Health services utilisation before and during an armed conflict; Experiences from the Southwest region of Cameroon

Eposi C. Haddison (✉ eposihaddison@yahoo.com)

Delegation of Public Health <https://orcid.org/0000-0002-3824-1155>

Chia E. Julius

International Centre for Genetic Engineering and Biotechnology, Cape Town component

Benjamin M. Kagina

Vaccines for Africa Initiative (VACFA), University of Cape Town

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Abstract

Background Armed conflicts are a threat to the health of populations in affected areas. The threat is either by direct injury or disruption of health services delivery and utilisation. There has been an armed 'Anglophone crisis' in the English-speaking regions of Cameroon from 2017. We hypothesized the armed conflict disrupted the utilisation of health services. We present findings of the effects of the armed conflict on health service utilisation in the Southwest region of Cameroon. **Methods** A retrospective study of surveillance data was carried out between 2016 and 2018. Regional data for selected routine immunisation, reproductive health, disease surveillance and HIV/AIDS indicators were retrieved from the regional database. Data was presented as frequencies. **Results** Generally, there was an improvement in health service utilisation indicators from 2016 to 2017 followed by a decline in 2018. The DPT3 vaccination coverage dropped from 90% in 2017 to 55% in 2018; deliveries attended by qualified personnel dropped from 46% in 2017 to 26% in 2018; the absolute number of people tested for HIV dropped from 20,3987 in 2017 to 18,3654 in 2018. **Conclusion** The utilisation of health services by the population of the Southwest region was negatively affected by the armed conflict. The negative effects could have a significant impact on the population's health and potentially, affect the set global health targets such as improved vaccination coverage in all districts. Local, national, regional and global authorities must work together to develop risk mitigating interventions in settings with armed conflicts to preserve the utilisation of health services.

Background

Armed conflicts are known to disrupt provision of health services to the public. In several settings, there are reports of negative effects of armed conflicts on the health services [1]. In any given setting, armed conflicts can directly cause injury to the population living in the affected areas or disruption of health service delivery. Furthermore, the populations affected by armed conflict suffer from diverse traumas which may be physical, psychological or both [2]. Disruptions of health service delivery during conflicts exacerbate the risk of preventable mortality and morbidity on the affected population.

Globally, all continents have experienced armed conflicts at some period in the past. For example, in Asia; Syria, Afghanistan and Iraq are experiencing the most violent conflicts in recent times [3-6]. In Africa; the Democratic Republic of Congo, South Sudan and the Central African Republic are experiencing protracted conflicts; and in the Americas, Mexico is experiencing criminal violence [7].

War torn countries in Asia have reported high overall mortality rates. The high mortality rates are due to direct injury, food insecurity, malnutrition, a variety of mental disorders, direct attacks on health personnel and infrastructure as well as a breakdown in the provision of health services. Armed conflicts therefore negate the efforts made in the fight against causes of mortality and morbidity, including eradication of poliomyelitis [8-10].

In Africa, endemic poverty and weak health systems amplify the negative effects of armed conflicts in the region. In countries experiencing protracted conflicts in the region, there are shortages of health staff, under resourced facilities and interrupted medical supplies. Consequently, the containment of outbreaks and the provision of health services to the displaced populations is compromised [11-13]. Population displacement due to armed conflicts has the potential to negatively affect the public health system in settings that are not directly experiencing the armed conflicts.

Cameroon has been experiencing armed conflicts in her Northern and Western regions. The Boko Haram insurgency in Nigeria began in 2010 and later spread to the Northern regions of Cameroon in 2013 [14]. Some studies have documented the implications of the insurgency on the public health sector in Nigeria [15, 16]; however, to the best of our knowledge, only one study has reported the impact on the health sector in Cameroon [17]. The Boko Haram insurgency reduced the availability and accessibility of health services in the affected areas [18]. At least eight out of the thirty health districts in the Far North region of Cameroon were severely affected [17]. Many health facilities closed as health workers and the communities fled for safety. The disruption of normal life and health services due to the insurgency created an enabling environment for the spread of communicable diseases. The influx of refugees from Nigeria into Cameroon also put a strain on the weakened health services in the area, rendering containment of any outbreak a difficult task [18-20].

