Article

Meeting Maternal and Reproductive Health Needs in a Post-Disaster Setting: A Qualitative Case Study From Indonesia

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Abstract

Meeting and planning for maternal and reproductive health (MRH) needs during post-disaster scenarios is paramount, however, not without considerable challenges. This study was aimed at understanding the provision of MRH services in Siosar, a relocation site for a population displaced by the volcanic eruption in 2013 of Mount Sinabung, Indonesia. A qualitative case study approach was used, and data were collected through focus group discussions and individual interviews with women of reproductive age, community leaders, health personnel, and policymakers. The findings show that while considerable efforts were made to provide MRH services, these were described as "unfinished," due to challenges such as changes to funding, inadequate provision of supplies and health personnel, and geographical location. Recommendations are that health and other sectors design a relocation site that counts physical, psychological, and social needs of a community and policymakers integrate humanitarian and development plans that include MRH services into World Health Organization's Building Blocks of Health System.

Keywords

maternal reproductive health, MRH, post-disaster, health system strengthening, humanitarian-development nexus

What We Already Know

- Meeting maternal and reproductive health needs in the onset of a disaster is important.
- Disasters have long-term impact on maternal health, which go beyond the initial disaster response.

What This Article Adds

- Maternal and reproductive health needs continue during post-disaster; hence planning for transitioning from basic minimum lifesaving to comprehensive maternal and reproductive health services is paramount.
- Countries across the Asia Pacific region undertake studies to understand the capacity to meet MRH needs during and after a disaster.

Introduction

Maternal and reproductive health (MRH) is focused on meeting the reproductive health needs of pregnant women and lactating mothers which are accentuated during a natural disaster.[1,2] Disasters cause disruptions that result in a sudden loss of medical and nonmedical support, malnutrition, and trauma, thus contributing to poor MRH outcomes. This is due to the vulnerability of pregnant women and their need for emergency obstetrics and other associated critical support.[3-5]

Planning for comprehensive MRH services during a post-disaster response phase poses considerable challenges, which have not always been clearly understood due to the focus on the immediate disaster. Disasters have a long-term impact on maternal health, including trauma, mental health, and economic consequences that affect mothers, infants, and children, which go beyond the initial disaster response. The Inter-Agency Field Manual on Reproductive Health in Humanitarian Settings[6] emphasizes the need for planning for the provision of comprehensive reproductive health care services after a disaster based on the 6 building blocks of health systems,[7] which consist of the following: (1) service delivery, (2) health workplaces, (3) health information systems,

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(4) medicines and supplies, (5) health financing, and (6) governance/leadership.

This study aimed to understand the current provision of MRH services in a post-disaster relocation site for people displaced by the volcanic eruptions of Mount Sinabung and using the insights gained in the planning of future MRH in post-disaster settings. Mount Sinabung, located in the North Sumatera province of Indonesia, has a history of eruption; however, the most recent significant events were the eruption in 2010 and again in 2013. The 2013 eruption buried 7 villages under volcanic ash, killing 15 people and displacing more than 20 000 people. It destroyed livelihoods and infrastructure, including 22 primary health facilities.[8] The displaced population was initially housed in temporary shelters, and it was not until after more than 1 year that the affected people were relocated to new sites. The people living in temporary shelters were given 2 options for relocation: The first option was independent relocation (*relokasi mandiri*), where they received money to buy land and build their own houses in any area they wanted to settle in. The second option was relocation in Siosar where the government built a new residential area with infrastructure, including health posts. Out of the 7 affected villages, 4 villages opted for independent relocation, while 3 villages opted to move to Siosar.

Methods

A qualitative single-case study approach, underpinned by the work of Yin,[9] was used to gain an understanding of the provision of MRH services in a post-disaster setting. The study was conducted in Siosar, a new relocation village for displaced people from the 2013 eruption of Mount Sinabung.

Sampling

Participants included women (n = 10) who were pregnant during the 2013 eruption, community leaders (n = 16), health personnel (n = 14), and policymakers (n = 18). The demographic characteristics of the participants are summarized in the appendix.

