Health System Challenges Affecting Maternal and Neonatal Health Care Service Utilisation in the Wake of Conflict in Torit County, Republic of South Sudan: A Cross Sectional Study

Pontius Bayo (pontiusby@gmail.com)
Cordaid https://orcid.org/0000-0002-4605-080X
Loubna Belaid
McGill University
Christina Zarowsky
Universite de Montreal
Elijo Omoro Tahir
Torit State Hospital
Emmanuel Ochola
St Mary's Hospital Lacor
Alexander Dimiti
National Ministry of Health, Directorate of Reproductive Health, South Sudan
Donato Greco
Universita degli Studi di Roma La Sapienza

Research note

Keywords: South Sudan, conflict, Maternal and Neonatal health, health service utilization

Posted Date: February 5th, 2020

DOI: https://doi.org/10.21203/rs.2.22678/v1

Abstract

Objectives

This study examines health facility utilization for pregnancy and delivery care and the health system challenges, in the light of renewed conflict in 2016, in Torit County, South Sudan.

We collected monthly facility data retrospectively on total Antenatal Care (ANC) visits, institutional deliveries, major obstetric, and neonatal complications treated from January 2015 to December 2016. We compared 2015 data with that of 2016 when conflict re-started.

We also conducted a descriptive qualitative study based on key informant interviews and Focus Group Discussions (FGDs) to explore the health system challenges. We used a thematic approach to analyse qualitative data.

Results

ANC visits declined by 21% between 2015 and 2016. The proportion of expected births that occurred in facilities declined from 23.6% in 2015 to 16.7% in 2016 ($p< 0.001$) while the proportion of obstetric complications treated in facilities declined from 58.9% in 2015 to 43.9% in 2016 ($p<0.001$). The low national budget to fund the health system, evacuation of international health staff, flight of local health workers and disruption of drugs and medical supplies are the health system challenges identified. Economic barriers and perceived poor quality of care were the two main obstacles to access of health care services.

Introduction

After several decades of civil war and eventual signing of the Comprehensive Peace Agreement (CPA) with Sudan in 2005 (1) and attainment of independence in 2011, South Sudan started to build its health systems but this was interrupted by violent clashes in December, 2013 (2). Although these clashes started in the capital city of Juba, violence quickly spread to several parts of the country. Torit County in the former eastern Equatoria State was initially spared (3). However, in July 2016, the violence erupted yet again in Juba and this time it spread to involve Torit County. The fighting did not last for long within Torit town but frequent violent road ambushes, inter-village clashes and violent criminal offenses committed by unknown gunmen continued. How these factors, coupled with extreme poverty, depreciation of the currency, and acute food shortages, affected the access to and the quality of maternal health services is not known. This study was to document the health system challenges as perceived by key health actors in Torit County and how these challenges impacted on utilization of maternal health services by comparing key indicators in 2015 (before the conflict) with 2016: number ANC visits, number of facility deliveries and number of major obstetric and early neonatal complications treated. It will help government and its partners to innovate on strategies for maternal health service delivery to the population during crisis periods.

Methods

Study design

We conducted a cross sectional analysis of facility- level data and a descriptive qualitative study.

Study setting

We conducted this study in three Payams of Torit County in Torit state, Republic of South Sudan: Kudo, Nyong, and Himodonge. Payams in South Sudan are administrative areas that constitute counties which in turn constitute a state. The projected total population for the three payams in 2016 was 75,375 (4).

Study population

The study population was composed of pregnant women and neonates who attended health facilities in 2015 and 2016 in three payams in Torit County for antenatal care, facility-based delivery, and treatment of major obstetric, and early neonatal complications. The qualitative study involved members of communities as health service users, healthcare providers, policy makers and staff of Non-Governmental Organisations (NGOs).

Data collection

Quantitative data

We reviewed ANC and admission registries on the maternity wards for 2015 and 2016. The key indicators recorded included number of visits for antenatal care services, facility- based deliveries, number of caesarean sections, major obstetric, and neonatal complications treated. We recorded neonatal deaths in facilities and still births from January 2015 to December 2016. The major obstetric complications included: haemorrhage (either during antepartum period or post-partum), prolonged and/or obstructed labour, abortion complications, postpartum sepsis, pre-eclampsia/eclampsia, ruptured uterus, and ectopic pregnancy (5).

