the river Dawa. Within Liben zone, two districts (or woreda), namely, Dollo Addo woreda and Bokolmanyo woreda were selected for the investigation. Dollo Addo woreda interconnects three countries, namely, Kenya, Somalia and Ethiopia. The other site, Bokolmanyo woreda, hosts one of the largest refugee camps in the Somali region. In the area, poor practices and traditional husbandry, such as, unrestricted movement of livestock across the border, mixing of wild animals with farm animals, and co-existence of pastoralists together with their animals frequently occur. Such conditions are major risk factors that favour the spread of zoonotic diseases. Research exploitation is also possible, since the community can be vulnerable to unethical conduct of research since consent to participate is mostly not obtained prior to biological sample collection during outbreak investigations.

Discussion of research issues

Ideal approaches for balanced ethical considerations, along with an effective response to an emergency situation were observed in the current case study. This case study highlights efficient ways ethically conducting a disease investigation through community participation can positively benefit pastoral communities. In addition, opportunities and practically feasible ways to make potential changes for improved conduct, review and regulation of One Health research, including emergency research, were observed from the OHEARP survey. The case also addresses barriers and challenges to conducting One Health research in humanitarian crises and the level of understanding of researchers on how to approach One Health research in such situations.

The specific lesson learnt during the case study was the importance of community engagement, which was evident during our observation in the disease investigation. We have attempted to show how local community engagement is important to achieve the goals of One Health research in pastoral communities. The case study also shows a potential improvement method for review and regulation of One Health research during emergency situations, such as disasters and disease outbreak. Community engagement was a key component throughout the investigation process. Their involvement included identifying any disaster or crisis event, identifying study sites, and assisting during sample collection. To engage the community, we held preliminary meetings with community leaders to assist in the selection of representatives through a transparent community selection process. Epidemiologists also used participatory epidemiology (PE) and Participatory Disease Searching (PDS) tools with the community to carry out the investigation. Following the disease investigation, we reported the results to the community and designed possible interventions tailored to local needs in collaboration with the communities. This is an exemplary practice for other researchers since communicating the outcome of an investigation is important to allow better handling and prevention of future outbreaks.

Several challenges associated with outbreak investigations in pastoral communities were observed during the disease investigation. Pastoralists move from place to place and reaching community leaders was not easy. Religious leaders and community leaders were vital channels to reach pastoral communities. These individuals are highly respected, trustworthy and influential in their communities. Convincing people about the importance of collecting biological samples from community animals required a lot of effort, and hence engaging those leaders facilitated the investigation process. The leaders connected the investigation team to pastoral communities, since the leaders know very well where the grazing and watering points are, the contact number of most community members, and the common movement routes where the community takes their herds. The other challenge was the lack

of national policy or guidelines for emergency research, particularly for disease outbreaks that require a rapid response. Challenges were also experienced due to the very nature of the One Health approach for the disease investigation, which involves organizing a team from different disciplines and getting them on board with the project. Finally, the lack of resources in the pastoral area due to poor infrastructure was a constraint. Poor road access to reach the local community and very limited or no access to electricity made cold chain maintenance for collecting and transporting biological samples very challenging.

Although all research, including outbreak investigations, should abide by the foundational ethical principles established by relevant research bodies, this was difficult to observe while investigating the current animal disease outbreak, which generated a number of ethical dilemmas. We noted that the existing ethical guidelines were not adaptable to certain research methods, cultures, and contexts, making it challenging to design and implement studies in pastoral areas, especially at times of zoonotic disease outbreaks, disasters, pandemics and animal health emergencies.

Conclusions and recommendations for researchers

Conducting One Health research in the context of concurrent crises is challenging. Although research in crisis situations may bring opportunities, the research demands more from both the researcher and the community where the research is being conducted. Hence, to solve ethical challenges faced by researchers, multidisciplinary One Health ethics committees should be established to appropriately review and approve studies in a timely manner, like these conducted in fragile pastoral communities. Moreover, integrated and collaborative engagement among researchers, health professionals, non-governmental and governmental bodies and the community is recommended to effectively address the livestock health problems of the community in the context of concurrent crises.

Syrian refugee fathers' wellbeing, family involvement, and community engagement amidst the COVID-19 pandemic in Jordan

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Description of the research context

Jordan is a middle-income country in the Middle East. Since its independence in 1946, it has received more than three million refugees from multiple bordering countries during times of conflict. The largest refugee influxes thus far have been the reception of Palestinian refugees in 1948 and 1967, Iraqi refugees after the Iraq war in 2003, and most recently, over 670,000 Syrian refugees since the Syrian crisis in 2011 (1). The swelling from the humanitarian crisis in neighboring Syria overwhelmed the pre-existing healthcare infrastructure, which was increasingly loaded with the COVID-19 pandemic. The refugee population is one of the most affected sub-groups by this pressure and lack of services. They have limited accessibility to health services (including physical, mental, and general health support) (2-4). It is more challenging also because many Syrian refugee fathers have limited education and lost their jobs due to the economic crisis after the pandemic (5,6).

Description of the research project

The Syrian Refugee Fathers Study focuses on a cohort of Syrian refugee fathers currently living in Jordan. It complements a cluster randomized controlled trial (RCT), named "FIERCE": Family Intervention for Empowerment through Reading and Education. It evaluates the impacts of the We Love Reading program, implemented with mothers to foster the love of reading and boost child literacy. The RCT was pre-registered with the AEA RCT registry (AEARCTR-0006523), and the protocol is available at: <https://www.socialscisearch.org/trials/6523>.

