Review Article

The Needs of Women Who Have Experienced "Maternal Near Miss": A Systematic Review of Literature

Sedigheh Abdollahpour[1], Abbas Heydari[2], Hosein Ebrahimipour[3], Farhad Faridhosseini[4], Talat Khadivzadeh[1]

[1]Nursing and Midwifery Care Research Center, Mashhad University of Medical Sciences, Mashhad, Iran, [2]School of Nursing and Midwifery, Nursing and Midwifery Care Research Center, Mashhad University of Medical Sciences, Mashhad, Iran, [3]Social Determinants of Health Research Center, Mashhad University of Medical Sciences, Mashhad, Iran, [4]Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

Abstract

Background: Maternal Near Miss (MNM) event is associated with emotional, psychological, and social effects on women. Determining the needs of women with these experiences is the key to programming for providing high-quality care and reducing its burden. Hence, this study was conducted to determine the needs of women who have experienced MNM. **Materials and Methods:** In this literature systematic review, to achieve the intended information, articles published in Web of Science and PubMed databases were systematically searched. The search strategy focused on three keywords or phrases: "maternal morbidity" OR "maternal near miss" AND "needs." Publication date was all relevant articles before 2019, and publication language was restricted to English. Article search was conducted by two independent reviewers. After the primary search, 2140 articles were found. Eventually, 77 articles, including 20 qualitative studies and 57 quantitative studies, were enrolled for final evaluation. **Results:** According to the results, the needs of these women could be categorized into six groups of "Management and care needs of health system," "Educational needs of health system," "Follow up and continuity of care at the primary care level," "Need to develop a physical, psychological and social of care packages," "Social support," and "Psychosocial support and counseling." **Conclusions:** The near-miss events change the mothers' living conditions, and therefore, they need to receive special support, given the difficult conditions they are undergoing. It is necessary that a supportive program be designed to follow-up MNM after the discharge to be run by the primary care team.

Keywords: *Childbirth, maternal morbidity, maternal near miss, pregnancy, systematic review*

Introduction

Maternal Near Miss (MNM) refers to a condition when a woman nearly dies but survives from a complication occurring during pregnancy, childbirth, or within 42 days of termination of pregnancy.[1,2] Near-miss cases have similar characteristics with maternal deaths and can tell us the root causes of acute complication. Accordingly, they provide valuable information on obstetric care allowing for reformative action to be taken on identified delays to reduce the related mortality and morbidity.[3] The prevalence of near-miss mothers in Brazil and India is 12.8 and 15.1 per 1,000 live births,[4,5] respectively. In addition, in a meta-analysis study in Iran, it was reported as 2.5 per 1,000 live births.[6] MNM has received less attention and often failed to access standard support as mothers' experiences are very extreme or different to the norm.[7] Nevertheless, recent research and reviews have sought to address this.[8] The reason is that although the absolute number of annual maternal deaths is approximately 500,000, a further 9 million women are estimated to suffer from maternal mortality or near miss. Of these, a lot of them will experience long-term physical and psychological effects, thereby contributing to the maternal complications;[9] all the mothers and their partners experience some unpleasant long-term consequences of their near-miss event.[7] The health of women and their empowerment in the community are a central concept in the Sustainable Development Goals[10] and there have been calls for "rethinking maternal health" throughout the life cycle.[11]

For many mothers, hospitalization in the intensive care unit and separation from the infant is hard.[8] Mothers who experience near miss have progressed to death, such

How to cite this article: Abdollahpour S, Heydari A, Ebrahimipour H, Faridhosseini F, Khadivzadeh T. The needs of women who have experienced "maternal near miss": A systematic review of literature. Iranian J Nursing Midwifery Res 2019;24:417-27.

Received: 6 April, 2019. **Revised:** 2 September, 2019. **Accepted:** 16 September, 2019. **Published:** 7 November, 2019.

Address for correspondence:
Dr. Talat Khadivzadeh, Nursing and Midwifery Care Research Center, Mashhad University of Medical Sciences, Mashhad, Iran.
E-mail: Khadivzadeht@mums.ac.ir

Access this article online

Website: www.ijnmrjournal.net

DOI: 10.4103/ijnmr.IJNMR_77_19

Quick Response Code:

that they may have organ failure or discharged from hospital having had a major emergency treatment or spent time in the intensive care. Some of them may even have lost their baby as a result of their complications; Babies delivered premature may need to be admitted to the Neonatal Department.[12] Their experiences are very different from a normal delivery. Meanwhile, additional studies are required to enhance the knowledge about the overall burden of severe maternal morbidity, its relationship with the motherhood role, and pathological conditions such as traumatic childbirth[13] as well as occurrence of posttraumatic stress and anxiety, panic attacks, flashbacks,[14] fear of repregnancy in the future, lack of support and social isolation,[12] and developing postpartum depression.[15]

Therefore, by gaining a deeper understanding of the MNM and adverse consequences of pregnancy-related events, opportunities may be found for preventive intervention.[16] Furthermore, available data should be collected to understand mother's needs and to manage the burden resulting from this event which affects millions of women in the world.[17] Hence, determining the needs of mothers with these experiences is the key to programming and integrated postpartum care. Indeed, it is important to recognize the mothers' needs for evaluating the physical, psychological, and social burden of maternal near-miss conditions. Because no study has been conducted that is consistent with the purpose of the present study, this study was conducted to identify the needs of mothers who have experienced MNM.

