

HUMAN CAPITAL AT RISK: THE IMPACT OF CONFLICT ON HEALTH AND EDUCATION IN SUDAN

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Human capital, including the knowledge, skills, and health of a population, is the foundation for economic growth and development (Lucas Jr. 1988; Mankiw et al. 1992; Pelinescu 2015). Healthcare and education stand out as critical pillars that directly enhance human capital, influencing individual well-being, workforce productivity, and development (Barro and Sala-i-Martin 1995; Schultz 2003; Hanushek and Woessman 2012). Access to quality healthcare ensures a healthy and productive population capable of contributing to economic activities, while education equips individuals with the skills and knowledge essential for innovation and global competitiveness. Together, these sectors constitute the backbone of a nation's resilience and long-term prosperity (Kim and Ahn 2020; Wang and Gu 2024).

Conflicts and wars lead to severe disruptions in healthcare and education, with long-term consequences for human capital development and economic growth (Amara and Hendricks 2009; Milton and Barakat 2016). In conflict zones, healthcare systems often collapse as a result of the destruction of infrastructure, shortages of medical supplies, and the displacement of healthcare professionals, leading to increased mortality rates and the spread of preventable diseases (Ghobarah et al. 2003; Levy and Sidel 2008; Goniewicz et al. 2023). Similarly, wars have a profound impact on education, as schools are frequently damaged or repurposed, teachers are displaced, and students are forced to abandon their studies (Lai and Thyne 2007; Justino 2011; Merrouche 2011). This disruption not only halts individual learning but also weakens the foundation for future economic productivity and societal progress (Égert and de la Maisonneuve 2024).

The eruption of war between the Sudanese Armed Forces (SAF) and the Rapid Support Forces (RSF) in mid-April 2023 has had devastating effects, crippling all service sectors in Sudan (Taha et al. 2023; Konozy 2024b). In the healthcare sector, hospitals, pharmacies, and health centers in conflict zones have been destroyed or rendered inoperable (Khogali and Homeida 2023; Al Mahdi and Fahal 2024), while medical staff have been displaced or forced to

cease work due to deteriorating security conditions. This severe disruption has resulted in acute shortages of healthcare services, rising mortality rates, and the spread of infectious diseases. Likewise, the education sector has experienced a near-total collapse. Schools and universities across the country have been closed, depriving millions of students, and thousands of teachers, of continuing the educational process (Konozy 2024a). Moreover, the war has compounded preexisting challenges in these sectors, which had already faced significant setbacks in previous years due to political instability, economic challenges, and the COVID-19 pandemic (Konozy 2024a; Ebaidalla and Nour 2021). At a time when healthcare and education were already at their most vulnerable, the outbreak of the current war has pushed these systems to the brink of collapse, even in relatively safer areas, due to severe shortages of essential supplies.

This chapter shifts the analytical lens from macroeconomic narratives of collapse to bottom-up strategies of survival and adaptation. We explore how civilians, often portrayed as passive victims, have emerged as central economic and social actors navigating a fragmented service environment. The chapter draws on new evidence from the 2024 IFPRI-UNDP Urban Households Survey, alongside qualitative data from interviews with teachers, healthcare workers, and community leaders. Together, these sources offer an integrated perspective on how communities across Sudan are grappling with the collapse of formal systems, while simultaneously devising grassroots solutions to sustain health and education access.

Building on this backdrop, this chapter assesses the impact of the war on Sudan's healthcare and education sectors. Specifically, it addresses the following key questions: How has the war affected Sudan's healthcare system, particularly regarding infrastructure destruction, supply chain disruptions, displacement of healthcare workers, and disease outbreaks? How has the education sector been impacted, including damage to schools and universities and the displacement of teachers and students? What are the long-term consequences of the conflict for human capital, such as brain drain, skill shortages, and generational setbacks in education? Finally, what strategies can support recovery and rebuilding?

The findings underscore a dual imperative: to protect existing grassroots capacities and to reimagine inclusive, decentralized systems that can thrive even in fragile contexts. In examining the erosion of health and education systems, we pay particular attention to regional disparities, gendered vulnerabilities, and the shifting roles of informal actors. We further highlight the need for policies that integrate emergency aid with long-term rebuilding of systems, with special focus on inclusivity, local engagement, and resilience-building.

The rest of this chapter is structured as follows: The next section highlights the prewar conditions, evaluating the performance of the healthcare and education sectors. This is followed by sections that analyze the war's impact on healthcare and education, focusing on infrastructure destruction, service disruptions, and the displacement of healthcare workers and educators. We then explore the long-term implications and recovery pathways, including human capital erosion and strategies for rebuilding. The chapter concludes with key findings and policy recommendations.

Preconflict state of healthcare and education

Sudan's healthcare and education sectors were fragile even before the outbreak of the current conflict. Despite some development efforts following the ouster of President Omar Al-Bashir in 2019, years of chronic underfunding, economic mismanagement, political instability, and regional inequalities left these sectors underdeveloped and poorly equipped to meet the needs of the population.

This chapter draws on secondary data and published reports, including publications from international organizations,¹ Sudan's prewar national statistics, and recent humanitarian assessments by international organizations. The analysis adopts a descriptive and comparative approach, reviewing trends before and after the outbreak of the conflict and synthesizing evidence from regional and global experiences in fragile contexts. The aim is to provide a structured assessment of how the war has disrupted service delivery and to identify feasible policy responses based on evidence from similar crisis settings.