FIERCE follows a cohort of 300 mothers and their 4-8-year-old children, collecting data at their homes in Amman and Zaatari camp, at two time points before/after the reading intervention. In the Syrian Refugee Fathers Study, we recruited the fathers in this cohort to characterize their general wellbeing and their family-directed behaviors. We will also analyze whether their mental health and types of interactions impact family functioning and their children's attitudes towards reading. Fathers were contacted through existing household contact information, over the phone - all mothers participating in FIERCE were asked for contact information and for their consent to interviews with fathers.

We asked fathers to report on their mental health and wellbeing, using Warwick Edinburgh Mental Wellbeing Scale (WEMWBS) (7), Parental Burnout scale (8), a shortened version of Center for Epidemiologic Studies Depression Scale (CES-D) (9), and a shortened version of The Depression, Anxiety and Stress Scale-21 (DASS-21) (10). Moreover, we developed a self-report version of the Father Involvement Questionnaire (FIQ) (11) to describe their interactions with children, spouse, and community. Furthermore, we measured general family functioning using the shortened version of the General Functioning subscale of the McMaster Family Assessment Device (GF6) (12), we also used The COVID-19 Family Environment Scale (CHES) (13) to measure resulting conflict and cohesion in fathers' families before and after the pandemic. The data collection is still ongoing, with the first phase of the survey completed in July 2021, and the second one to be completed by November 2021.

Relatively little is known about how fathers influence their children's social and educational development, especially in contexts of war and forced displacement. In research and policy, the "father factor" has been all too often ignored, given that parenting interventions have historically been focused on the mother-child dyad. Yet engaging with men as fathers is important for sustaining initiatives that seek to build cultures of peace, equity, and social inclusion, as well as

designing parenting interventions that improve family cohesiveness and child development outcomes. Evidence suggests that fathers are important to a child's social, behavioral, and moral development, by fulfilling positive roles pertaining to psychological health, cognitive functioning, and capacity for empathy.

The FIERCE project is funded through the Education and Learning in Crises scheme by the British Academy, while the Syrian Refugee Fathers Study is funded by the MacMillan Center for International and Area Studies at Yale University.

Discussion of research issues

Ethical considerations

One of the main ethical dilemmas we faced in the field was balancing empathy with objectivity and neutrality while conducting the interviews. Many of the fathers we approached have traumatic experiences, and they suffer from very difficult financial hardships, which they talked about in interviews. We also asked about sensitive topics (e.g. Mental health, family). We tried to find the perfect balance by listening attentively, showing interest and allowing them to vent even beyond the research interview, but maintaining our neutrality when asking the questions and reacting to their answers. We also offered them a file that contains all the health services available for refugees in Jordan for free (a database that we prepared in advance).

Also, offering compensation created an ethical dilemma as we wanted them to benefit but we felt they may be pressured or insulted by being offered money to participate. We overcame this barrier by establishing rapport in the beginning of interviews, in addition to choosing a compensation (phone credit cards) that is useful, convenient, and easier to be accepted than direct cash. Doing a pilot helped us in determining the practicality of the compensation type chosen.

Challenges to research/strategies to address the challenges

The barriers to doing research in multiple crises settings are numerous. They include: difficult accessibility to the study population, lack of logistic support, limited funding, and inability to use typical methods of research due to health or political restrictions, among many others.

We built strong effective partnerships, by gathering a team of local active academics, local NGOs, local experienced researchers, in addition to international researchers and experts. This step was crucial to facilitate research implementation and build potentials for future collaborations.

Community engagement enabled us to access the study population more easily, be more trustworthy for them, and facilitated engaging them in our study. Thus, they wanted to raise their voices, and this encouraged them to be more proactive and open. We also plan to share the results with them and discuss their implications, and this made them more interested and engaged in the study.

One of the other challenges faced was being forced to conduct interviews over the phone due to the pandemic restrictions. This created barriers in interview time windows and the interaction range through interviews. We let fathers choose the times they feel best to do the interviews, and adapted our schedules to their availability. We also scheduled a limited number of interviews every day in order to avoid burnout of interviewers and ensure empathic communication and interaction with participants.

Conducting interviews over the phone posed the challenge of lack of face-to-face interaction, which we overcame by spending the first 5 minutes of each call trying to establish strong rapport and smooth communication with the father. This was done by thorough introduction to participating institutions, importance of the study, and personal backgrounds of field researchers. We found that the more participants knew about the study and its aims and importance, the more they were willing to participate and answer openly.

Specific subpopulations (i.e. vulnerable populations, women, children, etc.)

Usually, fathers are understudied and underappreciated as a subpopulation in humanitarian contexts. They are a very important (and vulnerable) part of these contexts, and are more prone to have witnessed trauma and suffered from stress, due to their position as the providers who are responsible for their entire families. Also, fathers are expected to be strong and not to show any vulnerability or emotional expressions in many cultures, due to the social roles and stigma.

In order to address the barrier of participants not being entirely open and comfortable (which we faced during the pilot and first interviews), we tailored our introduction to the survey to address them and their potential concerns specifically. We also chose to have only male researchers, as we noticed fathers do not usually open up to female researchers. In the pilot, we noticed some survey items were not as sensitive as they should be. We tailored all survey items to fit local contexts and be sensitive to them.