In 2016, Cameroon faced another crisis in her English-speaking Northwest (NW) and Southwest (SW) regions. What began as a protest of lawyers and teachers over perceived marginalization turned into an armed conflict termed the 'Anglophone Crisis' by the end of 2017 [21]. The 'Anglophone Crisis' is characterised by the burning of villages, kidnappings, extra-judiciary killings among others. This conflict has since contributed to at least 246 000 internally displaced persons, with an additional 26 000 people registered as refugees in neighbouring Nigeria [22].

The SW region is affected most by the 'Anglophone Crisis' with 15 of its 18 health districts being severely affected [23]. Since the beginning of the armed conflict in late 2017, health personnel and health facilities in the SW have been purposefully targeted. In times of war, health workers have the duty to provide health services to the population regardless of their political affiliations. However, in the SW, health workers in high-risk zones are caught between the military and non-military groups who exert pressure on them not to treat the opposing party. Failure to comply to the demands of either party has led to the molestation of health workers. A similar situation was reported by Nepalese health workers during the People's War [11]. The respect of medical neutrality remains a challenge in conflict zones [12]. So far there have been over 70 reported attacks on health personnel and infrastructure according to accounts at the SW Regional Delegation of Health (RDPH). Similarly, the supply of medicines and commodities from the regional warehouse to the districts is hampered by theft and destruction linked to armed groups. Supervisors are not willing to go into conflict zones for fear of being attacked by either warring party or being caught in crossfire. Thus, the quality of health services provided in the few facilities still operating cannot be ascertained. All these factors have contributed to the demotivation of many health workers in the region.

In many African countries, data on the effects of violence on the public health system is limited. A PubMed search for articles reporting the effect on conflicts on the health system in African countries produced 721 articles. A majority of the articles focused on individual health programmes primarily mental health followed by child and maternal health. Only 2% of the search output focused on the effect of armed conflicts on the health system with the main theme being post-conflict health system strengthening.

Given the paucity of data on the topic, we therefore documented the effects of an armed conflict on the utilisation of health services in the SW region of Cameroon. Our findings raise awareness on the risk of armed conflicts on the delivery and utilisation of health services in affected communities; and provide more evidence for the development of policies that can mitigate this risk per and post-conflict in similar African settings.

Methods

Study setting

The SW region is one of the ten regions of Cameroon with a total population of 1,817,667 inhabitants according to estimates provided by the Ministry of Health (MOH) in 2018. The region is one of the two English-speaking regions of the country. Before the armed conflict, most inhabitants were involved in farming and fishing as the major source of income.

The SW region is made up of 18 health districts (HD) with 116 health areas. Health services in the region are delivered by a total of 308 health facilities (2 regional hospitals, 12 district hospitals, 17 sub-divisional hospitals and 167 integrated health centres). Health activities in the region are coordinated by the RDPH.

Study design and data source

A retrospective analysis of routine surveillance data was carried out from 2016 to 2018. Data was sourced from regional health records for 2016, 2017 and 2018. Weekly and monthly reports from health facilities are submitted to their respective district health services where the data is compiled before submission to the RDPH office. Parallel to this mode of data transmission, reports are also transmitted via the digital health information system (DHIS2) from health facilities to the regional office. At the RDPH this data is analysed, transmitted to the central level and stored in the regional database. For this study, data for key health outcomes from January to December 2018 were retrieved from the regional database and compared to those of a similar period in 2016 and 2017.

Ethics approval

The study utilised data that is routinely collected by the health authorities for programme strengthening. Therefore, ethics approval was not required for this study. However, an approval to access the data was obtained from the Regional Delegation of Public Health. All the data used in this study was anonymized

Health service indicators

The health service delivery indicators were purposively selected from the disease prevention and case management components of the health sector as outlined in the Health Sector Strategic Plan [24]. Two out of the five components that constitute the health sector portray direct use of health services by the community. Disease prevention indicators included indicators from routine immunisation and reproductive health (RH) while case management indicators included indicators from disease surveillance and HIV/AIDS which is a priority disease.