Healthcare: Accessibility, preexisting challenges, and key performance indicators

Accessibility and preexisting challenges

By 2021, an estimated 9.2 million people—or nearly 23 percent of the population—required healthcare assistance. Access was hindered by the high cost of medicines, the weak health insurance system, and the shortage of functioning facilities. Particularly in conflict-affected areas such as Darfur, South Kordofan, and Blue Nile, healthcare infrastructure was scarce or nonexistent. Poor road

1 These include the World Health Organization, UNICEF, the United Nations Educational, Scientific and Cultural Organization, and the World Bank, among others.

infrastructure, high poverty levels, and sociocultural barriers—including distrust in modern medicine—further compounded these challenges (WHO 2025).

Staffing shortages were acute. Sudan had just 4.1 physicians and 8.2 nurses per 10,000 people (Wharton et al. 2020). The country faced a sustained brain drain, as doctors and health professionals emigrated in search of better opportunities. In addition, weak data systems, the rising burden of noncommunicable diseases, and high out-of-pocket healthcare costs further undermined access and quality (Charani et al. 2019; Ebaidalla and Ali 2019).

Government spending remained consistently low. In 2021, Sudan’s public health expenditure was estimated at just 2 percent of GDP—significantly below the average for sub-Saharan Africa. Hospitals and clinics in urban areas such as Khartoum and Port Sudan provided comparatively better services, but faced overcrowding, outdated equipment, frequent shortages of essential medicines, and understaffing. The disease burden remained high, especially communicable diseases such as malaria, tuberculosis, and diarrheal diseases. The COVID-19 pandemic further exposed weaknesses in healthcare infrastructure, overwhelming hospitals and disrupting essential services (Ebaidalla and Nour 2021).

Healthcare performance indicators

Life expectancy at birth in Sudan has improved only marginally over the last two decades, from 58.9 to 66.3 years (2000–2023), and remains significantly lower than in North African countries such as Egypt, Tunisia, and Morocco, but similar to life expectancy in Kenya and 9 years longer than in South Sudan (Table 10.1).

TABLE 10.1 Average life expectancy at birth (in years), 2000, 2010, and 2023

	2000	2010	2023	2000–2023
Algeria	70.6	74.1	76.3	5.7
Egypt	67.3	69.1	71.6	4.3
Eritrea	56.3	63.7	68.6	12.3
Ethiopia	50.9	59.7	67.3	16.4
Kenya	56.1	60.9	63.6	7.6
Morocco	66.8	70.8	75.3	8.5
South Sudan	47.6	57.5	57.6	10.0
Sudan	58.9	63.0	66.3	7.4
Tanzania	53.2	61.1	67.0	13.8
Tunisia	72.6	74.4	76.5	3.9
Uganda	49.6	60.0	68.3	18.6
Average	59.1	64.9	69.0	9.9

Source: World Bank (2025)

Sudan's infant mortality and under-five mortality rates in 2023 were also similar to those in Kenya, with infant mortality rates of 39.2 and 34.7 per 1,000 live births in Sudan and Kenya, respectively, but notably better than South Sudan (see Tables 10.2 and 10.3). Again, South Sudan's welfare indicators are the worst in the region, with mortality rates far higher than other countries in the region—an infant mortality rate of 72.6 per 1,000 live births

TABLE 10.2 Infant mortality rate (per 1,000 live births), 2000, 2010, and 2023

	2000	2010	2023	2000–2023 (% change)
Algeria	34.7	24.4	19.7	–15.0
Egypt	39.6	25.6	16.1	–23.5
Eritrea	50.8	37.5	25.5	–25.3
Ethiopia	92.2	59.3	35.7	–56.5
Kenya	63.8	41.4	34.7	–29.1
Morocco	45.2	28.2	15.5	–29.7
South Sudan	118.5	79.0	72.6	–45.9
Sudan	70.8	54.5	39.2	–31.6
Tanzania	85.3	48.5	29.9	–55.4
Tunisia	23.9	16.7	10.6	–13.3
Uganda	89.8	49.5	27.6	–62.2
Average	65.0	42.2	29.7	–35.2

Source: World Bank (2025).

TABLE 10.3 Under-five mortality rate (per 1,000 live births), 2000, 2010, and 2023

	2000	2010	2023	2000–2023 (% change)
Algeria	41.6	28.1	22.0	–19.6
Egypt	46.6	28.6	17.5	–29.1
Eritrea	85.3	55.0	35.4	–49.9
Ethiopia	140.4	83.2	46.5	–93.9
Kenya	96.3	53.5	39.9	–56.4
Morocco	52.2	31.1	16.6	–35.6
South Sudan	182.7	109.4	98.7	–84.0
Sudan	103.4	74.2	50.1	–53.3
Tanzania	128.4	68.6	38.9	–89.5
Tunisia	29.2	18.7	12.9	–16.3
Uganda	145.6	76.1	38.8	–106.8
Average	95.6	57.0	37.9	–57.7

Source: World Bank (2025).

in 2023. These trends align with findings from previous studies, such as Ebaidalla (2023) and Nour and Ebaidalla (2025), which document the worsening health conditions of children under five in Sudan.