Qualitative data

We conducted in-depth individual interviews (IDI) with key informants from the State Ministry of Health (SMOH), healthcare facility managers and NGO staff (n=19) at the state and national level to explore health system challenges (Table.1). We organized 12 focus group discussions (FGDs) with various groups at the community level discussing the perceptions on access to maternal healthcare services in context of the conflict.

Table 1. Numbers of interviews and Focus group discussions (FGDs)

Data collection methods	Numbers	Data sources
In depth interviews	19	Key informants: policy makers ; NGO staff, health managers
FGDs	12 (8 to 20 per FGD)	Communities (n=8); health providers (n=3); policy makers (women's member of parliament) (n=1)

Data analysis

Quantitative data analysis

We extracted data manually from hospital records, entered it into an Excel sheet and imported into SPSS version 16 for statistical analysis. We used a frequency table to present descriptive data for the two years being compared (2015-2016). Using the crude birth rate for South Sudan which was 36.315/ 1000 population in 2015 and 35.936/1000 population in 2016 (6) , the total number of expected pregnancies was calculated for each year. The proportions of these that delivered in the facility were calculated for each year.

According to the World Health Organization (WHO), 15% of all pregnancies experience major obstetric complications (5). The number of major obstetric complications expected in each year and the proportion admitted and treated in the facilities was calculated to get the 'met EmOC need'. We assumed that because of the poor road network, lack of transport, insecurity, and poor referral systems (7) , the maternal health services in Torit state hospital were only used by the population in Torit County. 95% CIs for proportions were calculated and the differences between the proportions was tested using chi-squared tests. All significance levels were set at $p \leq 0.05$.

Qualitative data analysis

We translated, transcribed, and coded with NVivo software the in -depth interviews and FGDs. We used a mixed approach (inductive and deductive) for the thematic analysis (8).

Results

Utilization of Maternal and Newborn Health Services

A total of 2492 admissions were retrieved in 2015 and 2283 in 2016. Fig.1 shows the monthly trends of key maternal and neonatal health indicators which generally start to show a decline between December

2015 and February 2016 with a more drastic decline from July 2016 especially for the total ANC visits, total deliveries, and major obstetric complications treated in the facility.

Table 2 shows the key maternal health indicators as a proxy measure for utilization of maternal and neonatal health services. The proportion of all expected births in one year that occurred in the health facility declined significantly from 23.6% (95% CI= 22.4 - 24.8) in 2015 to 16.7% (95% CI= 15.7 – 17.7) in 2016 ($p< 0.001$). The proportion of all births expected that occurred by caesarean section also declined significantly from 2.4% (95% CI= 2.0- 2.8) in 2015 to 1.9% (95% CI= 1.5- 2.3) in 2016 ($p= 0.047$). The proportion of all major obstetric complications expected in one year that got treatment from the health facility declined significantly from 58.9% (95% CI= 55.4- 62.4) in 2015 to 43.9% (95% CI= 40.4-,47.4) in 2016 ($p<0.001$). Total ANC visits declined by 21% in absolute numbers from 4854 in 2015 to 3835 in 2016.

Table 2. A comparison of key maternal and neonatal health indicators between Jan-Dec. 2015 and Jan-Dec. 2016

	Indicators		Numbers and proportions n(%)	95% CI	P Value
1.	**Population projections for Torit county from 2008 census**				
		2015	140,215		
		2016	146,046		
2.	**Expected births from the population in one year**				
		2015 (Crude birth rate 36.315/1000 population)	5,092		
		2016 (Crude birth rate 35.936/1000 population)	5,270		
3.	**Proportion of all births expected that occurred in the facilities n(%)**				
		2015	1201 (23.6)	22.4 – 24.8	
		2016	878 (16.7)	15.7 – 17.7	<0.001
4.	**Proportion of all births expected that occurred by caesarean section n(%)**				
		2015	122 (2.4)	2.0 – 2.8	
		2016	100 (1.9)	1.5 – 2.3	0.047
5.	**Major obstetric complications expected (15% of all expected births)**				
		2015	764		
		2016	791		
6.	**The proportion of major obstetric complications treated in the facilities n(%) (met EmOC need)**				
		2015	450 (58.9)	55.4 – 62.4	
		2016	347 (43.9)	40.4 – 47.4	<0.001
7.	**Neonatal complications admitted and treated within the facilities (n)**				
		2015	404		
		2016	436		

8. **Proportion of the admitted neonates who died within the facilities n(%)**				
	2015	29 (7.2)	4.7 – 9.7	
	2016	27 (6.2)	3.9 – 8.5	0.278
9. **Total ANC visits (n)**				
	2015	4,854		
	2016	3,835		

Perceived impact of conflict on the health system and access to health care

The following section describes the challenges within the health system and the perceptions of the communities on access to healthcare services in the context of the crisis and conflict in July 2016.