Materials and Methods

This study was designed based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist.[18] This literature review was conducted in March 2019. In this study, to achieve the intended information, systematically published articles in PubMed and Web of Science databases were searched, where 498 and 617 of the published articles before March 2019 were found in each, respectively. We reviewed the list of reference of the relevant articles. Furthermore, to cover more articles, the Google Scholar database was searched, whereby 1022 articles were extracted. All articles were searched in English. The search strategy focused on three keywords or phrases: "maternal morbidity" OR "maternal near miss" AND "needs." We used broad inclusion criteria to provide a detailed systematic review of the topic. It must be noted that article search was conducted by two independent reviewers and all the studies reviewed eligible articles by reviewing the title and abstract. Any disagreement between these two was resolved through discussion and by considering the goals of the study, and the opinion of a third person was requested, if necessary. The full texts of the selected abstracts were, subsequently, screened. After the primary search of different databases, 2140 articles were found. The extracted articles were evaluated according to the inclusion criteria in two steps. During the first step, 2052 articles out of 2140 were eliminated because of being a duplicate or qualifying the exclusion criteria. During the second step, nine articles were eliminated for having different (irrelevant) titles and goals as well as due to lack of a full text. Eventually, 77 articles including 20 qualitative and 57 quantitative studies were enrolled for final evaluation [Figure 1].

The articles presented in conferences and seminars, case reports, and letters to editor were excluded. Furthermore, lack of access to the full texts of the articles was considered as an exclusion criterion. Eventually, the selected articles were studied to determine the needs of mothers who have experienced MNM.

Ethical considerations

Research ethics confirmation (ethics code: IR.MUMS.NURSE.REC.1398.009) for this study was received from the Ethics Committee of Mashhad University of Medical Sciences.

Results

Study selection outcome

After reviewing the results of studies, considering the extensive and various needs of MNM mothers, the needs

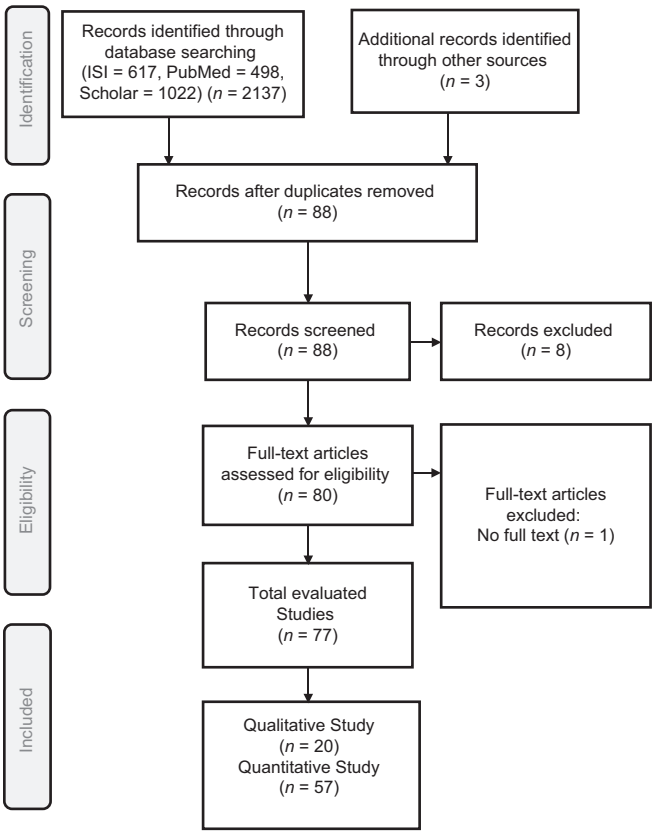

Figure 1: PRISMA diagram for the selection process of the articles

Table 1: Studies in the field of the needs of the women who have experienced maternal near miss

Row	Authors	Year	Design study	Country	Study title	Type of needs
1	Ahmed, Dawud Muhammed	2018	Cross-sectional study	Ethiopia	Incidence and factors associated with outcomes of uterine rupture among women delivered at Felegehiwot referral hospital, Bahir Dar, Ethiopia	Management and care needs of health system
2	Tuli, Arti	2018	Retrospective descriptive	India	Foetomaternal outcome in eclampsia in tertiary care hospital	Educational needs of health system
3	Zafar, Hania	2018	Cross-sectional	Pakistan	Low socioeconomic status leading to unsafe abortion-related complications: A third-world country dilemma	Management and care needs of health system
4	Kasahun, Abebaw Wasie	2018	Case-control	South Ethiopia	Predictors of maternal near miss among women admitted in Gurage zone hospitals, South Ethiopia, 2017: A case control study	Management and care needs of health system
5	Filippi, Veronique	2018	MMM* framework	WHO, UNDP***, UNFPA ****, UNICEF *****, WHO, World Bank	A new conceptual framework for maternal morbidity	Follow-up and continuity of care at the primary care level
6	McCauley, Mary	2018	Descriptive observational cross-sectional	India, Pakistan, Kenya, and Malawi	Burden of physical, psychological and social ill-health during and after pregnancy among women in India, Pakistan, Kenya and Malawi	Need to develop a physical, psychological, and social of care packages
7	Shorey, Shefaly	2018	Randomized controlled trial	Singapore	Evaluation of technology-based peer support intervention program for preventing postnatal depression: Protocol for a randomized controlled trial	Social support Counseling and psychosocial support
8	Iwuh, I. A	2018	Retrospective observational study	South Africa	Maternal near-miss audit in the Metro West maternity service, Cape Town, South Africa: A retrospective observational study	Management and care needs of health system
9	Mahmood, Naeema A	2018	Cross-sectional study	Bahrain	Thromboembolism prophylaxis after cesarean section	Management and care needs of health system
10	Khashab, Sahar	2018	Cross-sectional survey	Egypt	Maternal morbidity and mortality in ElShatby and Dar Ismail maternity hospitals in Alexandria: A comparative study	Management and care needs of health system
11	Iliadis, Stavros I.	2018	Cohort	Swedish	Self-harm thoughts postpartum as a marker for long-term morbidity	Counseling and psychosocial support
12	Jain, Joses A	2018	Review	United States	SMFM Special Report: Putting the "M" back in MFM: Reducing racial and ethnic disparities in maternal morbidity and mortality: A call to action	Management and care needs of health system
13	Aborigo, Raymond A	2018	Focus group discussion	Malaysia	Male involvement in maternal health: perspectives of opinion leaders	Social support
14	Widyaningsih, Vitri	2018	Cross-sectional survey	Indonesia	The patterns of self-reported maternal complications in Indonesia: Are there rural urban differences?	Educational needs of health system
15	Liyew, Ewnetu Firdawek	2018	Nested case-control	Ethiopia	Distant and proximate factors associated with maternal near-miss: A nested case-control study in selected public hospitals of Addis Ababa, Ethiopia	Educational needs of health system Management and care needs of health system
16	Ahmad, Muhammad Ashfaq	2018	Descriptive study	Pakistan	Pregnancy hypertensive disorders frequency and obstetric outcome	Management and care needs of health system
17	Angelini, Carina R	2018	Retrospective cohort	Brazil	Post-traumatic stress disorder and severe maternal morbidity: Is there an association?	Counseling and psychosocial support
18	van Stralen, Giel	2018	Description	The Netherlands	Major obstetric hemorrhage: A follow-up survey on quality of life of women and their partners	Counseling and psychosocial support