Education: Infrastructure, systemic barriers, and key indicators

Educational infrastructure and systemic barriers

Prior to the war, Sudan's education sector faced critical challenges at all levels. Enrollment rates were among the lowest in the region, with a primary net enrollment of just 59 percent (UNESCO UIS 2025). Stark disparities persisted between urban and rural areas and between boys and girls, particularly in conflict-affected states such as Darfur and South Kordofan.

Public school infrastructure was widely inadequate. Many schools lacked basic furniture and sanitation, operated on double shifts, and were housed in dilapidated buildings. Teacher strikes, protesting unpaid salaries, were frequent, which disrupted academic calendars even before the conflict. Moreover, systemwide underinvestment plagued the sector. Public education spending in Sudan in the last decade has been around 1.2 percent of GDP, which is substantially below the sub-Saharan African average of about 4 percent of GDP (World Bank 2025). Curricula were outdated, teacher training weak, and language policy inconsistencies further complicated learning outcomes. COVID-19 intensified these issues, causing prolonged school closures and increasing dropout rates.

The higher education sector, though expanded in recent decades, also suffered. Sudan hosted 128 higher education institutions, including both public and private entities, with more than half of them concentrated in Khartoum. Academic staff exceeded 21,000, supporting nearly 670,000 students (Beshir et al. 2020). However, funding constraints under the Bashir regime resulted in salary erosion and a decline in research productivity. Many lecturers were compelled to take on secondary employment, reducing time for academic responsibilities (Elgadal and Glade 2024).

These financial and operational challenges were compounded by political unrest from 2018 onward as well as pandemic-related disruptions. As a result, even before the war, Sudan's education system was marked by fragmentation, inequality, and declining performance. These vulnerabilities left the sector ill-prepared to withstand the devastation that followed the April 2023 conflict.

Educational indicators: Enrollment and literacy rates

Quantitative indicators reflect the structural weaknesses in Sudan's education system prior to the conflict. Figure 10.1 presents comparative enrollment rates for Sudan and selected countries in North and East Africa from 2000 to 2022. While countries such as Morocco and Kenya achieved preprimary enrollment rates of about 56 percent, Sudan recorded just 33 percent, evidence of Sudan's significant lag in early childhood education. This low coverage reflects socioeconomic barriers to education, such as widespread poverty and the high cost of early education (Ebaidalla 2018; Ebaidalla and Rakhy 2024).

At the primary level, Sudan consistently recorded the lowest enrollment rates in the region (except for South Sudan), reflecting chronic underperformance and limited school access. Secondary school enrollment was approximately 40 percent, ranking below most East African comparators, which highlights the elevated dropout rates driven by low household incomes, insecurity, and child labor. At the tertiary level, Sudan's enrollment rate stood at 12.5 percent, again trailing behind countries such as Egypt and Libya, reflecting affordability issues, capacity constraints, and regional disparities in access to universities.

Literacy indicators paint a similarly grim picture. As Figure 10.2 shows, Sudan's adult literacy rate was just 60.7 percent in 2018—ranking only above Ethiopia within the comparison group. This persistent illiteracy points to the cumulative effects of low enrollment, poor education quality, and systemic barriers to learning across decades. Together, these figures underscore the dire state of Sudan's education system on the eve of war and the need for long-term structural reform.