Conclusions and recommendations for researchers

Doing research about refugee fathers' well-being amidst a pandemic can be very challenging, but at the same time can inform future policies and strategies to help crises-affected populations. Doing research in humanitarian crisis contexts helped me be more aware of how to conduct good research even in the most difficult circumstances, and how important is it to be culture-sensitive and build strong partnerships with local NGOs and academics.

1. Local NGOs and local academics can be crucial to facilitate the implementation of health research in humanitarian contexts.
2. Tailoring all research processes to fit specific local needs is essential for research in fragile contexts and vulnerable populations.

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Family focused psychosocial support for the mental health of at-risk adolescents in Lebanon

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Description of the research context

Lebanon is a middle-income country facing a devastating economic disaster and is reeling from a dual explosion in the port of Beirut that ripped through the city killing hundreds, injuring thousands, and displacing hundreds of thousands. Lebanon is the third highest indebted country in the world, and even before the painful devaluation of the local currency, had one of the highest income inequality distributions in the world. In addition, Lebanon has been affected by a refugee crisis, with a government estimated 1.5 million refugees in a total population of around 5.5 million. The majority of refugees come from neighbouring Syria, as well as an estimated 450,000 Palestinian refugees. Refugees in Lebanon suffer from poor educational and economic opportunities, socio-economic insecurity, and widespread prejudice and discrimination.

The many social and economic pressures facing displaced and other vulnerable families in Lebanon increases the risk of mental health and child protection issues, through sexual and gender-based violence, domestic violence, child marriage, child labour and recruitment into armed groups. In this context, social and sectarian tensions have risen in response to increased pressure on already overburdened infrastructures. Despite the predominantly private health care system for which the majority of vulnerable families have no access, Lebanon has strong governmental support for improved child protection and mental health care. The Ministry of Public Health in Lebanon launched the National Mental Health Program in 2014 in partnership with the WHO and UNICEF. In 2015, a 5-year Mental Health and Substance Use strategy for Lebanon 2015-2020 was launched with the aim of reforming the Mental Health System in line with WHO global action plan for Mental Health 2013-2020. There remains a gap, however, in the provision of family and systemic interventions.

Description of the research project

Research aims

The Arts and Humanities Research Council and Foreign, Commonwealth and Development Office (AHRC-FDCO) Collaborative Humanitarian Protection Research, funded study aims to develop and test a family systemic intervention that can be delivered alongside the existing UNICEF Focused-Psychosocial Support program for at-risk adolescents in Lebanon. There is a small yet growing evidence base for psychosocial interventions in conflict and humanitarian emergencies, however adolescent mental health is often under-researched and drastically under-resourced. Families play a critical role in ensuring adolescent mental health and protection outcomes, yet there has been limited research evaluating family interventions in these settings. Through the development and evaluation of an adjunctive Family Systemic Intervention Module, named the *Sawa Aw2a (Stronger Together)* Family Program, we aim to enhance current humanitarian programming by addressing the child's ecology, while also addressing a significant weakness of the current evidence base for at-risk adolescents and their families in conflict-affected contexts. The participatory, hybrid effectiveness-implementation design ensures that the intervention is optimally contextualised, and suited for wide-scale implementation. Phase 1 of the study involved the development and piloting of Sawa A2wa Family Program, with a randomised-control trial planned for Phase 2.

As part of the development of the family systemic intervention module for at-risk adolescents in Lebanon, we conducted a systematic review of family interventions in low- and middle-income countries, including a grey literature search focused on the Levant region, in which we identified effective family programs, but also explored implementation factors, lessons learned, and common practice elements, as well as evidence for key mechanisms of change. We also conducted thirty-two exploratory interviews in the Beddawi area of Tripoli, with adolescents aged 12-17 and their parents. We used a systemic approach to explore multi-level stressors and coping, including positive deviance to identify effective coping at the individual and family level. Finally, we set up Community Advisory Boards and three intervention development workshops with international and local experts to integrate findings into the family program, which was then piloted with 10 families in Tripoli and North Beqa'a. The following are reflections and lessons learned, challenges and successes, of this formative stage.

Discussion of research issues

Meaningful community involvement

The setting up of Community Advisory Boards (CAB), made up of at-risk adolescents and caregivers from Syrian, Palestinian and Lebanese communities, aimed to provide a participatory mechanism to engage with communities throughout the research and intervention development process, and to ensure the contextual, cultural and linguistic relevance of the research design and the module itself. CAB members informed, among other things, the translation of the program review and interview findings into the module, the validation of measures for pre- and post- assessments, and strategies to engage and communicate with families who would potentially benefit from the program. Feedback from the CABs has been an invaluable source of information that kept the family module grounded in the local context, and ensured the relevance of activities for the population. Several challenges had to be addressed to support this meaningful engagement, including fair compensation, continuation during periods of remote working, and engaging with the whole family.