Contd...

Table 1:Contd...

Row	Authors	Year	Design study	Country	Study title	Type of needs
10	Merriam, Audrey A	2018	Nationwide inpatient sample	United States	Risk for postpartum hemorrhage, transfusion, and hemorrhage-related morbidity at low, moderate, and high volume hospitals	Management and care needs of health system
20	Bolnga, John W	2017	Prospectively	Papua N Guinea	Maternal near-misses at a provincial hospital in Papua New Guinea: A prospective observational study	Management and care needs of health system
21	Sayinzoga, Felix	2017	Case-control study	Rwanda	Severe maternal outcomes and quality of care at district hospitals in Rwanda - A multicentre prospective case-control study	Management and care needs of health system
22	Rosendo, Tatyana Souza	2017	Population-based survey of a	Northeastern Brazil	Prevalence of maternal morbidity and its association with socioeconomic factors: A population-based survey of a city in Northeastern Brazil	Management and care needs of health system
23	Santana, Danielly S.	2017	Prospective surveillance	Brazil	Severe maternal morbidity and perinatal outcomes of multiple pregnancy in the Brazilian Network for the Surveillance of Severe Maternal Morbidity	Management and care needs of health system
24	Suplee, Patricia D.	2017	Descriptive	United States	Nurses' knowledge and teaching of possible postpartum complications	Educational needs of health system
25	Mbachu, Ikechukwu Innocent	2017	Cross-sectional	Rural Nigeria	A cross sectional study of maternal near miss and mortality at a rural tertiary centre in southern Nigeria	Management and care needs of health system
26	Eadie, Isabelle J.	2017	Qualitative	New Zealand	Midwives' experiences of working in an obstetric high dependency unit: A qualitative study	Management and care needs of health system Educational needs of health system
27	Mohammadi, Soheila	2017	Audit study	Iran	Afghan migrants face more suboptimal care than natives: A maternal near-miss audit study at university hospitals in Tehran, Iran	Management and care needs of health system
28	Govindappagari, Shravya	2017	Nationwide inpatient sample	United States	Using publicly reported hospital data to predict obstetric quality	Management and care needs of health system
29	Kennady, G	2017	Observational study	India	Maternal and neonatal outcomes in pregnancy induced hypertension: an observational study	Management and care needs of health system Educational needs of health system
30	Wahlberg, Asa	2017	Cross-sectional survey	Sweden	Self-reported exposure to severe events on the labour ward among Swedish midwives and obstetricians: A cross-sectional retrospective study	Educational needs of health system
31	Lisonkova, Sarka	2016	Retrospective population-based cohort	Canada	Maternal morbidity and perinatal outcomes among women in rural versus urban areas	Management and care needs of health system
32	Kleppel, Lisa	2016	Review	United States	National initiatives to improve systems for postpartum care	Management and care needs of health system Educational needs of health system
33	Mateus, Julio	2016	Review	United States	The burden of severe maternal morbidity in contemporaneous obstetrics	Educational needs of health system
34	Furuta, Marie	2016	Cohort	England	Severe maternal morbidity and breastfeeding outcomes in the early post-natal period: A prospective cohort study from one English maternity unit	Social support
35	de la Cruz, Cara Z	2016	Cohort	United States	Post-traumatic stress disorder following emergency peripartum hysterectomy	Counseling and psychosocial support

Contd...

Table 1:Contd...