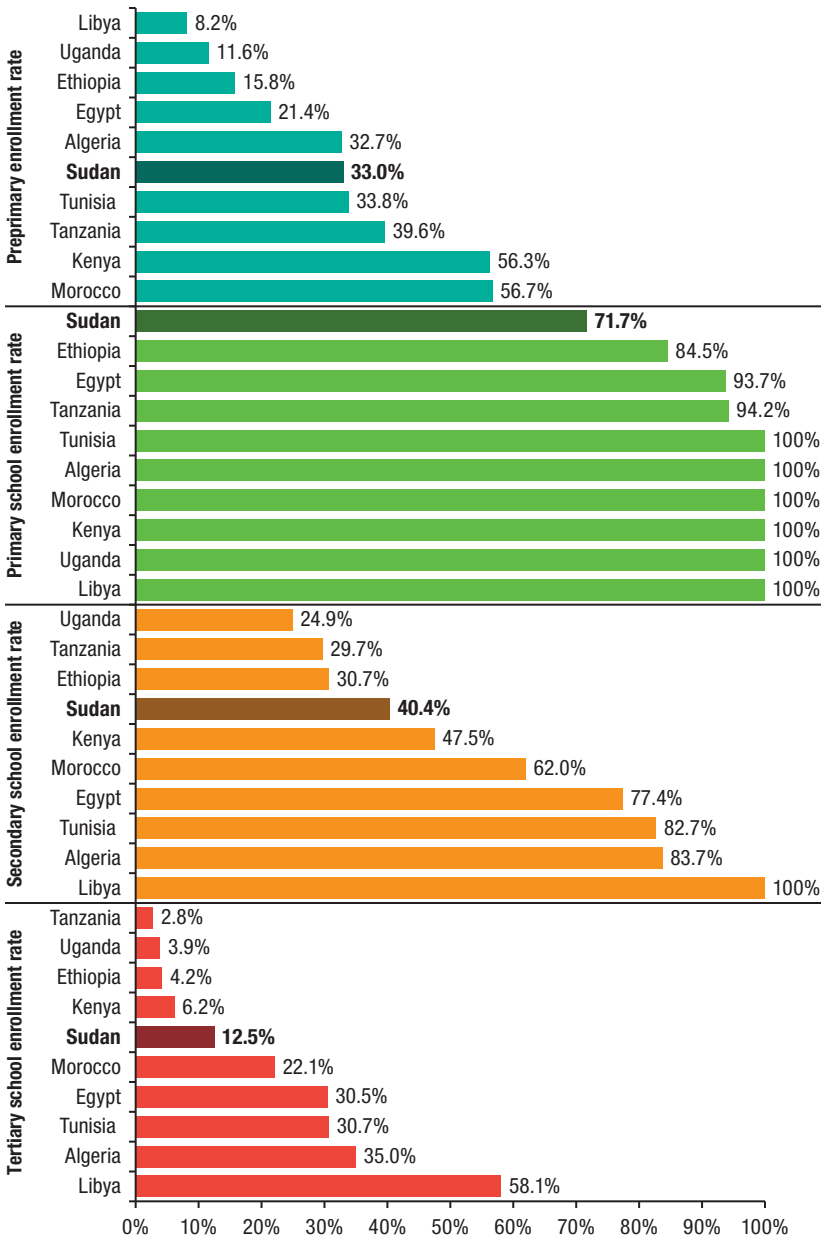
Impact of the war on healthcare

The conflict that erupted in April 2023 has pushed Sudan's healthcare system to the brink of collapse. Igniting amid chronic underinvestment and preexisting workforce shortages, the war has compounded existing vulnerabilities, leading to a near-total breakdown of essential services, especially in Khartoum, Aj Jazirah, and Darfur.

Destruction of infrastructure and supply chain disruptions

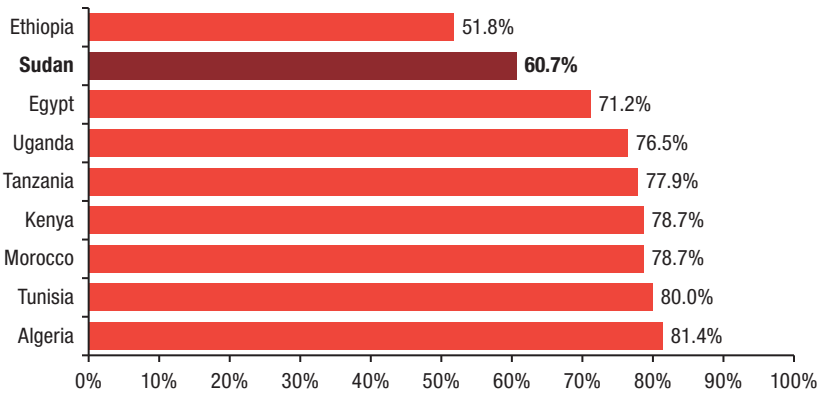
According to the World Health Organization (WHO), approximately 70 percent of healthcare facilities in conflict-affected areas have been destroyed or forced to close, leaving an estimated 11 million people in urgent

FIGURE 10.1 Enrollment rate by educational level, average 2000–2022 (percent)



Source: World Bank (2025).

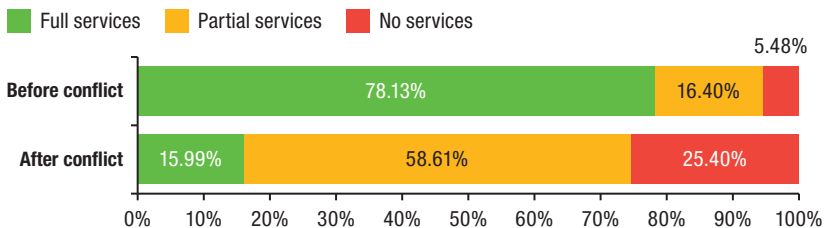
FIGURE 10.2 Literacy rate, adult total (percentage of people ages 15 and above), 2018



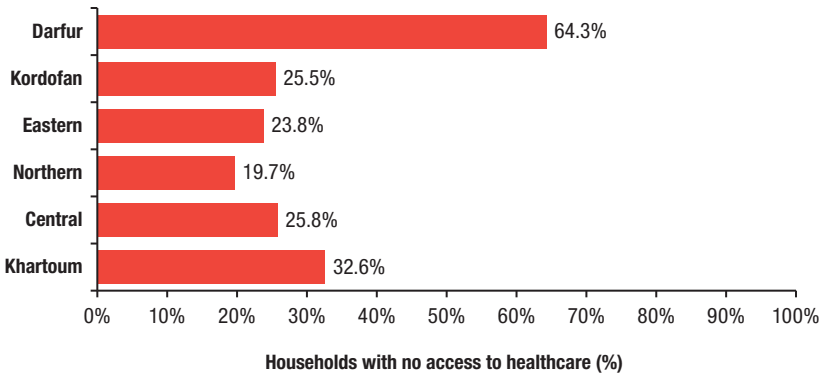
Source: World Bank (2025).

need of medical assistance (WHO 2024). The Safeguarding Health in Conflict Coalition (SHCC), an international consortium of humanitarian and medical organizations that monitors attacks on healthcare in conflict settings, recorded 521 attacks on healthcare services, including the occupation of health facilities on at least 41 occasions (Insecurity Insight 2024). Data from the 2024 IFPRI Urban Household Survey reveals a sharp decline in access to healthcare: while 78 percent of households reported having full access to health services before the war, only 15 percent maintained such access after the conflict began, and nearly one-quarter (24.6 percent) reported no access at all (Figure 10.3).