Compensation for the time and effort of CAB members was challenging due to issues of fairness amongst other community members, raising expectations for compensation for other unrelated activities, or, on the other hand, too little compensation raising ethical concerns of exploitation. In the context of Lebanon, this has been particularly challenging because of the spiralling devaluation of the Lebanese Lira (LL), causing the value of compensation to change on a daily basis. At the start of the project, 1 USD was worth 3,000 LL, but it is now closer to 20,000 LL. Regular revisiting of appropriate compensation amounts has been required, sensitive to the changing context, and the implications for partner NGOs. Rolling consultation with all stakeholders has helped to be responsive to changes in this economic context. In addition, the majority of CAB meetings had to be held online due to COVID-19 containment measures, with challenges of access to internet and technology, privacy, and holding group calls. This was even more challenging as the family-based project required engagement with the whole family. To adapt to the necessity of remote working, our team found that setting up WhatsApp groups with voice-messaging and chat discussions was the most suitable solution, as families could respond when they had access to the internet, and at the convenience of the different family members.

Contextualised use of the existing evidence-base

The systematic review of existing family interventions in low- and middle-income countries found no evaluated family interventions for adolescent mental health in Lebanon, few in the wider region, nor in conflict settings. While this demonstrated the need for our study, it also raised issues of incorporating existing evidence into the family module whilst also ensuring local contextual and cultural relevance. Programs for at-risk adolescents highlighted in the review such as 'Let's Talk' in South Africa, 'Tuko Pamoja' in Kenya, or the 'Family Strengthening Intervention' in Rwanda, showed good evidence of effectiveness, but were developed in vastly different contexts. Components of existing programs with evidence of effectiveness were therefore carefully reviewed alongside local experts in mental health and child protection, and with the Community Advisory Boards. Content was omitted, adapted or replaced as needed. In addition, core themes that arose from exploratory family interviews on family

functioning and coping were incorporated into the module and the training for facilitators, all of which helped to integrate existing evidence with local needs and norms.

Adapting to perpetually changing crises

Specific to the context of concurrent crises, the need to plan flexibly and perpetually adapt has been imperative to adjust to shifts in context. The economic crisis in Lebanon for example, has caused major fluctuations in the value of the LL, impacting on our study in a multitude of ways through staff salaries, compensation, the price of program materials and transport. It has also caused electricity and gas shortages, not to mention widespread protests, road blocks and increased checkpoints. With outbreaks of violence, COVID-19, and the port explosions, the situation is unstable and unpredictable. Conducting research under such conditions is necessary but challenging, and we have needed to respond through realistic and collective planning, careful weighing of all moving parts, and re-visiting decisions and plans with key stakeholders regularly. The other important strategy has been to collect data not just on effectiveness, but on implementation. This is helping us to learn more about feasibility, acceptability, and reach, which can ultimately help to inform the adoption and scalability of the program in this complex setting.

Conclusions and recommendations for researchers

Conducting research on mental health interventions during concurrent crises has many challenges, but many of these can be addressed through meaningful engagement with communities, drawing on local knowledge and lived experiences, and responsive and flexible planning that can be adapted as contextual changes occur.

- Allow time and funding to set up and run a Community Advisory Board as early as possible in the study process in order to build trusting relationships, and to address practical and structural barriers to meaningful communication.
- Build-in perpetual contextual monitoring and flexible protocols to quickly respond to changing crises, with attention to participants, staff and institutions.

Measuring hunger in migrants on the move, competing with crime, climate, and COVID

Manuela Orjuela-Grimm (Columbia University Medical Center, USA, presenter), C. Alondra Aragon Gama, Cesar Infante Xibille (National Institute for Public Health, Mexico, co-presenter)

Description of the concurrent humanitarian crises affecting the study population

Our study takes place in northern/ central Mexico. The study population originates primarily from Guatemala, Honduras, and El Salvador (the so-called 'Northern Triangle' of Central America). The migration corridor extending from Central America to North America (through Mexico to the US) is one of world's most highly transited.^[1] Recent years have seen an increase in the number of international migrants transiting Mexico with the goal of reaching the US. In 2014, the duration of transit through Mexico, for international migrants, lasted on average three months.^{[2][3]} However, regional politics have contributed to greater variability with protracted transit periods even before the COVID-19 pandemic. Pandemic related border closures have contributed to even more protracted transit periods with resulting temporary resettlement.

Relevant facts about the host country/community

During their transit through Mexico, migrants are victims of discrimination and violence perpetrated by local residents, authorities, and organized crime. Additionally, the regions through which migrants transit are also affected by environmental factors that may be life threatening.^[2,3] Weather extremes further challenge transit as well as access to food thereby worsening nutritional status, contributing to potentially critical situations, particularly for those with pre-existing medical conditions or more vulnerable life course stage (pregnancy, infancy). Other harmful exposures include limited access to health care and shelter.^[4,5] Access to food is a frequent challenge and is often dependent on humanitarian assistance^[6] which is mostly offered through religious organizations' shelters (*casas del migrante*) in strategic locations along migration routes to the US, that also provide lodging, medical and legal assistance.^[7] The health, social and economic crises accompanying the COVID-19 pandemic have further complicated food access for migrant populations^[4-6]. Among migrants whose trajectories were interrupted prematurely in Mexico in 2020, 23-57% reported increased difficulty in accessing food, and decreased diet diversity as a result of the pandemic^[7-11]. Severe food insecurity has multiple negative health consequences on chronic mental and physical health outcomes, depending on the life course stage.^[12] A recent model proposes that food insecurity impacts health outcomes through three pathways: stress, behavior (considering food insecurity coping strategies, or actions employed in an effort to obtain or maintain food supply), and inflammation (resulting from physiologic responses to stress)^[12], and an increased risk for diet-associated chronic disease. The psychosocial consequences of scarcity contribute to poorer emotional health (including heightened stress, poor decision making, lack of trust, risk taking behaviors (e.g. partaking in sexual work or drug-trafficking) to guarantee access to food and other basic needs^[13-16] These risks are magnified among migrants on the move^[1]. Additionally, because health outcomes and the impacts of exposure to severe food insecurity may not be measurable until long after resettlement, assessment of these impacts may be challenging. The population reaching the US border may be particularly susceptible to illness potentially because of an acutely (or acute-upon chronic) undernourished state.^[11,12] Data regarding nutrition, access to food, frequency and severity of food insecurity during overland migration *in route* to the US southern border are scarce. Such data can inform policy recommendations and service provision to improve migrant health.

