The impact of disaster events on sexual and reproductive health service provision and outcomes in low- and middle-income countries: A systematic review of the literature

Study Description

May 28, 2020

Authors: Samantha Loewen[1], Jessie Pinchoff[2], Thoai D Ngo[2], Michelle J Hindin[2]

Affiliations:
1. Mailman School of Public Health, Columbia University, New York NY
2. Population Council, New York NY
3. Population Council, New York NY

Corresponding author:
Jessie Pinchoff
Poverty, Gender and Youth Program
Population Council
jpinchoff@popcouncil.org

DRAFT

POPULATION COUNCIL
IDEAS. EVIDENCE. IMPACT.
One Dag Hammarskjold Plaza
New York, NY 10017
www.popcouncil.org

Description: This document describes the methodology for a systematic review of the literature on how natural disasters, epidemics and other acute events may affect sexual and reproductive health (SRH) service provision and related outcomes in low- and middle-income countries. The objective is to produce a narrative synthesis to describe how these events affect SRH, variation by context, and any lessons learned that can be adapted to build more resilient health systems. Findings may be applicable to policy-makers responding to the COVID-19 pandemic that is already expected to have major negative effects on access to SRH services, SRH commodities, and lead to devastating effects on the health of women and their families.

Abstract:
Acute events, including natural disasters and epidemics, can strain the already-fragile health systems in many low- and middle-income countries (LMICs). Disasters introduce unique circumstances in which resources may be diverted away from essential sexual and reproductive health (SRH) services, disruptions to the supply chain may occur, and individuals may have limited access to or fear of health facilities. Disruptions to service delivery can disproportionately affect women and girls who faced existing structural barriers and inequalities before the disaster occurred. We will conduct a systematic review of the peer-reviewed literature to better understand the effects of disasters on SRH services and related outcomes in LMICs. We will review both quantitative and qualitative research papers published in the last 15 years, with a focus on the quality and rigor of each study. Documents from the grey literature may be included if too few articles are identified. We aim to produce a narrative synthesis to holistically describe what has been experienced, reported variation across disaster contexts, and any key lessons for how to lessen the impact on vulnerable individuals and communities. Evidence from this review can serve as a learning opportunity for the COVID-19 pandemic that already threatens SRH outcomes. Findings may inform interventions and policies that aim to build more resilient health systems in the face of acute disasters, including pandemics.

Background:
Events such as natural disasters or epidemics can strain local health systems and dramatically impact the availability and delivery of health services, including sexual and reproductive health (SRH) services. Disasters introduce unique circumstances with multiple short and long-term impacts. In the short-term, resources, financial as well as staffing-related, may be diverted away from essential SRH services (United Nations Population Fund, 2020) (Chattu & Yaya, 2020). In the short and long term, disasters may threaten the supply chain, limiting the amount or types of commodities available in hard hit facilities (Bietsch et al., 2020) (Purdy, 2020). In some situations, such as a cyclone, individuals may have limited access to health facilities because roads or other infrastructure are destroyed (Ryan et al., 2016). In a pandemic, there may be other challenges, for example, fear of becoming infected at a facility, or fear of stigma for seeking care at a facility (Carter et al., 2017). In some situations, if there are 'lockdown' policies in place, movement may be restricted, including to access health services.

Women and girls are disproportionately impacted in a variety of ways by these events; they may have limited access to transportation, may require spousal or parental permission to seek care, or may not have access to updated guidelines and information. Often, SRH services are deemed non-essential during emergency situations, further limiting access and worsening health outcomes (McQuilkin et al., 2017) (Tran et al., 2020). Women and girls often face existing structural barriers and inequalities before the disaster event occurred, which are frequently magnified and deepened in these situations.

Challenges imposed by disasters are often exacerbated in LMICs, which may already have fragile health systems. Many LMICs are not equipped to handle these events and are subsequently unable to provide needed services during disasters and experience slower resumption of services afterward. Individual case studies, such as the 2014 Ebola outbreak in West Africa or the 2010 earthquake in Haiti, have shown massive reductions in SRH service utilization and significant increases in women's unmet need for SRH care in the midst of disasters (Behrman & Weitzman, 2016) (Bietsch et al., 2020). The secondary impact of disasters can be devastating to women and girls who cannot access quality care for extended periods of time as systems recover. Inability to access SRH services are linked with higher

maternal and infant mortality rates, dropout rates for girls, and long-term negative impacts on their health, educational attainment, and earning potential (Singer Babiarz et al., 2017).