Low national budget to fund the health system

The health sector is mainly financed by donor funds as government has limited capacity to fully fund the sector. A Health Pooled Fund (HPF) from international donors is currently financing many activities of the health system. This fund is administered through implementing partners which are mainly international and local NGOs working with the MOH to support primary health care services, improve the human resources, and strengthen referral systems.

> *"If the state ministry of Health could be assisted by some partners to implement health programs, this will help, because the budget of the government is meagre (...).There is a political will, but we do not have enough money to implement designed health interventions, partners need to help the government" (*FGD, Members of parliament).

Local staff moved away, and international staff were evacuated

The major concern was the lack of skilled health staff, especially midwives in health facilities. This shortage is attributed in large part to the long civil war which disrupted the training of health workers, *"Human resources are not enough, to implement maternal and newborn health package*" (IDI, director 1 at the SMOH). The human resource problem has been compounded by inadequate and irregular salaries for some staff. *"The human resource is inadequate and the salary for the government staff is meager"* (IDI, a member of management committee, Torit Hospital).

"If partners can add some payment to health staff in the hospital and other health facilities, then they will be motivated to do a lot of work and can attract skilful employees who are working with international organizations to come and work in the hospital" (FGD, Members of parliament). After the conflict of July, some staff moved away from the facilities due to insecurity and too little and delayed salaries. Most international staff were evacuated from Torit. SCI and CORDAID staff left within one week of onset of the conflict.

Interruption of healthcare supplies

Another challenge of the health system is the lack of drugs and inadequate equipment at the hospital and other health facilities. *"There is inadequate medical equipment and drugs*" (IDI, coordinator of a humanitarian aid organization, Torit). The July conflict and the rampant road ambushes interrupted healthcare supplies reaching the facilities*. "Since this insecurity started, it has been difficult to get supplies adequately from Juba"* (IDI, representative an NGO)

Economic barriers and perceived poor quality of care: obstacles to access healthcare services

Economic barriers and perceived poor quality of care are the main obstacles identified for not accessing health care. *"We cannot afford the soap and sweets needed at the maternity of the hospital, and then we prefer to deliver at home"* (FGD #1, women, Nyong payam)*. "Those on night duty at the hospital just sleep and when you go to them, they just abuse you. There is always delay in giving drugs when the prescription is not stamped"* (FGD # 1, women, Nyong payam).

Discussion

This study has highlighted the significant decline in maternal and neonatal health service utilization indicators in health facilities in Torit County between 2015 and 2016 and the underlying health system challenges influenced by recurrent conflict in South Sudan.

The year 2016 was a particularly difficult year for the population in Torit County with initially acute food shortages at the beginning of the year as a result of crop failure due to drought (9) . This, together with devaluation of the South Sudanese pounds profoundly affected the socio-economic status of the population and is perceived to have caused rampant armed robberies, road ambushes and banditry which displaced certain sections of the population (10). When armed conflict erupted in July it simply worsened the humanitarian situation of the population in a County in which government partners were ill-prepared to respond as, for the previous two years, their focus had been on the parts of the country that had been affected by the 2013 conflict (11). This paralysed the health system and affected use of health facilities.

Several barriers to maternal health service utilisation have been highlighted in studies from other parts of the Country. A qualitative study in Rumbek indicated that socio-cultural issues and conflict led to insecurity leaving the health facilities inaccessible to the population (12). This study also indicated that

the community perceived childbirth as natural and of low risk that did not require institutional delivery. An analysis of the 2010 South Sudan household survey attributed non-use of ANC services to high illiteracy among pregnant mothers, limited knowledge on danger signs for their newborns and difficulty in access due to long distance from the services(13). Although the qualitative arm of the current study revealed similar barriers in accessing maternal and neonatal health services namely: perceived poor quality of services, lack of skilled motivated staff and costs of medical care, the decline in institutional deliveries, ANC visits and the met EmOC need seen in this study between 2015 and 2016 is evidence of how the conflict and insecurity in Torit County added to multiple other barriers.

Conclusion

The state MoH and partners should ensure availability of skilled staff, medicines and avoid charging user fees to improve maternal health service utilization during conflicts.