Importance of study

A better understanding of intra-migration access to food and water among Central American overland migrants can inform policy recommendations and service provision to improve their nutritional status. The current migration crisis in this region further highlights the need for this type of research, particularly with the complexities imposed by the pandemic.

Research question

Our objective was to determine the feasibility of documenting prevalence and severity of food insecurity in Central American migrants on the move, transiting overland through Southern and Central Mexico, and to understand potential predictors associated with exposure to severe food insecurity.

Description of the research project

Over a two-week period, in a migrant shelter in north central Mexico, we interviewed 95 Central American migrants who were traveling overland to the US, regarding their experiences of food insecurity in transit. A total of 74% experienced some degree of food insecurity, ranging from having only one meal per day (33%) to no food at all in one or several consecutive 24 hr periods. A total of 37% had 24 hr periods with nothing to eat, with 19% reporting multiple consecutive days with nothing to eat. Factors associated with relatively more severe food insecurity included more days in active transit, more severe illness that impacted mobility, or illness in a travel companion in the prior 2 weeks. Illness was predicted by a pre-migration diagnosis of chronic disease.^[12] Our small study was the first, to our knowledge, to examine prevalence of severe food insecurity.

Limitations to our study include the fact that the population of migrants using migrant shelters may not be representative of migrants in transit through Mexico as a whole especially if we consider the fact that transit is a very dynamic process. Our study reflected a cross-sectional convenience sample of migrants residing in a heavily transited shelter during a peak migration period. Methodological limitations included the inability to obtain detailed information on preexisting medical conditions, as well as the lack of existing tools that permit measurement with the temporal variability present in a setting of active migration. Similarly, the ability to use tools designed for measuring households do not apply easily in settings in which 'transit' households fluctuate in membership composition^[17]. Because illness in traveling companions appears a key determinant of our outcome, we were particularly challenged in trying to analyze and interpret our results. These examples are likely relevant for other humanitarian settings in which tools designed for measurement in a more stable environment may be less informative. Lastly, the study was to be continued with another migrant shelter farther north in the migration corridor. The pandemic has led to multiple complexities in designing and implementing a follow up / continuation study.

Key barriers, challenges, and mitigation strategies in conducting research in fragile settings

Barrier 1: Research in this context is shaped by underlying persecutory immigration policies which increase vulnerability of migrants, leading them to transit areas that are less hospitable thereby leaving them more prone to becoming victims of organized and petty crime. The clandestine nature of their migration renders access more challenging, and increases their distrust and reluctance to interact with strangers (including researchers). A key **ethical consideration** includes the unique vulnerability of a clandestine population with additional needs for privacy and measures to protect confidentiality.

Mitigator: A community-based participatory research (CBPR) approach. Migrant shelters provide an infrastructure and resources that allow migrants to access rights-based services which renders them trustworthy to migrants who consider them 'safe spaces'. Shelters similarly provide a safe location for research teams. Research projects in turn facilitate and enable capacity building by training staff on related health issues, providing access to otherwise scarce supplies, and providing resources that permit strengthening the shelter's infrastructure. With this study, population access was possible by administering a brief survey in the shelter and building onto the shelter's daily structure. Study announcements and recruitment was done during existing meal times. However, recruitment was done through a general group announcement rather than approaching individuals.

Barrier 2: Methodologic (measurement): lack of an existing tool that measures exposure adequately. Existing surveys were structured to fit on one page, and this limited the data queried. Instruments for

measuring food security are based on key structural elements (e.g., time interval, household) that did not fit the reality of migrants on the move and were thus less informative for capturing exposure.

Mitigator: We modified questions to help them better capture exposure in our population, though this modification decreased the ability to compare our results with other studies/populations. At the time of analysis, we also modified the approach to our outcome (creating an expanded score rather than a binary outcome) to allow us to measure severity of exposure, which allowed us to better examine the reality in our population and also gave us more power given the limited data.

Barrier 3: Challenging implementation of data collection/consent given distrust of population, low literacy skills.

Mitigator: We relied on a CBPR approach. Surveys were administered (as interviews) by shelter staff, some of whom were themselves former migrants. This increased the likelihood that migrants would feel sufficiently comfortable to participate. However, reliance on shelter staff who have limited training and frequent turnover, also negatively impact data quality, especially when compounded by limited ability to oversee data collection closely (worsened by the pandemic), and lack of ability to go back to study subjects to clarify any data collection/ entry errors.

Consent:

We were able to obtain consent verbally (this may require negotiation with institutional IRBs), such that consent was read to the potential participant. We also streamlined the consent and crafted it considering soundbites. A verbal consent also facilitates privacy protection as no signature is recorded.

