

editorial

War in Sudan: The Impact on Maternal and Perinatal Health

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On 15 April 2023, the war started in Khartoum State (the capital of Sudan) between the Rapid Support Forces (RSF) militia and the Sudanese government. Since then, the war has spread to other states, including Darfur and Kordofan. As a consequence of this war, several catastrophic events occurred, with thousands of people being killed, injured, displaced, or forced to migrate. Among those people, pregnant women have been particularly vulnerable. This editorial aims to address the impact of war on maternal and perinatal health and to suggest suitable recommendations to improve women's health in Sudan.

Several adverse pregnancy outcomes including miscarriage, stillbirth, prematurity, low birth weight, congenital abnormalities, premature rupture of membranes, and mental health challenges are associated with mothers exposed to war [1, 2]. According to the World Health Organization (WHO) report released on June 20th 2023, about two-thirds of Sudanese hospitals in areas affected by the ongoing fighting are closed, and several maternity hospitals are out of action, including Omdurman Maternity Hospital (the largest referral hospital in Sudan). Amongst the 11 million people in Sudan who currently need urgent health assistance, there are 2.64 million women and girls of reproductive age. Current estimates suggest that 262,880 of them are pregnant, and over 90,000 will give birth in the next 3 months [3]. All of these women need access to critical reproductive health services [3]. Moreover, since the WHO report was issued, the situation has deteriorated even further.

Given that the RSF are occupying many healthcare facilities (including the Omdurman Maternity Hospital, the country's main blood supplier Sudan Laboratory Central, and the National Medical Supply Funds warehouses of medicines for the entire country),

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the current conflict arguably poses an unusually significant risk for pregnant women. Their plight is intensified by the erratic and unreliable utilities which cause widespread issues ranging from poor hygiene to issues with the proper storage of medicines. The destruction of healthcare facilities and infrastructures will lead to poor functioning of health systems, poor healthcare services delivery and utilization, and a shortage of qualified health workers, resulting in poor maternal and perinatal outcomes [4]. Moreover, the aforementioned WHO report provides anecdotal evidence that health workers have been subjected to violence [3]. It is worth mentioning that our previous research reported high maternal and perinatal deaths even before the war began. In the current war, war-related sexual and gender-based violence (SGBV) was reported. However, accurate information about the number of victims is lacking. Women and girls who encounter SGBV experience and get pregnant as a result of rape need unprecedented medical, psychosocial, and rehabilitation support. Unfortunately, such support is not available to those pregnant women and their babies. Likewise, in previous wars in districts of Tigray of our neighboring country, Ethiopia, 89.7% of survivors (including raped women and girls) did not receive any post-violence medical or psychosocial support [5].

A study conducted by Sami et al. in our neighboring country, South Sudan, focused on the coverage of interventions for women's and children's health in the country and explored factors that affected service provision during a protracted conflict. The study showed low coverage for antenatal care, institutional delivery, and childhood vaccines even prior to the escalation of conflict in 2013, and the limited data indicate that coverage remained low through 2017. The key identified factors that determined the delivery of services for women and children were government leadership, coordination of development and humanitarian efforts, and human resource capacity.

To improve maternal and children health during conflicts, as mentioned by Sami and colleagues, we suggested prioritizing women's and children's healthcare during and after the war by strengthening surveillance systems, coordinating short and long-term activities among humanitarian and development organizations, and building the capacity of local and national government authorities [6].

In Sudan, the current situation of maternal and perinatal health has deteriorated even further since the war began. To improve the current situation, we came up with the following recommendations:

1. Essential health services, including psychosocial support, should be provided for all women and girls, especially pregnant women who encounter SGBV experience and their families, and health workers, including midwives, nurses, and doctors at war zones [2]. According to the study from South Sudan, this can be achieved via governmental

collaboration with local and international organizations that work in humanitarian emergencies [6].

2. Building the capacity of local and national health systems to cope with such emergencies, including addressing the problem of maternal healthcare issues in humanitarian crises and fragile settings [4, 6]. This can include introducing disaster medicine in the education curriculum of medical and public health schools.

3. Providing accurate information about the response during this war is essential for future planning. To evaluate the healthcare response during this war so that lessons can be learned towards an effective public health emergency response to any such situation in the future to support mothers and babies during and after humanitarian crises. The evaluation should consider the lessons learned from the experiences of women and health workers, including doctors, nurses, and midwives. This editorial is our initial step to document this war from a humanitarian health perspective.

In conclusion, based on our extensive experience of maternal and perinatal health, especially during this war, this war could delay Sudan's progress toward achieving the Sustainable Development Goals (SDGs), especially SDG-16 (peace, justice, and strong institutions) and SDG-3 (good health and well-being). The recommendations proposed above can be communicated with the decision-makers for urgent implementation to improve the current situation of maternal and perinatal health.

Although this editorial is focused on the impacts on maternal and perinatal health, the root causes of this war should not be ignored, as the best wishes are to stop this war (to save lives and to allow humanitarian and medical aid) and to avoid any war in the future.

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