Limitations

- The socio-demographic characteristics of the women who accessed the health services were not identified. This would have shown the inequities resulting from the conflict based on geographical location, economic status, education status or even age.
- The functionality of the facilities to offer services especially EmOC services was not assessed in this study, this could have affected the accuracy of some of the results presented such as the met EmOC need.
- Other confounding factors that could have affected the health system and led to decline in facility utilisation other than the fighting and socio-economic decline were not analysed.
- The quantitative data presented here is extracted mainly from facility records which might not be accurately kept in such a conflict setting; however, we attempted to cross check the health information system reports for consistency.
- Some interviews were not recorded, this could have resulted into loss of information.

Abbreviations

ANC Antenatal Care

CRCHUM Research center of Hospital Center of University of Montreal

EmOC Emergency Obstetric Care

DG Director General

FGD Focus Group Discussion

HPF Health Pool Fund

MoCHeLaSS Mother Child Health Lacor South Sudan

MoH Ministry of Health

NGOs Non-Governmental Organizations

PHCC Primary Health Care Center

PHCU Primary Health Care Unit

SDGs Sustainable Development Goals

SMoH State Ministry of Health

UHC Universal Health Coverage

WHO World Health Organization

Declarations

Ethics approval and consent to participate

Ethical approval for this study was obtained from the ethical committee of the Ministry of Health of Republic of South Sudan (not numbered) among the other approvals, and a written consent was obtained from all participants for the interviews and permission to review hospital records was granted by the facility in-charges after giving them written information about the study.

Consent for publication- Not applicable

Availability of Data and Materials

The datasets generated and/or analysed during the current study are available in the Dryad repository, DOI: 10.5061/dryad.bj550.

Competing interests

The authors declare that they have no competing interests

Funding

This work was carried out with a grant from the Innovating for Maternal and Child Health in Africa initiative, co-funded by Foreign Affairs, Trade and Development Canada (DFATD), the Canadian

Institutes of Health Research (CIHR) and Canada's International Development Research Centre (IDRC).

Disclaimer: The views expressed herein do not necessarily represent those of IDRC or its Board of Governors

Authors' contributions

PB and LB designed the study and supervised data collection, DG did the statistical analysis of the quantitative data while LB analyzed the qualitative data and drafted the manuscript with PB; CZ, AD, EOT and EO participated in intellectual content analysis, methodological review and also reviewed the final version of the manuscript for consistency. All authors read and approved the final manuscript.

Acknowledgement

The authors are grateful to Osawa Rex, Clementina Luboya, Mary Mania and Sarah Kainza who helped in collection of both quantitative and qualitative data. We also owe a debt of gratitude to the participants in this study as well as to the management of the health facilities involved in this study, their cooperation was valuable.

References

1. Aalen L. Making Unity Unattractive: The Conflicting Aims of Sudan's Comprehensive Peace Agreement. Civil Wars. 2013;15(2):173-91.
2. Omer R. South Sudan: From Independence to a Detrimental Civil War Harvard International Review 2016;37(3):11-2.
3. Sweeney M. The spoiling of the world: in South Sudan decades of civil war led to independence–and yet more war. MHQ: The Quarterly Journal of Military History 2016;1(76).
4. NBS. Population Projections for South Sudan by Payam: 2015-2020. 2015 2015 [
5. Bailey P, Lobis S, Fortney J, Maine D. Monitoring emergency obstetric care : a handbook Geneva, Switzerland: World Health Organization,; 2009
6. World Bank. Crude Birth Rate for the Republic of South Sudan [SPDYNCBRTINSSD], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/SPDYNCBRTINSSD, June 29, 2018. 2018.
7. Lawry L, Canteli C, Rabenzanahary T, Pramana W. A mixed methods assessment of barriers to maternal, newborn and child health in Gogrial West, South Sudan. Reproductive Health. 2017;14(1):12.
8. Miles M, Huberman M. Analyse des données qualitatives 2ed. Belgique De Boeck Université; 2003.
9. Lokale P. Famine fuels cycle of violence in Eastern Equatoria. The Niles. 2016.
10. REACH. Situation Overview: Displacement and Intentions in Eastern Equatoria State 2016 [
11. ReliefWeb. Multi-Sector Rapid Needs Assessment: Imatong State Phase 1 Report: Torit County, South Sudan 2016 [

12. Wilunda C, Scanagatta C, Putoto G, Takahashi R, Montalbetti F, Segafredo G, et al. Barriers to Institutional Childbirth in Rumbek North County, South Sudan: A Qualitative Study. PLOS ONE. 2016;11(12):e0168083.
13. Mugo NS, Dibley MJ, Agho KE. Prevalence and risk factors for non-use of antenatal care visits: analysis of the 2010 South Sudan household survey. BMC Pregnancy and Childbirth. 2015;15(1):68.