FIGURE 10.3 Households’ reported ability to obtain health services before and during the conflict



Source: Authors’ compilation from 2024 IFPRI-UNDP Urban Households Survey.

FIGURE 10.4 Urban households reporting no access to health services, by region

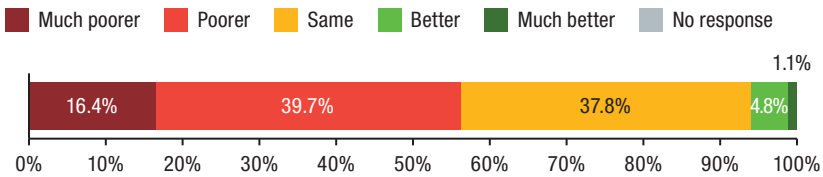
Source: Authors' compilation from 2024 IFPRI-UNDP Urban Households Survey.

Supply chain disruptions have been driven by insecurity, destruction of transport infrastructure, and looting. The World Food Programme reported losses of US\$13–14 million in medical supplies, while SHCC estimated a \$500 million loss in essential medical resources. The survey shows stark regional disparities in unmet health needs. As shown in Figure 10.4, urban households in Darfur reported the highest levels of no access (64.3 percent), followed by Khartoum (32.6 percent). Regions such as the River Nile and Gedaref experienced relatively better access to healthcare, reflecting their relatively lower exposure to conflict compared to other regions.

Displacement of healthcare workers and its effects

Prior to the war, Sudan already faced health worker shortages; for example, there were only 3.6 physicians per 10,000 people. The war worsened the situation through mass displacement and targeted attacks on health workers. SHCC documented the deaths of 56 healthcare workers, with many others abducted or threatened (Insecurity Insight 2024). Hospitals were looted or occupied, and medical training institutions shut down—undermining the pipeline for future health professionals.

This exodus has contributed to one of Africa's most acute cases of medical brain drain, with many Sudanese professionals migrating to Gulf states. Those who remained have often worked under threat or in severely resource-constrained environments, particularly in conflict hotspots including Khartoum and Darfur.

FIGURE 10.5 Urban households' own rating of current health status relative to before the conflict

Source: Authors' compilation from 2024 IFPRI-UNDP Urban Households Survey.

Public health outcomes: Disease, malnutrition, and maternal health

Widespread service disruption has contributed to a quadruple burden of disease—rising communicable diseases, noncommunicable diseases, malnutrition, and mental health challenges. WHO (2024) reports that 12 of 18 Sudanese states are experiencing three or more disease outbreaks concurrently. Cholera alone has sickened 9,500 people and caused 315 deaths, while dengue fever has been recorded in 12 states.

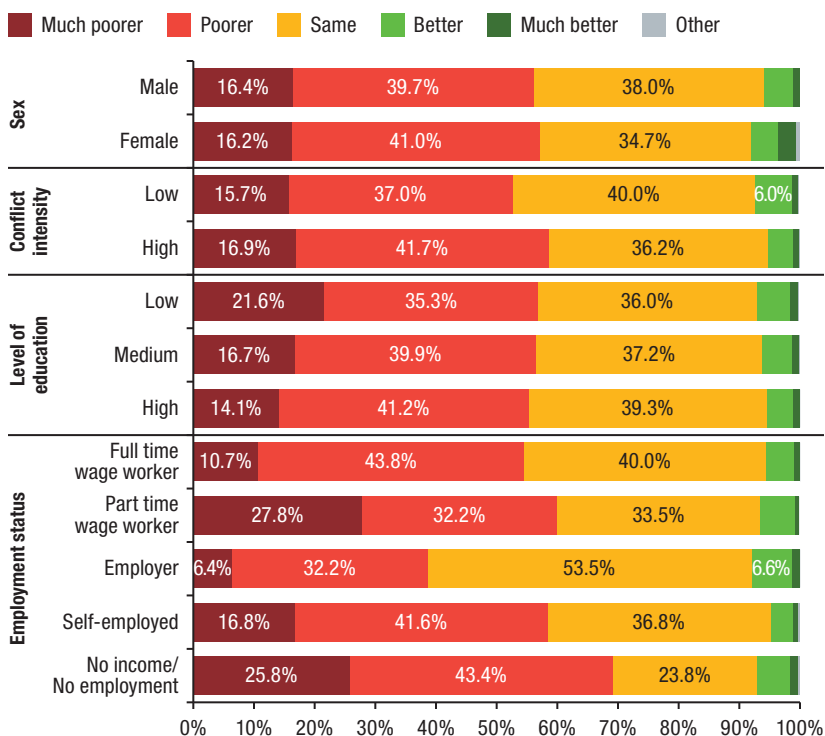
Child and maternal health outcomes have worsened rapidly. According to Médecins Sans Frontières, 114 maternal deaths were reported in South Darfur alone by mid-August 2024 (Doctors Without Borders 2024). Immunization programs were suspended when cold chain facilities were looted and vaccine stockpiles destroyed. SHCC estimates that more than 700,000 children face malnutrition amid rising food insecurity and the shutdown of nutrition services.

