

HEALTH, NUTRITION, AND SOCIOECONOMIC CONDITIONS AMONG DISPLACED PERSONS IN SUDAN: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Displacement in Sudan due to conflict and environmental challenges has caused substantial disruption in health, food security, and livelihoods. **Objective:** To assess the health, nutrition, and socioeconomic status of internally displaced persons (IDPs) in Sudan. **Methods:** A cross-sectional survey of 30 displaced individuals was conducted using structured interviews. Data on demographics, chronic disease status, dietary practices, economic dependency, and diabetes control were collected and analyzed descriptively. **Results:** Most participants were male (83.3%) and aged 18–24 years (60%). About 75% had diabetes or hypertension, and 80% depended on food aid. Dietary habits were limited to low diversity, with most eating two to three meals per day. Post-displacement illnesses included malaria and respiratory infections. Despite high education levels (87% university educated), economic conditions were poor. **Conclusion:** Internally displaced persons in Sudan face multiple intersecting challenges in health, diet, and economic stability. Urgent multi-sectoral interventions are needed to improve their well-being and long-term resilience.

KEYWORDS: Internally Displaced Persons (IDPs), Nutrition, Chronic Diseases, Food Insecurity, Sudan.

INTRODUCTION

Sudan, a country marked by decades of political instability and conflict, faces a humanitarian crisis characterized by widespread internal displacement. According to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), over 5 million individuals are currently internally displaced across Sudan due to armed conflict, climate-induced disasters, and ethnic violence.⁽¹⁾ Internally displaced persons (IDPs) often reside in overcrowded camps or temporary shelters with limited access to healthcare, education, clean water, and food security.^(2,3) The displacement crisis has had profound implications for the health and nutritional status of affected populations. Evidence suggests that IDPs are at increased risk for both communicable and non-communicable diseases (NCDs), especially in environments where health services are either absent or severely under-resourced.^(4,5) Nutritional deficiencies are common, with micronutrient inadequacies—particularly iron, vitamin A, and zinc—contributing to anemia, poor immunity, and delayed growth in children.^(6–8) In Sudan, malnutrition and chronic diseases such as hypertension and diabetes are becoming increasingly prevalent even among displaced populations,

reflecting a double burden of disease.^(9,10) Food insecurity has been exacerbated by disrupted agricultural systems, rising food prices, and dependency on external food aid that may lack dietary diversity.^(11–13) Studies from South Sudan, Nigeria, and the Democratic Republic of Congo also show similar trends, where displaced populations suffer from high levels of undernutrition, obesity, and poor glycemic control.^(14–16) Psychosocial stress, reduced income opportunities, and deteriorating sanitation further compound health risks.^(17,18) IDPs, despite sometimes having high educational attainment, face systemic barriers in accessing employment, healthcare, and social support.^(19–21) This disconnect between education and opportunity leads to frustration, marginalization, and vulnerability to health decline.⁽²²⁾ While international organizations such as the World Food Programme (WFP) and Médecins Sans Frontières (MSF) have provided short-term aid, long-term solutions are often lacking.^(23, 24) There is a gap in national and regional data specifically addressing the intersection of health, nutrition, and socioeconomic status among Sudanese IDPs, which this study aims to fill. This research therefore explores the demographic characteristics, health challenges, dietary

patterns, and economic status of a sample of displaced individuals in Sudan, with a focus on chronic diseases and food security. The findings aim to guide both policy and humanitarian action targeting displaced communities.

MATERIALS AND METHODS

A **cross-sectional descriptive study** was conducted to assess the health, nutritional, and socioeconomic status of internally displaced persons (IDPs) in Sudan. A structured questionnaire was developed and administered to **30 respondents** using face-to-face interviews. The sample consisted of displaced individuals selected conveniently from a designated IDP settlement. Data were collected on demographics, chronic disease prevalence (e.g., diabetes and hypertension), food consumption patterns, post-displacement health conditions, economic dependency, and diabetes management.