Data synthesis and analysis

Data was analysed using Stata 14.0. Service delivery indicators for routine immunisation and RH were presented as frequencies calculated by using the yearly regional target population count as the denominator. Indicators for disease surveillance and HIV/AIDS were calculated based on the number of consultations for the year.

Results

Trends in health service indicators

Table 1 represents key disease prevention indicators for January to December 2016, 2017 and 2018. Generally, there was an upward trend in routine immunisation and RH indicators from 2016 to 2017 which corresponds to a period when there was no armed conflict. In 2018 when the armed conflict had started, a drop was observed in the indicators when compared to 2017. Similarly, there was an increase in the number of patients tested and treated for HIV in 2017 compared to 2016 but a drop was observed when compared to 2018 (Figure 1). However, for disease surveillance there was a drop in the number of total consultations between 2016 and the proceeding years while malaria consultations increased between 2016 and 2017 but dropped thereafter (Figure 2). Considering the annual population growth estimates, all indicators for 2018 in the region were expected to be similar if not better than those for 2017.

Coping mechanisms in place

Despite the challenges caused by the armed conflicts, several mechanisms have been used to cope with the conflict. Firstly, conditions for the collection of medicines and medical supplies from the regional warehouse were relaxed such that collections could be done by a third party or by individual facilities. Initially, commodities such as vaccines were collected by the District Health Services which were tasked with distribution to the different health facilities in their districts and drugs and other supplies were delivered at the doorstep of most facilities. In order to reduce the risk of health personnel being attacked on the highway as a result of frequency of travel, multi-month stocks are issued to the facilities.

Secondly, patients on chronic medication were issued with continuous care cards to facilitate management in any other health facility in the country in case of displacement. Similarly, salvage

registers are being used in HIV treatment centres in host regions to register IDPs who collect ARVs. This is done to ensure traceability of patients amid the constant displacements.

Thirdly, community health workers (CHW) were trained by international organisations like Medecins Sans Frontier (MSF) to diagnose and treat basic ailments. This task shifting ensured the provision of basic health services to IDPs in the bushes and remnants in high risk zones where the health personnel have fled. These international organisations alongside community based organisations provide humanitarian aid in areas where access has been successfully negotiated.

Discussion

The armed conflict negatively impacted on the health sector in the SW region as evidenced by the downward trends of some key health service delivery indicators in 2018. Vaccination coverage for Diphtheria-Tetanus-Pertussis 3 (DTP3) dropped from 90% in 2017 to 55% in 2018; assisted deliveries dropped from 46.4% in 2017 to 26.4% in 2018; the number of people living with HIV/AIDS (PLHIV) lost to follow in December increased from 1613 in 2017 to 2282 in 2018. Access to healthcare was hampered by the massive displacement of the population and the inability of medical supplies to penetrate the high-risk zones. Countries faced with armed conflict have reported the re-emergence of infectious diseases, exacerbation of health conditions, unhealthy coping mechanisms, increased mortality and weakening of the health system [25-28].

Limited access to health services, especially preventive interventions, poor water and sanitation conditions as well as constant movements of the population leaves conflict affected areas susceptible to re-emergence of infectious diseases [29, 30]. Detection and control of outbreaks becomes difficult due to the breakdown of health surveillance systems. In 2018, a Monkey pox outbreak was declared in the Akwaya HD of the SW region. Investigations revealed that at the time of detection, the outbreak was dying out. Early outbreak detection was hampered by limited access to health services as a result of insecurity prevailing in that district. Regarding poor sanitation, inadequate collection and disposal of household waste in urban towns in the region has resulted to heaps of dirt at every street corner thus, putting the population at risk of infection. Faced with the breakdown of surveillance and environmental systems, there is an urgent need for health promotion strengthening in the region.