Data Collection

The data collection was conducted in 2 phases. Phase 1 included focus group discussions (FGDs) conducted in Siosar with women, community leaders, and health personnel as participants to gain the perspectives of these different groups who had experienced either accessing or providing MRH services during the 2013 eruption. To encourage full participation, the FGDs were homogeneous so that participants felt comfortable with each other.[10] FGDs are considered a critical method of collecting case study data[11] as they create a critical, honest, and spontaneous environment.[10,12-16] Phase 2 included individual interviews (IIs) of policymakers located in KabanJahe, Medan, and Jakarta. The purpose of these IIs was to explore the FGD data in greater depth, collect more focused and in-depth information, and seek clarifications. The primary researcher was an Indonesian, which was an advantage as the language for the FGDs, and IIs were Bahasa Indonesia sometimes mixed with local dialect. Therefore, cultural nuances of the language and meaning were understood. Interviews were recorded with participants' consent and then transcribed verbatim. The data collection and analysis occurred concurrently.[9,17]

Data Analysis

Selected transcriptions of FGDs and IIs were translated into English and back-translated into Bahasa Indonesia to compare the 2 translations and reconcile any differences between the two. This was important as the study was undertaken in Bahasa Indonesia but would be reported in English. This ensured that the original perspectives of the participants were not lost in translation. Initial data management and coding of the data were undertaken utilizing NVivo software. The data were then analyzed using a thematic analysis approach as described by Braun and Clarke.[18] This was facilitated by the research team (HSS, EH, and TW) reading the transcripts, drafting familiarization notes, and identifying the codes. The primary researcher (HSS) then analyzed the codes developing categories and themes through repeated review and refinement of the codes, reading of the notes, and writing of the memos (HSS, EH, and TW).

Rigor

Credibility of a qualitative study is enhanced through persistent observation and prolonged engagement.[17] The primary researcher (HSS) lived with the community for 2 months, which helped ensure the value and believability of the study. Rapport building and trust are also important to ensure credibility.[19] The recruitment of a female research assistant to assist with the FGDs with women ensured that female participants felt more comfortable and also upheld ethical and cultural considerations of conducting research.[20] Data triangulation was undertaken across all groups of participants. Dependability of the study was ensured by a member of the research team checking the data to confirm that it related to the research question. Dependability and confirmability were undertaken by sharing the transcriptions with the participants using a "participant validation approach" to ensure that participants agreed with the accuracy of the information provided.[21] Transferability of the study was enhanced by documenting the tools used in a case study protocol so that they could be used in similar studies in the future.

Results

The experience of accessing or providing MRH in Siosar was varied across the women, community leaders, health

personnel, and policymakers. Although some experiences were positive, there were also other experiences that suggested there was room for improvement.

Women: Much Better but Some Surprises

Most of the women participants were appreciative of the new health post, facilities, and health care providers in Siosar. One woman said, "I like the current village midwife. She is very good. She is always available and helps us" (Woman, II, Village 1). Women in this study felt reassured and comforted by the presence and accessibility of health professionals and their commitment to the community. In Indonesia, health personnel are highly respected, and in many parts of the country, they are seen as God's representatives in the community because of their role in curing diseases and caring for pregnant women.

Although access to health personnel was seen as a benefit, there were concerns around a payment system that had been introduced for health services. This was a change from women's previous health service practice and therefore came as shock.

> I was surprised when staff gave me a bill. She said that I must pay Rp150 000 (Indonesian rupiah). She told me that my KIS Jokowi (Kartu Indonesia Sehat: Healthy Indonesian Card, a subsidized health scheme created by President Jokowi) was no longer valid. She asked if I had BPJS. . . . I was not informed that the KIS Jokowi no longer worked. (Woman, FGD, Village 2)

Previously the provision of health services was free; however, the relocated community was now required to join the *Badan Penyelenggara Jaminan Sosial* (BPJS), the new social health insurance scheme in which people had to pay a monthly premium to receive health care free of charge at the point of service. This came as a huge surprise to participants as they had not been informed of the change. Participants viewed the push to join the new BPJS scheme as being introduced at the wrong time and quite challenging, as they were still struggling to start new lives in Siosar.