Figures

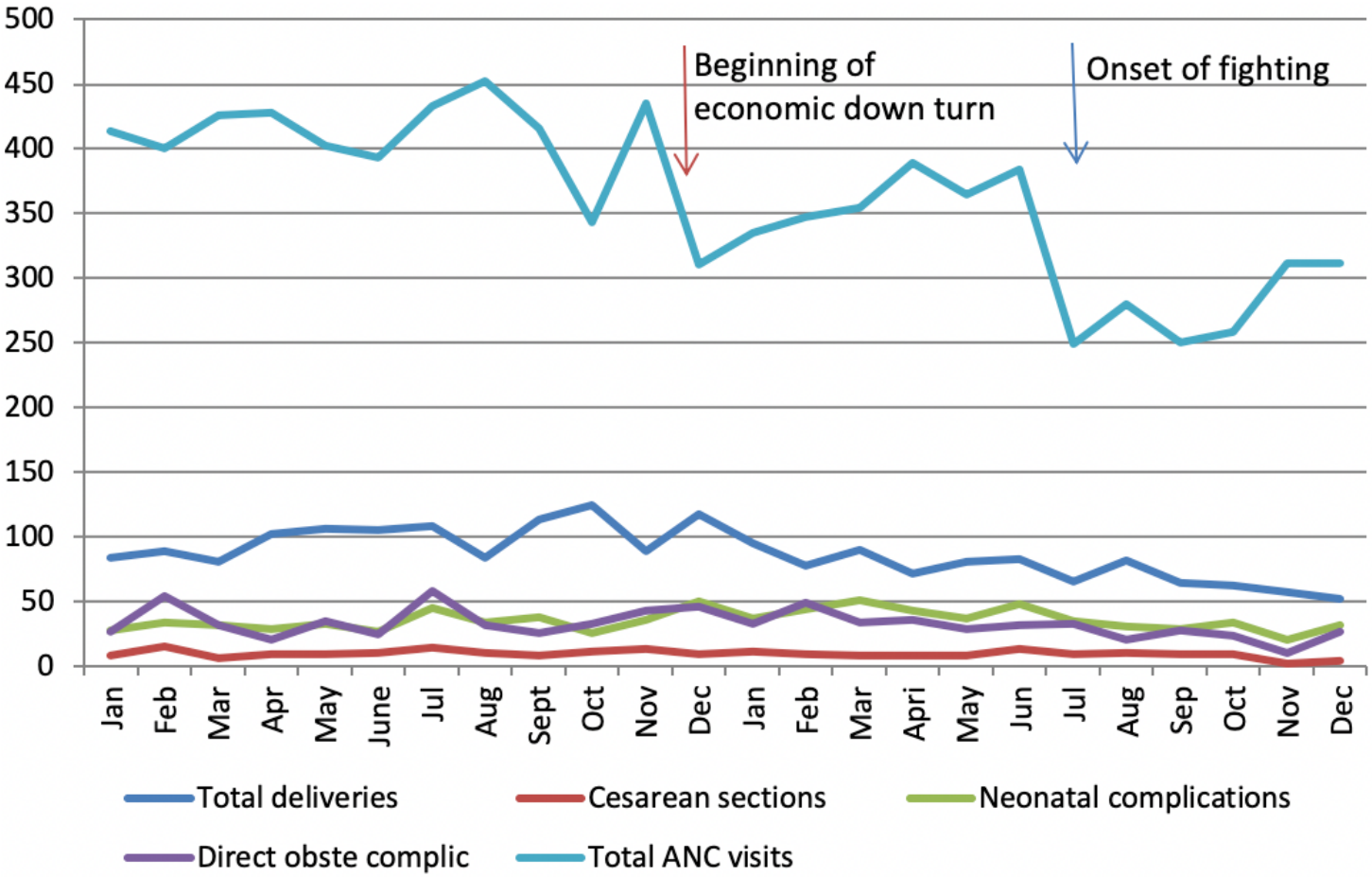

Figure 1

Monthly trends of maternal and neonatal health indicators from 2015 to 2016