The IFPRI-UNDP Survey underscores that vulnerable groups—the poor, unemployed, and less educated—report significantly worse health outcomes. In highly affected regions, 39.7 percent of respondents said their health status had become “poorer” and 16.4 percent reported it was “much poorer” (Figure 10.5).

Households with better employment status (for example, self-employed) showed greater resilience, likely due to stronger financial coping mechanisms and better access to care (Figure 10.6).

Impact of the war on education

The ongoing war has triggered one of the worst education crises globally. Sudan now has the highest number of out-of-school children worldwide.

FIGURE 10.6 Urban households' health status by household characteristics

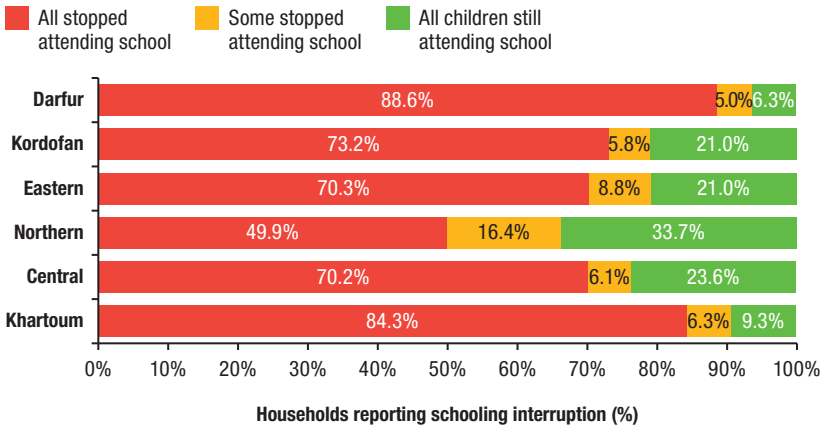
Source: Authors' compilation from 2024 IFPRI-UNDP Urban Households Survey.

The disruption has affected nearly every region, destroying physical infrastructure, displacing educators and students, and leaving an entire generation at risk.

School closures and infrastructure damage

More than 10,400 schools have closed, leaving 19 million children without access to formal education (UNICEF 2023). Results from 2024 IFPRI-UNDP survey show that school disruptions were widespread across Sudan, affecting households across all socioeconomic groups. Overall, dropout rates exceeded 80 percent in several regions, particularly Darfur and Khartoum, where 88.6 percent and 84.3 percent of households with school-going children, respectively, reported that all children had stopped attending school (Figure 10.7). In Kordofan and Central Sudan, the share of households

FIGURE 10.7 Distribution of households with school-age members and status of enrollment, by region

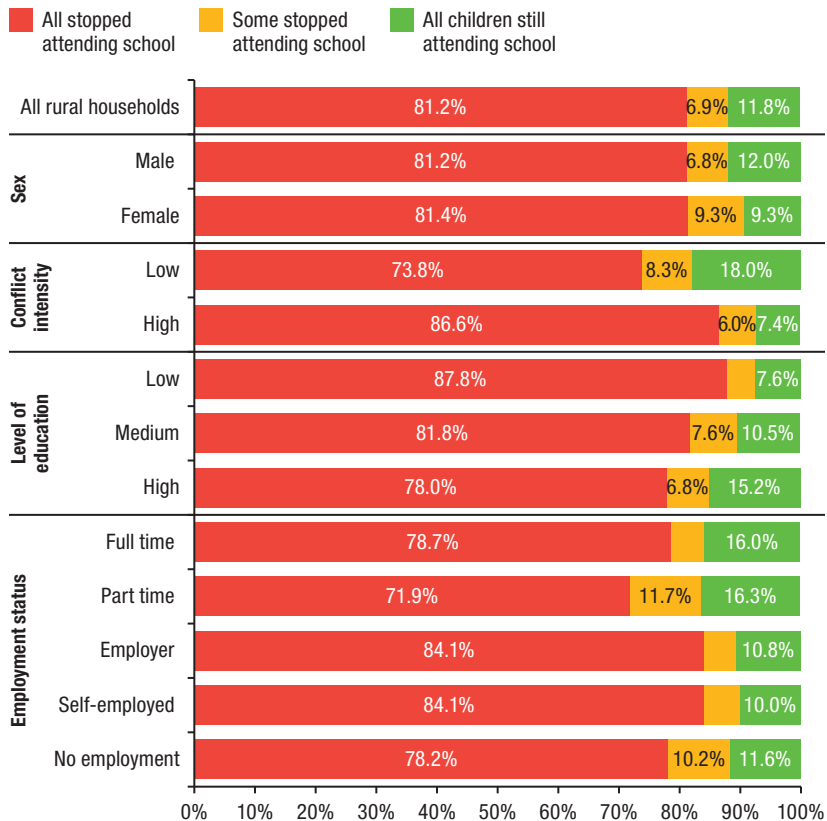


Source: Authors' compilation from 2024 IFPRI-UNDP Urban Households Survey.

reporting that all children had stopped schooling was also very high, at 73.2 percent and 70.2 percent, respectively. Even in relatively more stable regions such as eastern Sudan, 70.3 percent of households reported complete school dropout, with only 21 percent indicating that their children were still enrolled.