Row	Authors	Year	Design study	Country	Study title	Type of needs
36	Abha, Singh	2016	Prospective observational	India	Maternal near miss: A valuable contribution in maternal care	Management and care needs of health system
37	Norhayati, Mohd Noor	2016	Cohort	Malaysia	Immediate and long-term relationship between severe maternal morbidity and health-related quality of life: A prospective double cohort comparison study	Counseling and psychosocial support
38	Shilpa, Venkatesh	2016	Audit	India.	Implementation of WHO near-miss approach for maternal health at a tertiary care hospital: An audit	Management and care needs of health system
39	Norhayati, Mohd Noor	2015	Modified critical appraisal	Malaysia		Need to develop a physical, psychological, and social of care packages
40	Jarrett, Patricia M	2016	Thematic analysis	England	Pregnant women's experience of depression care	Counseling and psychosocial support
41	Szulik, Dalia	2015	qualitative	Argentina	"I was like a ticking bomb": Experiences of severe maternal morbidity in the Metropolitan Area of Buenos Aires	Management and care needs of health system
42	Hannah Moorea	2018	Qualitative	United Kingdom	Life-threatening complications in childbirth: A discursive analysis of fathers' accounts	Counseling and psychosocial support
43	Rakime Elmir	2010	Qualitative	Australia	Between life and death: Women's experiences of coming close to death, and surviving a severe postpartum haemorrhage and emergency hysterectomy	Counseling and psychosocial support Need to develop a physical, psychological, and social of care packages
44	Lisa Hinton	2014	Qualitative	United Kingdom	Partner experiences of "near-miss" events in pregnancy	Counseling and psychosocial support
					and childbirth in the UK: A qualitative study	Social support
45	Scovia N Mbalinda	2015	Qualitative	Uganda	Male partners' perceptions of maternal near miss	Counseling & psychosocial support
					obstetric morbidity experienced by their spouses	Social support
46	Dan K Kaye	2014	Qualitative	Uganda	Lived experiences of women who developed	Counseling and psychosocial support
					uterine rupture following severe obstructed labor	Social support
					in Mulago hospital, Uganda	Social support
						Management and care needs of health system
47	Fiona Cram	2018	Qualitative	New Zealand	A qualitative inquiry into women's experiences of severe	Counseling and psychosocial support
					maternal morbidity	
48	Tabassum Firoz	2018	Review	MMWG**	A framework for healthcare interventions to address	Social support
					maternal morbidity	Management and care needs of health system
49	Stacie E. Geller	2018	Review	United States	A global view of severe maternal morbidity:	Management and care needs of health system
					Moving beyond maternal mortality	
50	José P. Guida	2018	Retrospective cohort	United Kingdom	The impact of hypertension, hemorrhage, and other maternal	Counseling and psychosocial support
					morbidities on functioning in the postpartum period as	
					assessed by the WHODAS 2.0 36-item	
					tool	

Contd...

Table 1:Contd...

Row	Authors	Year	Design study	Country	Study title	Type of needs
51	OT Oladapo	2015	Cross-sectional	Nationwide	When getting there is not enough: A nationwide cross-sectional study of 998 maternal deaths and 1451 near-misses in public tertiary hospitals in a low-income country	Management and care needs of health system
52	Joao P. Souza	2009	Qualitative	Brazil	An emerging "maternal near-miss syndrome": Narratives of women who almost died during pregnancy and childbirth	Management and care needs of health system Counseling and psychological support Social supportSpiritual support
53	A° sa Engstro¨m	2011	Qualitative	Sweden	Mothers' experiences of a stay in an ICU after a complicated childbirth	Information needs Counseling and psychological support
54	Mary Furniss	2018	Qualitative	New Zealand	Information, support, and follow-up offered to women who experienced severe maternal morbidity	Information Counseling and psychosocial support Need to develop a physical, psychological, and social of care packages
55	Marie Furuta	2013	Synthesis of qualitative	United Kingdom	Women's perceptions and experiences of severe maternal morbidity - A synthesis of qualitative studies using a meta-ethnographic approach	Counseling and psychosocial support Need to develop a physical, psychological, and social of care packages Management and care needs of health system
56	Lisa Hinton	2014	Qualitative	United Kingdom	Maternal critical care: what can we learn from patient experience? A qualitative study	Need to develop a physical, psychological, and social of care packages
57	Lisa Hinton	2015	Qualitative	United Kingdom	Support for mothers and their families after life-threatening illness in pregnancy and childbirth: A qualitative study in primary care	Follow-up and continuity of care at the primary care level Psychosocial support
58	Rakime Elmir	2010	Qualitative	Australia	Between life and death: Women's experiences of coming close to death, and surviving a severe postpartum haemorrhage and emergency hysterectomy	Counseling and psychosocial support
59	Claire Snowdon	2011	Qualitative	United Kingdom	Information-hungry and disempowered: A qualitative study of women and their partners' experiences of severe postpartum haemorrhage	Educational needs of health system psychosocial support Need to develop a physical, psychological, and social of care packages
60	Soheila Mohammadi	2017	Qualitative	Iran	Experiences of inequitable care among Afghan mothers surviving near-miss morbidity in Tehran, Iran: A qualitative interview study	Management and care needs of health system

Contd...

Table 1:Contd...