To date, no systematic review has been conducted to explore the effects of disasters on SRH service delivery and SRH outcomes across LMICs. While single studies have suggested adverse impacts, a systematic review can generate a more holistic view and synthesize findings across different events and settings. Findings can inform governments and stakeholders to better understand how SRH services are disrupted during disasters, how services and accessibility can be resumed, and how health systems resilience can be strengthened. Evidence from this review can serve as a learning opportunity during the COVID-19 pandemic, which has already been shown to disrupt SRH services and accessibility. Many contraceptives, for example, are produced in Asia by manufacturers who are now experiencing delays in production and shipment following shutdowns. Items shipped from China have been met with increased scrutiny and oversight, interfering with disbursement of contraceptive commodities and related supplies in LMICs (Purdy, 2020). Service reduction due to COVID-19 has been projected to result in unmet need for family planning for an additional 49 million women and 15 million additional unplanned pregnancies in LMICs over the coming year (Riley et al., 2020). Disruptions to SRH service delivery, de-prioritization of women's health, and decreased access to medical care due to COVID-19 may have devastating consequences for women, girls, and their families.

Objective:
The objective of this review is to document the impact of disasters on SRH before, during, and after the event. Disasters are defined as natural disasters or disease epidemics that are acute and extreme.

Methods:
This is a systematic review of the peer reviewed literature regarding how specific disasters may be associated with reduced access to SRH services, reduced availability of SRH commodities, and worsened SRH related outcomes due to lack of service provision. If required, we will also review the grey literature. Because source studies measure a variety of outcomes, and few publications are available, we propose a systematic review that will not include a meta-analysis. We will use an adapted data abstraction tool to extract key findings, by type of event, noting methodological rigor, and other factors to synthesize findings from both quantitative and qualitative published research.

This review will focus on acute, extreme episodes of disaster, rather than protracted crises (e.g., drought). Studies will only be considered from events in LMICs. Criteria of LMIC's eligible for inclusion will follow the World Bank classification. The search will limit results to articles published in the last 15 years (2005-2020). We will also hand search the references of these published articles to identify any additional publications for review, including any seminal works published before 2005 that warrant inclusion.

If we do not find adequate data in the peer reviewed literature, we will extend this review to the grey literature. We will target organizations involved in provision of SRH services, and also organizations that fund and/or conduct humanitarian assistance and disaster relief (e.g. CARE International, International Rescue Committee, USAID, WHO).

We will include any primary research studies in this review, as well as meta analyses and other systematic reviews. For any systematic reviews, we will unpack them and look for additional references.

Eligibility criteria
Articles will be considered eligible for inclusion if they meet the following criteria: 1) examined contraception and/or abortion service delivery and utilization before, during, and after disasters; 2) the study was conducted in a LMIC; 3) the study was appropriately rigorous; 4) the article was published in 2005 or later; 5) the article was published in English.

Study selection
Two reviewers will screen all titles and abstracts for potential inclusion in the analysis. If the study appears relevant it will be subject to an inclusion criteria checklist. If there is disagreement, a third reviewer will arbitrate. Once accepted for inclusion the source will be stored using EndNote reference manager software.

Primary outcomes
We will search the literature for primary outcomes related to SRH service access, uptake, and related health outcomes. Outcomes may include those related to contraceptive access and use (access to services, type used, method switching), access to and use of abortion services and post-abortion care services (access to services, unsafe abortion, unintended pregnancy), and access to critical SRH services (service availability, stock outs, supply chain disruptions). Given the exploratory nature of the review, we will include most terms related to SRH.

Search Strategy
We will undertake a systematic search of the peer-reviewed, published literature identified in scholarly databases (Google Scholar, PubMed, Scopus, and the Cochrane Databases).

Search Terms
Below are the preliminary search terms:

- Contraception, contraceptive
- Condoms
- “Family planning”
- Abortion
- “Post-abortion care”
- “Unintended pregnancy”

Disaster terms will include:

- Earthquake
- Tsunami
- Fire
- Flood
- Cyclone
- Typhoon
- Ebola
- Zika

Data Collection
Reviewers will use a data abstraction form to pull relevant information from the included studies, adapted from CASPCASP, AXIS AXIS, and Hindin et al (Hinden et al., 2016) validated tools. If clarification is necessary on study methods or findings, the study authors will be contacted, with one follow-up email if we receive no response between one or two weeks. We will include key criteria to assess study quality, rigor, and potential bias.

DRAFT

Data items
We will abstract information regarding key study characteristics, themes, and SRH outcomes. Key data points will include study design, country and disaster context, time period, SRH outcome and related results, data collection and/or sampling method, and analysis technique. We will assess and abstract the strengths and weaknesses of each study. All studies will be evaluated for methodological and analytical rigor.