Northern Sudan presented somewhat lower rates of full dropout (49.9 percent), but nearly one-fifth of households (16.4 percent) reported partial dropout, reflecting closures, insecurity, or the use of schools as shelters. While a small share of households across all regions managed to keep children enrolled, these were typically concentrated in pockets with greater stability or access to private/community schooling.

Analysis further shows that school interruptions affected nearly all rural household groups, with more than 75 percent of children stopping schooling regardless of household characteristics (Figure 10.8). Differences by sex of household head and education level were modest, though households with higher education were slightly more likely to keep children in school (15 percent still attending compared to 7–10 percent among others). Conflict intensity and employment status, however, show clearer patterns: in low-intensity conflict areas, 18 percent of households reported children still in school, compared to only 7 percent in high-intensity zones. Similarly, part-time and non-employed households experienced the highest dropout rates, while

FIGURE 10.8 Households with school-age members and status of enrollment, by selected household characteristics

Source: Authors' compilation from 2024 IFPRI-UNDP Urban Households Survey.

households with more stable employment were somewhat better positioned to maintain schooling (Figure 10.8). Overall, the results underscored that while school dropout was widespread, socioeconomic conditions and conflict intensity shaped the degree of disruption.

Teacher and student displacement

The ongoing war in Sudan has forced mass migration from conflict-affected regions, including thousands of teachers and students. As of February 2026, the United Nations High Commissioner for Refugees reported that nearly 12 million people had been forcibly displaced, with 4.5 million fleeing to

neighboring countries, and 7 million internally displaced within Sudan (UNHCR 2026). This widespread displacement has completely disrupted the continuity of education (Elhag and Baleela 2025).

Educators and students who fled to countries such as Egypt, South Sudan, Ethiopia, and Uganda face a host of challenges. In Egypt, Sudanese academics encounter a saturated and underfunded higher education system, leaving many unable to secure employment. Students, meanwhile, are confronted with high tuition fees and complex bureaucratic processes that inhibit continued learning. In Uganda and other host countries, restrictions on employment and inadequate recognition of academic qualifications—especially for those whose studies were interrupted—further complicate the integration of Sudanese refugees into host-country education systems (Elgadal and Glade 2024).

Moreover, the use of more than 3,000 schools as shelters for displaced families has constrained the availability of learning spaces, even in regions with relatively lower conflict intensity (UNICEF 2024). Teachers who relocated to safer cities in Sudan face uncertain futures, with most no longer receiving salaries and many forced to accept low-skilled or informal jobs to survive.

Gendered impacts and inequality

Gender inequality in Sudan, particularly in education, is deeply rooted in patriarchal norms that restrict female autonomy and participation. Despite decades of efforts by women and girls to challenge these norms through literacy programs and educational advancement, traditional barriers—especially in rural areas—continue to constrain their access to schooling (Ebaidalla and Rakhy 2024). Early marriage, long distances to schools, and the prioritization of male education are longstanding impediments (Taha 2021), all of which are magnified in times of conflict.

The war has dramatically increased girls' vulnerability to school dropout, sexual exploitation, and early marriage. Hyperinflation, widespread poverty, and the breakdown of educational infrastructure have driven families to withdraw girls from school, often compelling them into early marriage as a coping mechanism. According to UNICEF (2024), girls who are out of school face a significantly greater risk of child marriage than their peers who remain enrolled.

Gender-based violence has also surged in conflict-affected areas. The Human Rights Council's Fact-Finding Mission on Sudan documented systematic sexual and gender-based violence, including widespread incidents of rape and gang rape committed by armed actors. Victims range from age 8 to 75, with women and girls constituting the majority of reported victims. These

violations further diminish their ability to access safe education or medical services (UNHRC 2024).

The compounding effect of displacement, poverty, and insecurity has resulted in a deepening gender gap in education access, with long-term implications for female empowerment, community resilience, and human capital development in Sudan.

Long-term implications and pathways to recovery

Human capital erosion: Brain drain, skill gaps, and generational effects

International experience shows that postconflict societies often take decades to rebuild lost human capital. Rwanda, Liberia, Sierra Leone, and Syria all faced prolonged brain drain, skill shortages, and setbacks in education and health services despite international support (Collier 2008; Roy-Campbell 2005; Sesay and Ukeje 2009; Tigau 2019).

Sudan now faces a similar challenge. Nearly two years into the war, widespread displacement of skilled professionals—especially in healthcare and education—has deepened the country’s human capital crisis. Thousands of doctors, nurses, professors, and researchers have fled to neighboring and Western countries to escape insecurity and economic collapse (Omar et al. 2024; Saleh et al. 2024).