Row	Authors	Year	Design study	Country	Study title	Type of needs
61	Cara Z. de la Cruz	2013	Qualitative	United States	Women's experiences, emotional responses, and perceptions of care after emergency peripartum hysterectomy: A qualitative survey of women from 6 months to 3 years postpartum	Follow-up and continuity of care at the primary care level
62	Jessica Påfs	2016	Qualitative	Sweden	Beyond the numbers of maternal near-miss in Rwanda - A qualitative study on women's perspectives on access and experiences of care in early and late stage of pregnancy	Need to develop a physical, psychological, and social of care packages
63	L Hinton	2014	Qualitative	United Kingdom	Experiences of the quality of care of women with near-miss maternal morbidities in the UK	Counseling and psychosocial support
64	David, Ernestina	2014	Cross-sectional	Mozambique	Maternal near miss and maternal deaths in Mozambique: A cross-sectional, region-wide study of 635 consecutive cases assisted in health facilities of Maputo province	Follow up and continuity of care at the primary care level Need to develop a physical, psychological, and social of care packages
65	Chersich, Matthew F	2009	Cross-sectional survey	Kenya	Maternal morbidity in the first year after childbirth in Mombasa Kenya; a needs assessment	Need to develop a physical, psychological, and social of care packages
66	Poel, Yvonne H. M	2009	Cross-sectional	The Netherlands	Psychological treatment of women with psychological complaints after pre-eclampsia	Counseling and psychosocial support
67	Vandenberghe G	2017	Prospective active collection of cases	Belgium	The Belgian Obstetric Surveillance System to monitor severe maternal morbidity	Need to develop a physical, psychological, and social of care packages
68	Kasahun Aw	2018	Case-control	Ethiopia	Predictors of maternal near miss among women admitted in Gurage zone hospitals, South Ethiopia, 2017: A case control study	Follow up and continuity of care at the primary care level
69	Liyew EF	2018	Nested case-control	Ethiopia	Distant and proximate factors associated with maternal near-miss: A nested case-control study in selected public hospitals of Addis Ababa, Ethiopia	Management and care needs of health system Educational needs of health system
70	Mbachu II	2017	Cross-sectional	Nigeria	A cross sectional study of maternal near miss and mortality at a rural tertiary centre in southern Nigeria	Management and care needs of health system
71	Parmar NT	2016	Cross-sectional	India	Incidence of maternal "near-miss" events in a tertiary care hospital of Central Gujarat, India	Management and care needs of health system
72	Abha S	2016	Prospective observational study	India	Maternal near miss: A valuable contribution in maternal care	Management and care needs of health system
73	Bashour H	2015	Cross-sectional study	Egypt, Lebanon, Palestine, and Syria	A cross sectional study of maternal "near-miss" cases in major public hospitals in Egypt, Lebanon, Palestine and Syria.	Management and care needs of health system
74	Souza JP	2013	Cross-sectional	Africa, Asia, Latin America, and the Middle East	Moving beyond essential interventions for reduction of maternal mortality (the WHO Multicountry Survey on Maternal and Newborn Health): A cross-sectional study	Management and care needs of health system
75	Almerie Y	2010	Retrospective facility-based review	Syria	Obstetric near-miss and maternal mortality in maternity university hospital, Damascus, Syria: A retrospective study	Management and care needs of health system

Contd...

Table 1:Contd...

Row	Authors	Year	Design study	Country	Study title	Type of needs
76	Knight	2016	Mix method	United Kingdom	Beyond maternal death: improving the quality of maternal care through national studies of "near-miss" maternal morbidity	Follow-up and continuity of care at the primary care level Counseling and psychological support Educational needs of health system management and care needs of health system
77	Carla B. Andreucci	2015	Systematic review	Brazil	Sexual life and dysfunction after maternal morbidity: A systematic review	Counseling and psychological support

*MMM: Maternal Morbidity Measurement; ** MMWG: Maternal Morbidity Working Group; ***UNDP: United Nations Development Programme; ****UNFPA: United Nations Fund for Population Activities; *****UNICEF: United Nations International Children's Emergency Fund

were categorized into six classes of (1) management and care needs of health system, (2) educational needs of health system, (3) follow-up and continuity of care at the primary care level, (4) need to develop a physical, psychological, and social of care packages, (5) social support, and (6) psychosocial support and counseling. A summary of the results is shown in Table 1.

Management and care needs of the health system

This category of needs includes the responsiveness of the health system to the delay in the treatment of mothers, especially in emergency situations. Providing quality care is one of the most important pillars of these needs. The philosophy proposed in Beyond the Numbers (BTN) and its methodologies for case reviews can be the first step in this process. The results of case reviews pinpoint what, if any, avoidable or remediable clinical, health system factors were present in the care provided to the mothers enabling healthcare providers to learn from the errors of the past.[19] Use of audit of near-miss case can enhance the quality of service, especially in areas where the maternal mortality is low. In this situation, there is a need to shift focus to maternal near-miss cases, which is a beneficial adjunct to maternal death issues.[20] Auditing makes causes evidence-based practice and wide information of these efforts to result in reduced preventable maternal morbidity and mortality where serial reviews would aid in resolution of the delays.[21] There should be better communication between levels of care and should be emphasized to allow early identification and referral of mothers for quick management.[22] Another issue that is important in the management and quality of care is to preserve and protect human dignity, and to consider human rights and equity, especially in non-native and migrant mothers. The experiences of mothers suggested that the need to provide fair treatment with respect and improved communication are the challenge for the health system and staff.[23] On the other hand, maternal morbidity is an inequality and discrimination in woman's human right: the right to life and survival; there is a dire need to prevent these unpleasant morbidities by improving the quality of care such as providing safe abortion services.[24] In addition, to provide quality services, the maternal morbidity-avoidable factors in hospitals should be identified and understood better, which can be cited for emergency obstetric causes such as preeclampsia, eclampsia, hemorrhage, sepsis, and thromboembolism.[25,26]

Educational needs of the health system

Health system should develop educational programs and draft targeted protocols at both the national and international levels.[27] For example, midwives who are capable in obstetric emergency care are well-placed to provide quality care to sick mother within an intensive care unit.[28] In addition, mothers should be educated and encourage the public to opt for prompt pregnancy and childbirth care.[29] Nevertheless, they did not always provide holistic education to all mothers prior to discharge from the hospital.[30] There is a need for midwives to provide important messages about potential warning signs to reduce the severity of the complications.[30] Intervention to improve knowledge of maternal morbidity is required, specifically for socially low-level people or those living in rural areas.[29]

Follow-up and continuity of care at the primary care level

Reproductive health services should be prioritized to prevent adverse consequence. Hence, when a mother suffers from MNM, midwives should be aware of the hospital's discharge time.[12] Primary care providers should be made routinely aware if a mother has had a near-miss event, so that they can suggest the support such a mother needs and be aware that these new mothers may have interrupted their relationship with social networks.[7] Follow-up appointments with midwifery staff are helpful for mothers with severe maternal morbidities. Meanwhile, mothers reported that they felt they needed these supports at various times after the event; flexibility beyond the standard timing of 6 weeks postpartum would be beneficial.[12] They require continuity of care at the primary care level beyond the customary 6 weeks postpartum.[31] Maternal health

programs should deal with both averting the loss of life and with ameliorating care of severe maternal morbidities at all levels including primary care.[32]