Skills and capacities:

Implementation of mitigation strategies depend on a multidisciplinary research team with the academic flexibility to adapt to be able to adapt to the multiple, concurrent humanitarian crises. Priority skills include a flexibility, adaptability, and experience collecting data in challenging field conditions even if not in a humanitarian setting.

Conclusions and two recommendations for researchers

In conclusion, we found multiple logistical and methodological challenges to measuring incidence, severity, and predictors of food insecurity among migrants on the move in North Central Mexico. Migrants' travel conditions were impacted by the confluence their clandestine status, crime, climate (geography) and COVID. Researcher's access to the migrants was limited by these same aspects. Population access was limited to convenience sampling, with limited ability for real time quality control in data collection, a streamlined data collection with few measures, a lack of standardized or validated instruments that adequately capture the exposure of interest (food security) in a population on the move.

Recommendations and lessons learned: 1) research with difficult to reach populations will benefit from building a team that includes researchers experienced in primary data collection with other difficult to reach populations partnered with researchers well familiar with humanitarian settings to maximize complementary skills; 2) inclusion of community partners in the design and implementation of the research projects using a CBPR approach will maximize the likelihood of collecting informative data and will increase the likelihood that research findings can eventually lead to improvements in service provision or policies.

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Challenges and lessons learned in implementing an abortion-related near-miss study in a fragile setting in Nigeria: The AMoCo study

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Description of the concurrent humanitarian crises affecting the study population

The AMoCo (**A**bortion **M**orbidity and mortality in fragile and **C**onflict-affected settings) study is led in 3 fragile or conflict-affected settings in Nigeria, Central African Republic and Democratic Republic of Congo, with the support of Elrha/R2HC. This case study focuses on the Nigerian study site located in the Jigawa State, Northern Nigeria. The study population is prone to recurrent and concurrent crises. Recurrent crises include flooding, food shortage usually brought about by the flooding, and high numbers of malaria cases. Concurrent crises include overcrowding due to displacement from the surrounding crisis-stricken areas and people fleeing from the Boko Haram crisis.

Relevant facts about the host country/community

With an estimated population at 170 million inhabitants, Nigeria has a maternal mortality ratio of 560/100,000 live births (1) and it rises to 1,026/100,000 live births in Jigawa State (2). According to the last Demography and Health Survey, the women of reproductive age in Jigawa State have the second worst nutritional status indicators of Nigeria, and only 18% of them are literate, attesting to its fragility (3). The study was conducted in the maternity ward of Jahun General Hospital, which has been supported by MSF (*Médecins Sans Frontières*) since 2008. This comprehensive emergency obstetric and neonatal care secondary hospital has a rural catchment population of 665,379, situated in rural remote areas (4). Additionally, 47% of admitted patients come from outside the catchment area (4), including general and displaced people from the current Boko Haram conflict in Borno and Yobe States.

MSF is supporting the maternity ward (56 beds) and the women's intensive care unit (ICU) (15 beds). In 2017, Jahun maternity admitted 12,600 women, assisted 8,300 deliveries (67% of which were complicated), and managed almost 1,100 women seeking post-abortion care. According to Nigerian law, safe induced abortion is legal when performed by qualified practitioners and when the procedure aims to preserve the life of a pregnant woman. Nigeria is also one of the "States Parties" that ratified the Maputo protocol.

Research question

To describe the magnitude and severity of abortion-related complications in a comprehensive emergency obstetric and neonatal care (CEmONC) hospital in Nigeria, and to identify contributing factors.

Description of the research project

While maternal mortality has globally decreased over the last two decades, abortion-related mortality, one of the five main causes of maternal mortality worldwide, has shown one of the smallest declines in cause-specific maternal mortality ratio. Moreover, almost all abortion-related deaths would be related to unsafe induced abortion, happen in low-and-middle-income (LMIC) settings and are easily preventable (5). Research about abortion, abortion complications, and post-abortion care in fragile and conflict-affected settings is limited. Access to induced abortion and post-abortion care for complications in these settings is also extremely limited (6,7), and therefore rates of complications are likely to be high. Delay in seeking care for abortion-related complications can severely threaten a woman's life and require medical interventions to avert death. Together, these factors result in a persistent lack of attention to preventable abortion-related complications in fragile, humanitarian settings.

The research, to our knowledge the first of its kind, is expected to generate evidence on the magnitude and severity of abortion-related complications, provide information on factors associated with severity, women's trajectories to experiencing near-miss (life-threatening) complications, and identify challenges and barriers to health care experienced by women seeking post-abortion care in fragile, humanitarian settings. It is a multi-site mixed-methods study with both quantitative and qualitative data collected. Quantitative data collection includes: 1) a prospective medical records review (MRR) collecting clinical data of women presenting for any abortion complications (spontaneous or induced); and 2) a quantitative survey among a subset of these women thanks to face-to-face interviews with a quantitative questionnaire about their socio-demographics characteristics, the history of their condition, their delays in accessing care and their exposure to displacement and conflict. The qualitative component used in-depth semi-structured qualitative interviews with women who had experienced a near-miss (life-threatening) complication to collect more information on their pathway to care.

In the Jahun study site, data collection ended in July 2021. In total, 573 women were recruited in the MRR (Medical Records Review), 408 in the quantitative interview, and 68 in the qualitative component. An opt-out strategy was set up for recruiting eligible women into the MRR and documented verbal informed consents were put in place for the quantitative and qualitative surveys.