Although the provision of health services was satisfactory in meeting the MRH needs of women; nevertheless, for some women, there was a reluctance to get pregnant again. One woman's observation was as follows:

> Sinabung is still erupting. . . . I do not want to get pregnant anymore. I am traumatized. Imagine if I get pregnant and Sinabung batuk keras (big eruption) and reaches this place, and we have to run again. . . . I am afraid of death. (Woman, II, Village 1)

Although it is relatively far from the volcanic eruption, the higher altitude of Siosar makes it easy to see Mount Sinabung. The visible presence of the mountain makes it difficult for people, especially those women who were pregnant during the 2013 eruption, to forget what happened. Memories of the event were very much kept alive and became difficult to erase with women fearing that another eruption could reach Siosar. This increased their feelings of anxiety about any future pregnancy. This highlights the ongoing trauma and stress women may experience and therefore the importance of continuing mental health and psychosocial support services as part of MRH services in relocation settings.

Health Personnel: The Work of Health Service Providers

The inclusion of staff housing at the new health post was highly appreciated by the health personnel. This was a large improvement over the earlier temporary shelters from where the staff often had to commute significant distances to deliver health services. One health personnel commented, "Now things become better. In Siosar, they have a house attached to those clinics for midwives to live with their families. So, they do not need to rent houses . . ." (HP, M, II, CHC1).

Providing staff houses ensured that health personnel were able to stay with the communities without having to rent a house or live in a village farther away, thus reducing travel time over sometimes difficult terrain, which facilitated the provision of 24/7 MRH services, including referrals. For the health personnel to be able to live with their families and for them and their families to be part of the community also provided a sense of stability and belonging.

However, living within the community and providing 24/7 MRH services also posed a few problems for the health personnel. Being on site, visibly providing 24/7 care with little boundaries between work and home life, meant that they became tired and, in some cases, exhausted. Providing 24/7 MRH services placed a huge responsibility on the health personnel, wherein being the "health personnel" sometimes meant there was little space to be "human."

> We are all human, I just need my clients/patients to smile at me . . . that's all. I also feel tired . . . sometimes no time to rest. In the morning until the afternoon, I check pregnant women . . . then do office work . . . in the night have extra work to help deliveries . . . sometimes having less or no time for my daughters at home. (HP, F, II, CHC1)

On top of the heavy workload, some health personnel expressed concerns about a lack of knowledge and confidence in providing MRH services in disaster and post-disaster settings.

> I was not expecting to be assigned in areas around Mount Sinabung, a volcanic area. When it erupted, I was shocked. I did not know how to help people when there is a disaster. Now, having Siosar as part of my area of responsibility, I am still not sure how to properly provide services to pregnant women and others. I wish that I learned this when I was in midwifery school or I was selected to attend the PPAM (MISP) training. (HP, F, II, CHC2)

Health personnel did not always choose their place of work, and in many cases did not feel prepared to work in the contexts they found themselves in. They emphasized the importance of building the confidence and competency of health workers by equipping them with the knowledge and skills related to disaster management prior to a disaster striking by including the Minimum Initial Service Package (MISP) for Reproductive Health in Crisis Settings into the nursing/midwifery/medical curricula and training in relevant Disaster Risk Management subjects for those who were already in the workplace.

Community Leaders: Much Better but Still More Resources Needed

For many of the community leaders, moving from the temporary shelters to Siosar meant there was now a degree of permanence around infrastructure, including health. This was a big improvement from the temporary shelter and contributed to sense of stability and community. According to one community leader, "The [health] post is much better. The building is permanent and like the other Puskesmas building" (CL, F, II, Village 2).

However, although the health post buildings existed and there were permanent health personnel present, this did not necessarily mean that high-quality health care was being provided. This was due to the lack of equipment and supplies; the existing equipment was basic and limited. According to community leaders, this compromised the provision of MRH services. As one community leader observed,

> I think the equipment needs to be added. . . . The medicines are all generic (basics) . . . I ended up buying medicines from a chemist . . . [laughed] . . . oh yeah . . . one more, there is no water in the toilet. . . . I guess the water pump could not reach the health post. (CL, F, II, Village 1)

Although there was a new health post building, the absence of basic necessities required for it to function meant it was not yet able to serve the purpose. This highlights the futility of building infrastructure such as clinics or hospitals that was unable to function due to lack of resources. This is significant in reestablishing health services in that funding should not only be allocated to the building of infrastructure but also to the ongoing resources to ensure it can function.