During armed conflicts, children are the most vulnerable group in the society and bear the brunt of poor health outcomes and malnutrition [31]. Affected children become susceptible to infectious diseases and this is further aggravated by the absence of preventive health interventions like vaccination. The Expanded Programme on Immunisation (EPI) activities in the SW region were hampered by the difficulty to transport vaccines from the regional warehouse to the districts, theft of solar panels and gas bottles powering fridges and the fleeing of health personnel from some health areas as a result of insecurity. Consequently, the region may witness a setback in the advances made in polio eradication and measles elimination as a result of low vaccination coverage and breakdown of surveillance systems. Polio

endemicity in Pakistan, Afghanistan and Nigeria is partly attributed to the protracted armed conflict in these countries [32, 33].

Armed conflicts reduce women's accessibility to family planning services as well as maternal and neonatal care while exposing them to gender based violence (GBV) and risky sexual behaviours [34]. Reproductive health is considered as a human right for women [35]. Global bodies have recognised this right, as evidenced in its inclusion to the Sustainable Development Goal 3 which targets the reduction of maternal and infant mortality, and the universal access to sexual and reproductive health care services by 2030 [36]. The drop in RH indicators in the SW region indicates that many displaced pregnant women give birth under precarious conditions which increases the risk of maternal and neonatal deaths as well as neonatal tetanus, a vaccine preventable disease (VPD) that is nearing elimination in Africa. High maternal and infant mortality rates have been reported in the Democratic Republic of Congo and Syria [37, 38], both countries are experiencing armed conflicts. Countries with armed conflicts have also reported an increase in GBV especially rape [39-41]. We can only speculate that the SW region faces a similar situation. The absence of functional health facilities with adequate technical staff and equipment to manage complications arising from GBV renders the situation more preoccupying. Strategies have to be put in place to identify GBV survivors who generally shy away from health services due to shame. Also adequate healthcare and emotional support need to be provided to the GBV survivors.

During conflicts, deaths due to chronic diseases account for a large proportion of mortality rates. Limited access to health facilities for routine check-ups, shortage of medications and the inability to maintain a healthy lifestyle all contribute to the rapid progression of disease [42]. Moreover, limited access to health facilities and the absence of specialised care in facilities still functioning render the management of complications resulting from interruption of medication difficult. Interruption or non-management of chronic infectious diseases like HIV/AIDS not only put patients at risk but their entourage as well [43]. Furthermore, the adoption of risky sexual behaviours as a coping mechanism by some people in times of crisis promote the spread of HIV/AIDS [43]. A breakdown in the provision of services makes achievement of the 90-90-90 goal for HIV by 2020 difficult [44]. During crisis, focus is usually placed on providing basic health care which is usually short term leaving patients needing chronic care at a loss. Though often neglected, mental health disorders due to exposure to traumatic events and displacements during conflicts have been reported in several settings [45-47]. Health facilities in the region already report patients presenting with stress disorders. Unfortunately, access to mental healthcare is low in the country due to the absence of qualified staff and we were unable to evaluate this health indicator in the study. Priority should be placed on extending mental healthcare to communities in armed conflict settings as recommended by global bodies [48].

Attacks of health personnel and infrastructure in the SW region by both warring parties has created some level of mistrust between the three parties. The population view the health staff and facilities still operating as spies for the government and traps for wounded combatants. On the other hand, the health staff cannot rely on the military to ensure their protection for fear of being assaulted by the said military for treating the opposing party. This mistrust reduces the health seeking behaviour of the population.

Moreover, it creates a negative environment for activities such as routine mass campaigns which require collaboration between the communities and the health sector. The health sector would have to engage in frank dialogue with community leaders; deploy health workers to serve in communities they originate from; ensure the protection combatants who seek care; and remain neutral at all times in order to regain the trust of the population. In the present context where the government is making no concessions, these trust building efforts remain a challenge.