Commentary on the key barriers and challenges to conducting research in fragile settings and strategies to mitigate these challenges

Previous work on abortion-related complications has excluded fragile and/or conflict affected contexts because of security concerns and other challenges associated with collecting data in fragile areas. In this case study, we present three key barriers and challenges, along with our mitigation strategies.

1. The recruitment process and acceptance to participate in research

General awareness about research is quite low and almost lacking in this context, as such the willingness to participate in research comes with skepticism. Also, getting participants to consent to enroll in study done in emergency wards, more in such fragile context does come with its challenges. Indeed, long informed consent processes with women of low literacy level could jeopardize the emergency care they receive. In addition, some of these women coming for post abortion care will stay only a few hours in a busy medical ward where a formal informed consent would take a substantial amount of time in a context of emergency care and would probably lead to a low response rate. In order to mitigate such challenges, as proposed by the CIOMS guidelines (Council for International Organizations of Medical Sciences: International Ethical Guidelines for Health-related Research Involving Humans. Biomedical Research, 2016), we adopted the use of the opt-out strategy for enrollment of eligible participants in the MMR component which collected routine clinical data. The opt-out strategy put in place was in the form of posters and forms bearing the information about the MRR while stating a patient's right to refuse for her records to be reviewed. We included pictures in the information tools to allow an understanding of women with lower literacy level and clinicians were trained to answer questions about the study. Women who were hospitalized were consented to participate in the quantitative interview and, if they had a life-threatening complication (near-miss), in the qualitative interview. These interviews were done during their hospitalization (when the woman is stable) so that a formal informed consent process was feasible. Because of the sensitive subject of the study, we implemented verbal documented informed consents to further protect the participants from confidentiality breaches. At the start of the data collection, despite this process, we had no opt-outs in the MRR and several refusals to participate in the quantitative and qualitative interviews. To overcome these issues, daily routine sensitization was done by one of the study team members and information about the research was included in the routine sensitization done by hospital health educators thereby creating awareness about the ongoing study. This strategy improved acceptance for recruitment into the quantitative and qualitative interview

components and some women started opting out (reflecting their better understanding about their possibility to do so)

2. Literacy

Literacy in this context was not limited to one who has entered the four-walls of a formal learning environment. It was difficult to justify what education level in this context would entail “literacy”, and how consenting the participants would be while ensuring their privacy and confidentiality.

Therefore, first, due to the restrictive lifestyle for women and female children practiced in the region of our study, we also considered those who were schooled at home in either English or the Hausa language as being “literate”. Then, women who could not read in Hausa language, could understand every content when read to in Hausa. And, because of the sensitive subject of the study, women were generally reluctant to involve a third party (a witness) during the consent process if they were illiterate. To overcome these issues, we modified our consenting process using an independently validated audio-recorded consent information listened to by women who could not read and did not want an impartial witness present.

3. Privacy and confidentiality concerns

Most of the women who presented at the hospital were accompanied by their in-laws (mother, sister, father or brother), who would then become their caregivers. Even if we took very good care of keeping confidentiality when approaching the eligible women, they were constantly subjected to questioning when seen to be leaving their wards to participate in the quantitative and qualitative interviews as the case were. To overcome this unexpected challenge, the woman was first approached and very briefly talked to about the ongoing study in the ward. To ensure confidentiality, the woman (if she accepts) is taken to the interview room to get more detailed information during the informed consent process. If the woman’s caregiver wants to accompany her, the woman was reassured that if the caregiver accompanies her, the latter will be allowed to walk with the participant to the study complex but not within the interview room and that no personal or confidential information will be shared with the caregiver. We accommodated such caregiver in the waiting room of the study office and sensitized her/him briefly about the study. The sensitization of the caregiver was kept general without mentioning the sensitive subject of induced abortion. This strategy ensured full confidentiality for the woman while allaying the anxiety and skepticisms of the caregivers, further limiting the risk of future questioning of the caregivers to the women.

Conclusions and three recommendations for researchers

This case study has highlighted the need for research in humanitarian crises settings in relation to issues of sexual and reproductive health, especially with regards to post-abortion care. Implementing this research, we were able to identify three main recommendations to improve consent processes, confidentiality and recruitment in such chronic fragile context:

- 1) Involving existing community and hospital-based health educators in the research before the data collection to gain a better understanding of the existing norms and common practices could allow to adapt consent and recruitment processes.
- 2) Involving health educators in the research during the whole phase of data collection to better inform the potential participants about the study could improve the quality of the informed and free consent process as well as the response rate to the study.
- 3) Informed consent processes need to be adapted using innovative methods (pictures, pre-validated audio-recorded information, general sensitization of relatives, etc.) to ensure confidentiality and a good understanding of potential participants with very low literacy levels in such context of chronic fragile settings.

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Improving the quality of maternal and newborn care in humanitarian settings: The Safe Delivery App in Puntland, Somalia

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Description of the concurrent humanitarian crises affecting the study population

Save the Children Somali country office supported a pilot project of the Safe Delivery application. Somalia has a complicated political, security, and development environment, with a recent history defined by poverty, famine, and recurrent warfare. Since 1991, the country has been without a functioning federal government. Within Somalia, Somaliland's independent northwestern zone and Puntland's semi-autonomous north-eastern zone have their own central governments. Through federal member states, the South Central zone is administered by the federal government.