Synthesis of results
We will abstract all available articles on these various SRH outcomes. We will analyze the results taking into account the quality and rigor of each study included in the analysis. As indicators are likely not to be consistent across observational studies, a meta-analysis will not be possible. Rather, we will employ a narrative synthesis approach per the Cochrane methodology. We will explore relationships in the data abstracted to develop a working hypothesis. Data will then be synthesized and summarized by context and outcome. Our final narrative analysis will include detailed information synthesizing key findings, types of studies or interventions identified, the robustness of the synthesis, key gaps that remain, and any lessons learned that may apply to COVID-19.

Implications for COVID-19
We will present key findings related to previous disaster events, highlighting the lessons learned that can be applied or adapted to the COVID-19 pandemic and related lockdown policies, including potential recommendations and persistent data/knowledge gaps.

There are growing fears of worsening SRH outcomes for women, unmet need for family planning, and global contraceptive shortages due to the shift of resources away from SRH towards COVID-19 response. It has been projected that a modest 10% decline in SRH service utilization in LMICs could result in an additional 48,558,000 women in need of modern contraception, 15,401,000 unplanned pregnancies, and 3,325,000 unsafe abortions (Riley et al., 2020). These projections are likely an underestimate of the devastating effect COVID-19 could have on women in LMICs without proper intervention. As the epidemic has just begun to affect select LMICs, many of the consequences and outcomes are still unknown. We anticipate the results of this review will provide insight not only into historical trends and lessons learned, but will also produce recommendations for health system resilience and strengthening to combat both short- and long-term effects of the pandemic on SRH services.

DRAFT

References

1. Behrman JA, Weitzman A. Effects of the 2010 Haiti earthquake on women's reproductive health. Studies in family planning. 2016;47(1):3-17.
2. Hindin MJ, Kalamar AM, Thompson TA, Upadhyay UD. Interventions to Prevent Unintended and Repeat Pregnancy Among Young People in Low- and Middle-Income Countries: A Systematic Review of the Published and Gray Literature. J Adolesc Health. 2016;59(3 Suppl):S8-s15.
3. Ryan BJ, Franklin RC, Burkle FM, Watt K, Aitken P, Smith EC, et al. Defining, Describing, and Categorizing Public Health Infrastructure Priorities for Tropical Cyclone, Flood, Storm, Tornado, and Tsunami-Related Disasters. Disaster Medicine and Public Health Preparedness. 2016;10(4):598-610.
4. Carter SE, O'Reilly M, Frith-Powell J, Umar Kargbo A, Byrne D, Niederberger E. Treatment Seeking and Ebola Community Care Centers in Sierra Leone: A Qualitative Study. Journal of Health Communication. 2017;22(sup1):66-71.
5. McQuilkin PA, Udhayashankar K, Niescierenko M, Maranda L. Health-Care Access during the Ebola Virus Epidemic in Liberia. Am J Trop Med Hyg. 2017;97(3):931-6.
6. Singer Babiarz K, Miller G, Valente C. Family Planning and Women's Economic Empowerment: Incentive Effects and Direct Effects among Malaysian Women. Center for Global Development Working Paper. 2017(471).
7. Bietsch K, Williamson J, Reeves M. Family planning during and after the West African Ebola crisis. Studies in Family Planning. 2020;51(1):71-86.
8. Chattu VK, Yaya S. Emerging infectious diseases and outbreaks: implications for women's reproductive health and rights in resource-poor settings. Reproductive Health. 2020;17(1):43.
9. Purdy C. How Will COVID-19 Affect Global Access to Contraceptives — and What Can We Do about It?. 2020. https://www.devex.com/news/opinion-how-will-covid-19-affect-global-access-to-contraceptives-and-what-can-we-do-about-it-96745.
10. Riley T, Sully E, Ahmed Z, Biddlecom A. Estimates of the potential impact of the COVID-19 pandemic on sexual and reproductive health in low-and middle-income countries. International Perspectives on Sexual and Reproductive Health. 2020;46:73-6.
11. Tran NT, Tappis H, Spilotros N, Krause S, Knaster S. Not a luxury: a call to maintain sexual and reproductive health in humanitarian and fragile settings during the COVID-19 pandemic. The Lancet Global Health. 2020.
12. United Nations Population Fund. COVID-19: A Gender Lens: Protecting sexual and reproductive health and rights, and promoting gender equality. 2020.

DRAFT