Variables included:

- **Demographic characteristics** (age, gender, marital status, education level)
- **Health status** (chronic disease diagnosis, infections)
- **Dietary habits** (meal frequency, types of food consumed)
- **Economic indicators** (employment status, food aid dependence)
- **Diabetes management** (type of medication, blood glucose control)

Data were entered and analyzed using Microsoft Excel, and findings were presented using descriptive statistics such as frequencies and percentages.

RESULTS

Table 1: Demographic Characteristics of Respondents (N=30).

Variable	Category	Frequency	Percentage (%)
Age Group	18–24 years	18	60%
	25–34 years	6	20%
	35–44 years	4	13.3%
	>44 years	5	16.7%
Gender	Male	25	83.3%
	Female	6	16.7%
Marital Status	Single	25	83.3%
	Married	6	16.7%
Family Size	1 person	–	24%
	4 persons	–	48%
	7 persons	–	41%
Education Level	Illiterate	–	7%
	Primary (Basic)	–	17%
	Secondary	–	21%
	University	–	87%

Age Distribution: The majority of participants (60%) were young adults aged 18–24 years, indicating a predominantly youthful population. This age group is typically more mobile and vulnerable to the impacts of displacement. **Gender:** A large majority were **male (83.3%)**, suggesting that either males are more likely to migrate or participate in surveys, or that the sample was skewed. **Marital Status:** Most respondents were **single (83.3%)**, aligning with the young age profile and possibly indicating fewer family-related responsibilities. **Family Size:** Though exact frequencies were not provided, nearly half of the respondents reported living in families of 4 persons (48%), with a significant portion (41%) in larger households of 7 persons. This may suggest economic burden and the need for adequate resources. **Education Level:** A high percentage (87%) reported **university-level education**, which is unusually high and may reflect a selected or urbanized subgroup. It also suggests potential for resilience or adaptability, but the mismatch between education and economic hardship is notable.

Table 2: Health and Disease Conditions of Respondents.

Health Condition	Yes (%)	No (%)
Diagnosed with diabetes or hypertension	75%	25%
Regular checkup for diabetes	68%	32%
Experienced weight loss	68%	32%
Post-displacement malaria infection	10%	–
Post-displacement dengue fever	7%	–
Post-displacement respiratory illnesses	4%	–

Chronic Diseases: 75% reported being diagnosed with either diabetes or hypertension, indicating a high burden of non-communicable diseases (NCDs). This could be due to stress, poor diet, or disrupted healthcare access post-displacement. **Healthcare Access:** Despite the high prevalence, only 68% regularly check for diabetes, pointing to gaps in healthcare follow-up or availability. **Weight Loss:** Another 68% experienced weight loss, which could be due to malnutrition, stress, or illness after displacement. **Infectious Diseases Post-Displacement:** A smaller proportion experienced malaria (10%), dengue fever (7%), and respiratory illness (4%), suggesting that while infectious diseases were present, they were not the most prevalent health burden—unlike chronic diseases.

Table 3: Dietary Habits Before and After Displacement.

Dietary Indicator	Category	Percentage (%)
Type of food consumed	Vegetables and grains	37%
	Meat and fruits	75%
Number of meals per day	2 meals	41%
	3 meals	65%
	4 or more meals	7%

Diet Type: 75% consumed meat and fruits, and 37% consumed vegetables and grains. These overlapping percentages suggest mixed diets, but potentially low intake of grains and vegetables, which may impact fiber, iron, and vitamin intake. Meal Frequency: While 65% had 3 meals/day, a significant 41% reported only 2 meals/day, which may indicate food insecurity, irregular meal availability, or changes due to displacement.

Table 4: Economic Status of Respondents.

Economic Indicator	Category	Percentage (%)
Dependence on food aid	Yes	80%
Perception of lack of access to healthy food	Yes	62%
Financial condition	Poor	52%
	Good to moderate	62%
Number of working individuals in the household	1 person	72%
	4 or more persons	21%

Food Aid Dependency: A striking 80% depended on food aid, underscoring high vulnerability and lack of food self-sufficiency. Access to Healthy Food: 62% perceived limited access, which may worsen chronic diseases like diabetes. Financial Condition: Over half reported poor financial condition (52%), yet 62% also reported good to moderate status, indicating perceptual or situational differences, possibly due to remittances or social support in some cases. Workforce: In most households, only 1 person worked (72%), reflecting underemployment or high dependency ratios.