In 2015, one in 18 women die in pregnancy or childbirth in Somalia. This is exacerbated by a shortage of experienced birth attendants, close spacing of births, and adolescent marriages. International donor investment has increased skilled birth attendants, especially in the DFID-funded Health Consortium Somalia (HCS) programme in Karkar region. However, low government investment in health services and infrastructure contributes to low skilled birth attendant use nationally (28.4%).

In 2020, Somalia has a maternal mortality rate of 692 deaths per 100,000 live births. This indicates that around seven women die in the country for every 1,000 live births during pregnancy, childbirth, or within two months following childbirth. Additionally, the mortality rate for children under the age of five was 1,321 per 1,000 live births. In such a challenging humanitarian context, opportunities for competency-based clinical trainings are limited and investment in human resource development is under-prioritized.

Relevant facts about the host country/community

Essential service use in Somalia is still low, 31% of women of reproductive age received antenatal care during their last pregnancy, 32% of births were attended by a skilled delivery attendant (associated with being young, educated, and urban), 79% of births occurred at home (17% in public facilities, 4% in private), and 89% of mothers did not receive a postnatal checkup within two days. Reasons for this low antenatal care use include lack of money (65%), distance to a health facility (62%), and poorly equipped health facilities. Gender inequality also impedes access to and use of services. Sexual and gender-based violence (SGBV) and female genital mutilation (FGM), of which 98% of women are subject to, often goes unpunished because traditional laws are prioritized. In the pastoralist economy, most women lack access to cash, restricting their options and access to services. Also, family, elders, and traditional practitioners make health decisions for women, usually initially following traditional traditions. Caesarean sections, for example, can only be performed with the consent of the woman's husband or father-in-law when her labor is complicated.

With the assistance of international donors and in collaboration with zonal ministries of health, access to and utilization of the essential package of health services (EPHS) has risen. Save the Children and UNICEF published the Newborn Health in Humanitarian Settings Field Guide (NBFG) in 2018. The Safe Delivery App (SDA) was recognized as a possible digital distribution tool for clinical professionals working in humanitarian circumstances. Danida and Save the Children Denmark funded the digitization and translation of the NBFG's Low Birth Weight information for inclusion in the Somali language edition of the Safe Delivery App. Save the Children Somalia

conducted a program evaluation in Puntland (October 2018–October 2019) to assess implementation in a protracted humanitarian environment.

Research question

How can we improve the quality of maternal and new-born health services and improve the skills and knowledge of health workers in situations of concurrent crises?

Description of the research project

The study was a prospective pre-post implementation study conducted in two regions in Puntland Somalia (Mudug and Kaakar) in the period from January 2019 to October 2019. Health workers from primary and secondary health facilities were eligible for participation. Following a 5-day on-the-ground training of trainers, the Save the Children International and Ministry of Health teams rolled out the SDA. Overall, 38 midwives and community midwives employed at 17 health facilities four districts across Mudug and Karkaar were enrolled in the study. Roll out included using the SDA during in-service Basic Emergency Obstetric Care (BEmONC) training and continued use as a job aid and reference tool during monthly onsite supportive supervision visits.

Health care workers installed the SDA on their own phones. Research outcomes were confidence, knowledge and skills in management of neonatal resuscitation, newborn danger signs and low birth weights at baseline, midterm and end of study. Confidence and knowledge were assessed using standardized questionnaires and clinical performance in objective structured clinical examination (OSCE) consisting of simulated scenarios with scoring on skills performance on mannequins with relevant equipment and drugs available. Knowledge and confidence assessments relate to full Safe Delivery App content, while the OSCEs were on newborn resuscitation, newborn management, and low birth weight.

This pilot study shows that the use of Safe Delivery App (SDA) added value to the participants learning experience and knowledge retention. Baseline self-reported confidence levels on managing BEmONC signal functions and newborn health were 4.1 out of total 5 suggesting participants feel they are ‘coping’. Mean knowledge level at baseline across 12 topics was 43% and baseline of Structured Clinical Examination (OSCE) scores were 38% for newborn resuscitation, 32% for newborn management and 53% for low birth weight (mean: 41%). This demonstrates low existing knowledge and skill level in BEmONC signal functions and managing newborn complications, and combined with high self-reported confidence, indicates over confidence within the participants.

Commentary on the key barriers and challenges to conducting research in fragile settings and strategies to mitigate these challenges

Challenges	Mitigations and solutions to overcome
There was a language barrier as most of the guidelines were written in English.	The guidelines and materials were translated into the Somali language; therefore, no one was left behind.
There is no internet to the remote health facilities, and midwives were not able to access the application.	Save the Children and the Ministry of Health made all material offline, therefore, midwives can access the training without the internet.
Some health facilities were insecure to visit.	The research team coordinated with Save the Children’s security manager to take possible measures to travel and monitor the health facilities.

The study was made possible, in part, by the efforts of Save the Children Denmark and the Maternity Foundation in Denmark who organized and offered intensive research training to allow local researchers to carry out the research.

Conclusions and two recommendations for researchers

The SDA can be feasible and acceptable to health workers and to key stakeholders in government of Somalia. SDA use was linked with increased health worker knowledge on P/PPH and newborn management six months after introduction and increased health worker self-confidence overall in the management of obstetric and newborn emergencies.

These findings add to the growing body of research in low-income countries, where a lack of continuing education programs jeopardizes service quality.

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