Need to develop a physical, psychological, and social of care packages

The study by Norhayati *et al.* suggested that the mental and physical prognosis of mothers who experienced severe maternal morbidity is poor and there is a need to identify the persistence of these outcomes over a longer postpartum period; these findings may help provide guidance for staff for preventive care.[33] For example, for some complications of pregnancy and childbirth, such as hysterectomy, formulating a plan of care for mothers identifiably at risk of postpartum hemorrhage and ensuring appropriate follow-up counselling are important, as they are key to reducing the psychological symptoms experienced by such mothers.[34] In addition, many mothers who had experienced near-miss did not receive accurate information about their illness prior to discharge from hospital, which is necessary to pay attention to the quality of service to all aspects that reduce the burden of long-term mental problems,[35] so different information and support needs for mothers should be considered whatever policies are implemented such as follow-up of new mothers in the critical care unit who are separated from their baby or breastfeeding.[36]

Social support

Social support includes the care and attention of the mother who has maternal morbidity, including family, friends, acquaintances, and especially the husband. The role of men can be complex where social and cultural traditions may disagree with health recommendations. Sometimes, social protection is essential for MNM's partners who are often found witnessing the emergency shocking and distressing. Support from health providers is very important, and clear communication from medical staff is highly valued.[37] So MNM obstetric events deeply affect them.[38] Getting social support from others who have similar experiences may enhance the positive experiences of mothers, which in turn can improve the wellbeing of mothers, strengthen the mother–child relationship, and increase the dynamics of families.[39] An example is mothers who have social needs to establish breastfeeding.[40] There is critical need to provide support to survivors to enable them cope with social, physical, psychological, and economic consequences.[41] The implementation of integrated care which involves psychological, spiritual, physical, and social supports of women's health may help diminish the burden that maternal morbidity impose on women around the world.[42]

Counseling and psychosocial support

Maternal counseling and psychological support aim at reducing the problems such as depression, posttraumatic stress disorder, and wellbeing, coping, and emotional support such as disability, disempowerment, and self-isolation on the social networks. There is already some follow-up in service centers; currently after discharge, most mothers are visited by a midwife who usually carries out a postnatal depression screen, but these services do not cover all their needs. For this reason, recent studies have drawn attention to the potential for long-term psychological impact on mothers of maternal morbidities.[34,36,43-45] In addition to their physical recovery, mothers can experience depression, anxiety, and flashbacks in the aftermath; birth trauma can have lasting consequences affecting both the infant and family wellbeing.[46] Hinton *et al*. observed the profound long-term impact a near-miss in childbirth can have on new mothers. Although the mothers wished to take care of their baby, they could not do it, so other family members were also affected.[7] In this study, some mothers after discharge from the hospital were supported and contacted with midwives and visited regularly.[7] Mothers often face significant emotional and psychological health issues in the transition to motherhood.[47] The results of the study by Abdollahpour *et al*. suggested that traumatic childbirth events have the potentials to lead to psychological problems;[13] early interventions and counseling such as skin-to-skin contact between the mother and the baby can improve such mothers' mental health[16] and reduce posttraumatic stress postpartum.[48] After discharge of a near-miss mother, implications include more formal support for mothering when they are in maternal critical care and counseling for partners following this event.[49] There should be a transparent pathway for access to counselling services for near-miss mothers.[12] These counseling services should be provided for successful breastfeeding,[40] sexual problems, and marital problems.[50] Investigation of long-term repercussions of MNM on women's sexual life aspects has been scarcely performed, indicating that worse consequences for those experiencing morbidity are beyond depressive symptoms and postpone sexual activity.[51]

Discussion

This study determined the needs of mothers who have experienced MNM which has been described in six sections. The most important demands and needs of many mothers who survive near-miss complications include the support and attention of healthcare providers during and after hospitalization. Most mothers express emotional and psychological reactions to MNM including anxiety, sorrow, and anger,[52] constituting "maternal near-miss syndrome."[42] The consequences of these events include loss of life, loss of fertility, loss of body image, loss of quality of life, and dissatisfaction of marital relationships.[41] On the other hand, Hinton *et al*.'s study highlighted the importance of communication between primary and secondary care and showed that proper support from service providers completely changed the lives of these mothers.[7] Mothers who received support from healthcare providers had a

shorter physical and mental recovery, and the received support was very valuable to them.[12] Talking through events with midwives at follow-up visits can also be valuable in helping mothers understand what has happened to them.[12,15] In addition, health problems in partners after a near-miss experience may have a big impact financially, practically, and emotionally.[12,38] Consultation with spouses should be done, because fear of reoccurrence of events in the future pregnancy will reduce the desire for childbearing.[12] Counseling can make a real difference to how mothers and their partners cope with the emergency and recovery, because many mothers who develop MNM fail to access the required critical care due to failure to recognize danger signs.[41] Pregnancy and childbirth care packages require adaptation if they are to meet the identified health needs of mothers. Also, to defeat this persistent problem and to decrease the burden of MNM, we need to educate the general public to opt for immediate postnatal care.[25,31,42] One of the limitations of this study was that due to the large number of articles and the wide range of MNM needs, few electronic databases were selected.

Conclusion

According to the researcher review of literature, there has been no systematic review of the needs of near-miss mothers. The importance of this issue is that the lives of these mothers will be different from other mothers after pregnancy and childbirth. They need to receive special support given the difficult conditions they are undergoing. These mothers should not be the victims of problems that are contrary to the law of human rights as they are pregnant. Furthermore, to eliminate discrimination against them, we must strive to improve their wellbeing not only on the level with other mothers and bring them back to normal life. Therefore, it is necessary in the first step to reach the quality of care with the audit and to prevent avoidable morbidity. Then, in the next step, with the support of mothers, we reduce the burden of unavoidable complications to return them to normal life. Health providers should be conscious for problems caused by the impact that the near-miss experience can have on the whole family and be prepared to offer consultation about future childbearing. To improve the quality of care, a flexible appointment should be made for near-miss mothers who are not ready for follow-up or auditing sessions. Therefore, for future implication, it is recommended that a supportive program be designed to follow-up MNM after the discharge to be run by the primary care team.