Once peace is achieved, this exodus threatens to derail postwar recovery, as the departure of professionals creates urgent service gaps. With universities and training institutions either closed or severely impaired, replenishing lost skills will be difficult. The compound effect of workforce loss, institutional breakdown, and prolonged school closures risks generating long-term deficits across critical sectors. The generational effects of the war are particularly alarming. Millions of children and youth have lost access to education, risking a decline in literacy, productivity, and national growth. Research shows that disruptions to education can limit intergenerational mobility and deepen poverty (Justino 2012; Haveman et al. 2015). Without urgent interventions, Sudan could face a “lost generation”—one unable to contribute meaningfully to future recovery.

Role of international and local actors in rebuilding

Rebuilding Sudan’s education and healthcare systems will require sustained collaboration among international partners, government institutions,

civil society, and the diaspora population. Multilateral organizations such as the United Nations (UN), WHO, and UN Educational, Scientific and Cultural Organization (UNESCO) are critical for mobilizing immediate aid, technical expertise, and long-term funding (Collier and Hoeffler 2004; Buckland 2005).

Humanitarian nongovernmental organizations (NGOs) and local initiatives can also bridge immediate service gaps. Their deep community ties enable culturally responsive delivery of healthcare and education. During the ongoing conflict, NGOs have played a vital role in reaching displaced populations, particularly in eastern and northern Sudan.

The Sudanese diaspora presents an underutilized but vital asset. Many skilled professionals abroad can be reengaged through strategic programs that offer incentives, reintegration pathways, or virtual collaboration opportunities. For instance, Rwanda and Sierra Leone implemented diaspora engagement programs that facilitated investment, temporary return, and remote service delivery through telemedicine and education (IOM 2018a; 2018b).

Community-based strategies for education and health recovery

Given the destruction of healthcare infrastructure and the severe disruption to education, recovery efforts should prioritize low-cost, context-appropriate approaches with proven effectiveness in fragile and resource-constrained settings (Banerji and Chavan 2020). In the education sector, the Teaching at the Right Level (TaRL)² approach offers an evidence-based method to help children who have missed months or years of schooling to catch up. Instead of following rigid age- or grade-based instruction, TaRL groups students according to their actual learning levels and focuses on building foundational literacy and numeracy skills (J-PAL 2018). This method has improved learning outcomes across countries and, as it can be delivered by teachers or trained volunteers, is well-suited for conflict-affected contexts like Sudan.

In the health sector, strengthening the role of community health workers (CHWs) presents a feasible and effective strategy. CHWs can provide essential health services, preventive care, and health education directly within communities, especially where health facilities have been damaged or are inaccessible (Perry et al. 2021). Evidence demonstrates that CHWs improve access and outcomes in fragile, low-resource contexts (Gilmore and McAuliffe 2013). Adopting CHW programs in Sudan would help sustain primary healthcare delivery and build resilience at the community level.

2 See <https://teachingattherightlevel.org/>

Conclusion and recommendations

The armed conflict has devastated Sudan's healthcare and education systems, inflicting long-term damage on the country's human capital. Widespread destruction of infrastructure, displacement of professionals, and severe shortages in essential services have brought both sectors near collapse.

In healthcare, hospitals and clinics have been destroyed or rendered inoperable. Displacement and targeted attacks on medical personnel have left millions without access to essential care. Disruptions in supply chains have caused critical shortages of medicines, vaccines, and equipment. The breakdown of public health infrastructure has fueled disease outbreaks, rising mortality, and maternal and neonatal complications, particularly in conflict-affected and displaced communities.

The education sector has experienced similar devastation. The prolonged closure of schools and universities has disrupted the learning trajectories of millions of students. Displaced teachers and damaged infrastructure have deepened inequality in access—especially among marginalized groups, including girls and rural communities. If unaddressed, these disruptions risk producing a “lost generation” with limited prospects for recovery or social mobility. Compounding this crisis is a massive brain drain. The migration of doctors, educators, and researchers has created acute skills gaps. With training institutions shuttered, and professional pipelines broken, Sudan faces long-term deficits in expertise essential for rebuilding its public services and economy.

Policy recommendations for recovery and resilience

To restore essential services, rebuild human capital, and foster long-term resilience, the following priority actions should be considered:

1. Strengthen partnerships with multilateral agencies (for example, WHO, UNESCO, and UNICEF) to mobilize financial resources, technical assistance, and policy support.
2. Empower community-based organizations and NGOs to deliver locally responsive healthcare and education services in the absence of formal infrastructure.
3. Improve governance and sector resilience through transparent planning, accountability mechanisms, and crisis contingency strategies.

4. Retain and reintegrate skilled professionals, including diaspora members, through targeted incentives and remote engagement initiatives.
5. Ensure inclusive, gender-sensitive programming, prioritizing access for girls, persons with disabilities, and internally displaced populations.
6. Integrate mental health and psychosocial support into recovery plans, with community outreach, training, and stigma reduction efforts.
7. Invest in teacher training and modernized curricula to address learning loss and promote quality education in recovery settings.
8. Establish a National Human Capital Task Force to coordinate health-care and education recovery, streamline resource allocation, and oversee long-term rebuilding efforts.
9. Implement TaRL to support catch-up learning and restore foundational skills among conflict-affected children.
10. Expand and support CHW programs to sustain essential healthcare delivery in areas with damaged or inaccessible facilities.

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