Policymakers: Much Better but With Some Concerns

For policymakers, the centralization of MRH services in Siosar along with outreach activities was positive as this ensured better integration of the health services with clearer oversight of what was offered.

As noted by one of the policymakers, "The health clinics there have midwives who live with them . . . antenatal care, normal delivery, and postnatal care can be done there. We provided a standby ambulance for referrals" (PM, F, Mdn, #1).

However, although many of the services were now centralized, providing service to the outskirts and neighboring villages of Siosar was challenging due to the difficult terrain/geography of Indonesia. This meant that even if health infrastructure existed, access could be hampered by the steep topography of the region, rough roads, and isolation.

> I heard the ambulance is not working well. It is located on the top of the hill. In that quite isolated area, there are only 3 midwives who live with the communities. What happens if there is an emergency? When the midwife needs to refer a delivery with complication in the middle of the night? Also what happens to other people who are sick? I am very worried. (PM, F, M, #3)

The geographical location of the health post located on the top of Siosar hill affected accessibility for people, particularly those who were dying or could not walk to reach the clinic.

The other concern highlighted was that currently Siosar health post was only staffed with midwives. Under Indonesia's current health system, the main responsibility of midwives is related to maternal, neonatal, child, and adolescent health. Therefore, the health needs of other groups (such as males and older adults) in Siosar were not being met.

Discussion

This study was aimed at understanding the current provision of MRH services in a post-disaster setting using the case of Siosar. The study reveals that planning for comprehensive MRH services (such as health professional education that includes disaster preparedness and MISP) should be initiated right after a disaster occurred and take into account the long-term issues that can persist long after the event.[6,22] This allows effective transition from humanitarian to development phase, as this approach is in line to the Humanitarian-Development Nexus framework of the United Nations.[23] Furthermore, planning for comprehensive MRH services after a disaster will ensure the interventions are in line to the World

Health Organization's 6 building blocks of health system strengthening.

The findings highlight ongoing mental health and social issues for participants after the 2013 disaster. Many women were anxious for any future pregnancies because of their previous pregnancy and delivery experiences during the 2013 eruption and were fearful of a future eruption. International research on disasters documents the long-term impact of a disaster on physical and psychological health, which influences maternal, infant, child, and adolescent health outcomes. This highlights the importance of considering multiple factors when restoring the provision of comprehensive MRH services such as accessibility and the geographical location of the relocated health services.

Rebuilding the physical infrastructure of a health system is one of the first key steps. However, if consideration is not given to the ongoing running of the service, issues such as lack of resources for equipment, medicines, or health personnel can severely limit the provision of health services. It is recommended that planning and provision of comprehensive reproductive health services after an event should be designed according to the 6 building blocks of health systems,[7] which would contribute to the strengthening of health systems. Integrating the MRH interventions into primary health services immediately after a disaster would improve the quality of services and reduce the vulnerability of affected people.[6]

This study found that a disaster can result in reorganization of the way health services are provided and funded. This was the case in Siosar where MRH services were no longer free of charge affecting the relocated community's ability to access and meet their MRH needs. This study reveals the importance around the timing of introducing large changes to the provision of health service delivery, especially for communities who have already undergone significant change in their lives. These findings are similar to other studies in post-disaster settings that highlight how people may no longer be able to afford to access MRH services because of lost financial means, livelihoods, damaged transport, and infrastructure such as in post-earthquake Nepal.[24,25] This is then compounded when social safety nets related to the provision of health services are changed. Policymakers are urged to consider how the funding of health services are addressed in all pre-disaster and post-disaster planning to ensure equitable access to health services.