Acknowledgment

The researchers express their appreciation for the financial support of the university. This article was derived from a PhD thesis with project number 971489.

Financial support and sponsorship

Mashhad University of Medical Sciences, Mashhad, Iran

Conflicts of interest

Nothing to declare.

References

1. Geller SE, Rosenberg D, Cox SM, Kilpatrick S. Defining a conceptual framework for near-miss maternal morbidity. J Am Med Womens Assoc (1972) 2002;57:135-9.
2. Pattinson R, Hall M. Near misses: A useful adjunct to maternal death enquiries. Br Med Bull 2003;67:231-43.
3. Cochet L, Pattinson R, Macdonald A. Severe acute maternal morbidity and maternal death audit-a rapid diagnostic tool for evaluating maternal care. South Afr Med J 2003;93:700-2.
4. Oliveira LC, da Costa AA. Maternal near miss in the intensive care unit: Clinical and epidemiological aspects. Rev Bras Tera Intensiva 2015;27:220-7.
5. Abha S, Chandrashekhar S, Sonal D. Maternal near miss: A valuable contribution in maternal care. J Obstet Gynecol India 2016;66:217-22.
6. Abdollahpour S, Miri H, Khadivzadeh T. The maternal near miss incidence ratio with WHO Approach in Iran: A systematic review and meta-analysis. Iran J Nurs Midwifery Res 2019;24:159-66.
7. Hinton L, Locock L, Knight M. Support for mothers and their families after life-threatening illness in pregnancy and childbirth: A qualitative study in primary care. Br J Gen Pract 2015;65:e563-9.
8. Hinton L, Locock L, Knight M. Maternal critical care: What can we learn from patient experience? A qualitative study. BMJ Open 2015;5:e006676.
9. Filippi V, Ronsmans C, Campbell OM, Graham WJ, Mills A, Borghi J, *et al*. Maternal health in poor countries: The broader context and a call for action. Lancet 2006;368:1535-41.
10. Langer A, Meleis A, Knaul FM, Atun R, Aran M, Arreola-Ornelas H, *et al*. Women and health: The key for sustainable development. Lancet 2015;386:1165-210.
11. Knaul FM, Langer A, Atun R, Rodin D, Frenk J, Bonita R. Rethinking maternal health. Lancet Global Health 2016;4:e227-8.
12. Knight M, Acosta C, Brocklehurst P, Cheshire A, Fitzpatrick K, Hinton L, *et al*. Beyond maternal death: Improving the quality of maternal care through national studies of "near-miss" maternal morbidity. Programme Grants Applied Research 2016;4:1-180.
13. Abdollahpour S, Mousavi SA, Motaghi Z, Keramat A, Khosravi A. Prevalence and risk factors for developing traumatic childbirth in Iran. J Public Health 2017;25:275-80.
14. Hinton L, Locock L, Knight M. Experiences of the quality of care of women with near-miss maternal morbidities in the UK. BJOG 2014;121:20-3.
15. Abdollahpour S, Keramat A, Mousavi SA, Khosravi A. The effect of debriefing and brief cognitive-behavioral therapy on postpartum depression in traumatic childbirth: A randomized clinical trial. J Midwifery Reprod Health 2018;6:1122-31.
16. Abdollahpour S, Bolbolhaghighi N, Khosravi A. The effect of early skin-to-skin contact on the mental health of mothers in traumatic childbirths. Int J Health Stud 2016;2:5-9.
17. Firoz T, Chou D, von Dadelszen P, Agrawal P, Vanderkruik R, Tunçalp O, *et al*. Measuring maternal health: Focus on maternal morbidity. Bull World Health Organ 2013;91:794-6.
18. Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. Ann Inter Med 2009;151:264-9.
19. World Health Organization. Making pregnancy safer: Multi-country review meeting on maternal mortality and morbidity audit "Beyond the Numbers": Report of a WHO