Efforts made by the government and humanitarian agencies in the SW region to mitigate the effects of the conflict on the health sector have been fruitful to an extent. Within the region, communities are receptive to the new role CHW play and collaborate with them to receive basic health services. The collection of vaccines from the regional store by health facilities as opposed to the district has enabled the vaccination of internally displaced children at agreed locations. Unfortunately, these efforts are only concentrated in a few districts as the level of insecurity remains high in most districts in the region. Out of the region, patients on chronic medication especially ARVs have been able to collect their ARVs at other dispensing facilities. Despite these achievements, more humanitarian aid and healthcare system strengthening is required to address the needs of communities in the region. International health organisations should rethink their policy of putting travel embargos or withdrawing consultants from conflict affected areas. This restriction creates a sense of abandonment among supported health staff. In addition, it creates a gap in health system strengthening at a period when it is most needed. On the other hand, the national government should grant more access to humanitarian organisations like MSF who are willing to provide assistance in high risk zones.

Conclusions

The Anglophone crisis has interrupted health services and negatively impact the health sector in the SW region. Some operational changes by authorities on the delivery of health services can partly mitigate the negative effects of the armed conflict. Notwithstanding, a lot still has to be done; challenges such as attacks on health workers and infrastructure, financial loss due to the expiration and theft of drugs from facilities among others must be addressed by all stakeholders. National, regional and global authorities should work together to develop risk mitigating interventions in settings with armed conflicts to preserve delivery of health services. Failure to do so could result to derailment of global efforts to eliminate VPDs as well as reduce maternal and neonatal mortality.

Abbreviations

ANC	Antenatal care
ARV	Antiretroviral
BCG	Bacille Calmet Guerin
CHW	Community health workers

DTP	Diphtheria-Tetanus-Pertussis
EPI	Expanded Programme on Immunisation
GBV	Gender based violence
HD	Health district
HIV/AIDS	Human immunodeficiency virus/ Acquired immunodeficiency syndrome
IDP	Internally displaced population
IPT	Intermittent preventive treatment
NW	Northwest
PLHIV	People living with HIV
RDPH	Regional delegation of public health
RH	Reproductive health
SW	Southwest

Declarations

Ethics approval and consent to participate

The study utilized data that is routinely collected by the health authorities for programme strengthening. Therefore, ethics approval was not required for this study. However, an approval to access the data was obtained from the Regional Delegation of Public Health. All the data used in this study was anonymized

Consent for publication

Not applicable

Availability of data and material

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Author's contribution

HE conceived and designed the study. HE and CJ acquired data and wrote the first draft with supervision from BK. All authors reviewed the various drafts and approved the final manuscript.

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Dr Mbome Njie V. Southwest Regional Delegation of Health, Cameroon

Ms Leoga Mathilda K. Southwest Regional Technical Group-Expanded Programme on Immunisation, Cameroon

Mr Sielenou Franklin. Southwest Regional Technical Group-Malaria, Southwest Regional Delegation of Health, Cameroon

Mrs Nankia D. Sandrine. Southwest Regional Technical Group-HIV, Cameroon

Mrs Suka Caroline. Reproductive Health unit, Southwest Regional Delegation of Health, Cameroon

Mr Keka Frederic. Reproductive health unit, Southwest Regional Delegation of Health, Cameroon

Mr Ntsimi Brice. Health information unit, Southwest Regional Delegation of Health, Cameroon

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Tables

Table 1. Disease prevention indicators in 2018 compared to 2016 and 2017

Indicator		2016	2017	2018
Routine immunisation	BCG coverage (%)	67	87	54
	DTP3 coverage (%)	89	90	55
	DTP specific dropout rate (%)	5	7	6
Reproductive Health	Pregnant women seen at ANC 1 (%)	57.5	56.3	38.9
	HIV infected pregnant women on ART (%)	84.6	79.2	69.2
	Pregnant women who received IPT3 (%)	38.1	39.9	45.6
	Deliveries attended by a qualified personnel (%)	52.9	46.4	26.4

Figures

Figure 1

HIV/AIDS indicators for 2018 compared to 2016 and 2017.

Figure 2

Disease surveillance indicators for 2018 compared to 2016 and 2017.