Recommendations from this study include ensuring that the provision of MRH services is included in all emergency and development plans. The United Nations' Humanitarian-Development Nexus emphasizes to "commonly agree to have a collective outcome, comparative advantage, and multiyear timeframe to ensure the sustainability of interventions and ensure no one left behind"[23] could provide a very useful framework and foundation from which to proceed to a "new way of working," which integrates humanitarian and development work. Therefore, it is suggested that policymakers should allocate 5% from *Anggaran Pendapatan Belanja Negara* (national expenditure budget), and 10% from provincial and district *Anggaran Pendapatan Belanja Daerah* (regional expenditure budgets) into the health sector[26,27] to continue the provision of quality free of charge MRH services after a disaster.[28] By doing this, health financing would be made available for the provision of health services (including MRH) to meet the universal health coverage and universal access to sexual and reproductive health and rights,[29] as Indonesia is a signatory to the Sustainable Development Goals.[27,30] Indonesia lays in the Pacific Ring of Fire along with other countries across the Asia Pacific region. The findings from this study provide important information for other disaster-prone countries to better plan and strategize the provision of MRH services during and after a disaster occurs. This study, finally, recommends other countries across the Asia Pacific region to undertake studies that aim to understand the capacity of government to meet MRH needs during and after a disaster. Future studies will generate more evidence for better disaster management planning in making the Asia Pacific region more resilient to disasters and ensure continuation of quality MRH services according to the Humanitarian-Development Nexus framework.

Although the study has reached its aim, the study has its limitation in terms of participants. It did not involve women participants who had experienced complications, miscarriages, and abortions during the 2013 eruption.

Conclusion

This study aimed to understand the provision of MRH services in a post-disaster setting in Indonesia. It was found that while considerable achievements have been made, there is still much more "unfinished business."

It is recommended that planning for MRH be included in all pre- and post-disaster planning, and MRH to also be integrated into the 6 building blocks of health services. Ensuring that health service delivery is sustainable, has adequate resources, and is accessible to all will contribute to the improvement of ongoing health services for all people—including the provision of MHR services for those who need it.

Appendix

Characteristics of Study Participants.

	Number of participants, N = 58
Women	10
Community leaders	16 (4 females, 12 males)
Health personnel	14 (11 females, 3 males)
Policymakers	18 (9 females, 9 males)

Characteristics of Women Participants.

Woman participants (N = 10)	Village 1, n = 5	Village 2, n = 5
Age, years		
18-24	2	1
25-49	3	4
Tribe		
Karonese (local tribe)	5	4
Non-Karonese	0	1
Religion		
Muslim	1	4
Protestant	2	1
Catholic	2	0
Kong Hu Cu	0	0
Buddhist	0	0
Hindu		
Average daily income		
Less than Rp50 000/day (around NZD5)	0	0
Between Rp50 000 and 100 000/day (around NZD5-NZD10)	5	5
More than Rp100 000/day (around NZD10)	0	0
Average daily expenditure		
Less than Rp50 000/day (around NZD5)	1	0
Between Rp50 000 and 100 000/day (around NZD5-NZD10)	4	5
More than Rp100 000/day (around NZD10)	0	0
Daily job		
Farmers	5	5
Others	0	0

Characteristics of Community Leader Participants.

Community leader participants (N = 16)	Village 1, n = 7	Village 2, n = 9
Age, years		
18-24	1	2
25-49	2	3
More than 50	4	4
Sex		
Male	6	6
Female	1	3
Function		
Village head	1	0
Religious leader	2	3
Members of women's groups	1	2
Planning officer	1	2
Village treasurer	2	2
Tribe		
Karonese (local tribe)	6	9
Non-Karonese	1	0

Community leader participants (N = 16)	Village 1, n = 7	Village 2, n = 9
Religion		
Muslim	5	4
Protestant	1	4
Catholic	1	1
Kong Hu Cu	0	0
Buddhist	0	0

Characteristics of Health Personnel Participants.

Health providers participants (N = 13)	Puskesmas 1, n = 6	Puskesmas 2, n = 7
Sex		
Male	4	6
Female	2	1
Function		
Head of Puskesmas	0	1
Head of Family, Maternal and Child	1	1
Health Unit		
Village midwives	2	4
Pharmacist	1	0
Nutritionist	1	0
Hygiene promoter	1	1
Others	0	0
Tribe		
Karonese (local tribe)	6	7
Non-Karonese	0	0

Characteristics of Policymaker Participants.

Policymaker participants (N = 18)	Kabanjahe, n = 4	Medan, n = 5	Jakarta, n = 9
Sex			
Male	3	2	4
Female	1	3	5
Institution			
Government organizations	3	4	7
Nongovernmental organizations	1	1	2

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