meeting, Charvak, Uzbekistan 14-17 June 2010. Making pregnancy safer: Multi-country review meeting on maternal mortality and morbidity audit "Beyond the Numbers": Report of a WHO meeting, Charvak, Uzbekistan 14-17 June 2010.
20. Venkatesh S, Ramkumar V, Sheela C, Thomas A. Implementation of WHO near-miss approach for maternal health at a tertiary care hospital: An audit. J Obstet Gynecol India 2016;66:259-62.
21. Kleppel L, Suplee PD, Stuebe AM, Bingham D. National initiatives to improve systems for postpartum care. Mater Child Health J 2016;20:66-70.
22. Mbachu II, Ezeama C, Osuagwu K, Umeononihu OS, Obiannika C, Ezeama N. A cross sectional study of maternal near miss and mortality at a rural tertiary centre in southern nigeria. BMC Pregnancy Childbirth 2017;17:251.
23. Mohammadi S, Carlbom A, Taheripanah R, Essen B. Experiences of inequitable care among Afghan mothers surviving near-miss morbidity in Tehran, Iran: A qualitative interview study. Int J Equity Health 2017;16:121.
24. Zafar H, Ameer H, Fiaz R, Aleem S, Abid S. Low socioeconomic status leading to unsafe abortion-related complications: A third-world country dilemma. Cureus 2018;10:e3458.
25. Iwuh I, Fawcus S, Schoeman L. Maternal near-miss audit in the metro west maternity service, Cape Town, South Africa: A retrospective observational study. South Afr Med J 2018;108:171-5.
26. Mahmood NA, Sharif KM. Thromboembolism prophylaxis after cesarean section. Bahrain Med Bull 2018;40:22-5.
27. Tuli A, Rathi J, Garg N, Vashisht R. Foetomaternal outcome in eclampsia in tertiary care hospital. Education 2018;35:6.
28. Eadie IJ, Sheridan NF. Midwives' experiences of working in an obstetric high dependency unit: A qualitative study. Midwifery 2017;47:1-7.
29. Widyaningsih V, Khotijah K. The patterns of self-reported maternal complications in Indonesia: Are there rural-urban differences? Rural Remote Health 2018;18:4609.
30. Suplee PD, Bingham D, Kleppel L. Nurses' knowledge and teaching of possible postpartum complications. MCN Am J Mater Child Nurs 2017;42:338-44.
31. Filippi V, Chou D, Barreix M, Say L, Group WMMW, Barbour K, *et al*. A new conceptual framework for maternal morbidity. Int J Gynecol Obstet 2018;141:4-9.
32. David E, Machungo F, Zanconato G, Cavaliere E, Fiosse S, Sululu C, *et al*. Maternal near miss and maternal deaths in Mozambique: A cross-sectional, region-wide study of 635 consecutive cases assisted in health facilities of Maputo province. BMC Pregnancy Childbirth 2014;14:401.
33. Norhayati MN, Surianti S, Nik Hazlina NH. Metasynthesis: Experiences of women with severe maternal morbidity and their perception of the quality of health care. PLoS One 2015;10:e0130452.
34. Elmir R, Schmied V, Jackson D, Wilkes L. Between life and death: Women's experiences of coming close to death, and surviving a severe postpartum haemorrhage and emergency hysterectomy. Midwifery 2012;28:228-35.
35. Furniss M, Conroy M, Filoche S, MacDonald EJ, Geller SE, Lawton B. Information, support, and follow-up offered to women who experienced severe maternal morbidity. Int J Gynaecol Obstet 2018;141:384-8.
36. Snowdon C. Information-hungry and disempowered: A qualitative study of women and their partners' experiences of severe postpartum haemorrhage. Midwifery 2012;28:791-9.
37. Hinton L, Locock L, Knight M. Partner experiences of "near-miss" events in pregnancy and childbirth in the UK: A qualitative study. PLoS One 2014;9:e91735.
38. Mbalinda SN, Nakimuli A, Nakubulwa S, Kakaire O, Osinde MO, Kakande N, *et al*. Male partners' perceptions of maternal near miss obstetric morbidity experienced by their spouses. Reprod Health 2015;12:23.
39. Shorey S, Chee C, Chong YS, Ng ED, Lau Y, Dennis CL. Evaluation of technology-based peer support intervention program for preventing postnatal depression: Protocol for a randomized controlled trial. JMIR Res Protoc 2018;7:e81.
40. Furuta M, Sandall J, Cooper D, Bick D. Severe maternal morbidity and breastfeeding outcomes in the early post-natal period: A prospective cohort study from one E nglish maternity unit. Matern Child Nutr 2016;12:808-25.
41. Kaye DK, Kakaire O, Nakimuli A, Osinde MO, Mbalinda SN, Kakande N. Lived experiences of women who developed uterine rupture following severe obstructed labor in Mulago hospital, Uganda. Reprod Health 2014;11:31.
42. Souza JP, Cecatti JG, Parpinelli MA, Krupa F, Osis MJ. An emerging "maternal near-miss syndrome": Narratives of women who almost died during pregnancy and childbirth. Birth 2009;36:149-58.
43. Furuta M, Sandall J, Bick D. Women's perceptions and experiences of severe maternal morbidity – A synthesis of qualitative studies using a meta-ethnographic approach. Midwifery 2014;30:158-69.
44. Thompson JF, Heal LJ, Roberts CL, Ellwood DA. Women's breastfeeding experiences following a significant primary postpartum haemorrhage: A multicentre cohort study. Int Breastfeed J 2010;5:5.
45. la Cruz CZ, Coulter ML, O'rourke K, Amina Alio P, Daley EM, Mahan CS. Women's experiences, emotional responses, and perceptions of care after emergency peripartum hysterectomy: A qualitative survey of women from 6 months to 3 years postpartum. Birth 2013;40:256-63.
46. Fenech G, Thomson G. Tormented by ghosts from their past: A meta-synthesis to explore the psychosocial implications of a traumatic birth on maternal well-being. Midwifery 2014;30:185-93.
47. Jarrett PM. Pregnant women's experience of depression care. J Mental Health Train Educ Pract 2016;11:33-47.
48. Abdollahpour S, Khosravi A, Bolbolhaghighi N. The effect of the magical hour on post-traumatic stress disorder (PTSD) in traumatic childbirth: A clinical trial. J Reprod Infant Psychol 2016;34:403-12.
49. Cram F, Stevenson K, Geller S, MacDonald EJ, Lawton B. A qualitative inquiry into women's experiences of severe maternal morbidity. Kōtuitui: N Z J Soc Sci Online 2019;14:52-67.
50. Andreucci CB, Bussadori JC, Pacagnella RC, Chou D, Filippi V, Say L, *et al*. Sexual life and dysfunction after maternal morbidity: A systematic review. BMC Pregnancy Childbirth 2015;15:307.
51. Waterstone M, Wolfe C, Hooper R, Bewley S. Postnatal morbidity after childbirth and severe obstetric morbidity. BJOG 2003;110:128-33.
52. Abdollahpour S MZ. Lived traumatic childbirth experiences of newly delivered mothers admitted to the postpartum ward: A phenomenological study. J Caring Sci 2019;8:23-31.