Table 5: Diabetes Medication and Blood Sugar Control.

Medication Type for Diabetes Control	Percentage (%)
Oral pills	51%
Insulin injections	28%
Blood sugar 80–180 mg/dL	75%
Blood sugar >180 mg/dL	17%

Medication Use: 51% use oral medications, and 28% use insulin, showing standard treatment practices but raising questions about adherence and access to insulin in

displaced settings. Blood Sugar Control: 75% had blood glucose within the target range (80–180 mg/dL), indicating relatively good short-term control, although 17% remained uncontrolled (>180 mg/dL), possibly due to irregular access to food, stress, or medication.

DISCUSSION

The findings from this study underscore the multidimensional challenges faced by internally displaced persons in Sudan. The prevalence of chronic diseases such as diabetes and hypertension among the IDPs surveyed (75%) is alarming, particularly in an environment with limited medical infrastructure.⁽²⁵⁾ These findings are consistent with studies from other displacement contexts in sub-Saharan Africa where the burden of NCDs has been shown to be rising.^(26, 27) Poor dietary diversity and meal frequency were observed among the respondents, with 75% consuming primarily meat and fruit and only 7% reporting four or more meals per day. This reflects a reliance on irregular food aid or coping strategies, often leading to imbalanced nutrition.^(28, 29) Studies in Ethiopia and Yemen reported similar reductions in food variety and caloric intake among displaced communities, further validating these findings.^(30, 31) Despite 87% of respondents reporting university-level education, a high proportion remained unemployed or underemployed, suggesting that displacement impairs labor market participation regardless of education.⁽³²⁾ This phenomenon has been documented in Syria and Iraq, where educated IDPs were unable to secure formal employment due to legal, logistical, or linguistic barriers.^(33, 34) Dependence on food aid (80%) was also consistent with findings from the Food and Agriculture Organization (FAO) and WFP reports which highlight ongoing reliance on humanitarian support in Sudan.^(11, 35) The limited presence of working family members (72% reported only one working person per household) suggests increased economic vulnerability and a diminished capacity for resilience. The post-displacement incidence of malaria (10%), dengue fever (7%), and respiratory illnesses (4%) in this study reinforces the broader narrative of IDP camps being hotspots for infectious disease outbreaks due to overcrowding and inadequate vector control.^(7, 18) Access to clean water, sanitation, and health education remains critical in reducing this burden. Encouragingly, many diabetic patients were attempting blood glucose control, with 75% maintaining levels within 80–180 mg/dL. However, 17% still had poorly controlled diabetes, likely due to inconsistent access to insulin, glucometers, and follow-up care.^(9, 10) This study contributes new evidence to the limited body of research focused on the intersectionality of chronic disease, nutrition, and economic status among Sudanese IDPs. Given the rising prevalence of NCDs in humanitarian settings, there is a pressing need to integrate chronic disease screening and treatment into relief programs, alongside basic nutrition and food aid interventions.^(13, 24, 27)

CONCLUSION

This study highlights the multifaceted vulnerabilities faced by internally displaced persons in Sudan. The prevalence of chronic diseases, inadequate dietary diversity, and economic hardship among respondents points to urgent public health concerns. Despite relatively high education levels, many IDPs remain economically marginalized, indicating systemic barriers beyond individual qualifications. The findings emphasize the need for comprehensive, integrated responses that go beyond short-term humanitarian assistance to address long-term health and social inclusion.

ETHICAL CONSIDERATIONS

This study was conducted without prior formal ethical approval due to constraints related to the displacement context. However, verbal informed consent was obtained from all participants before interviews were conducted. Participant confidentiality and data anonymity were strictly maintained, and the study adhered to basic principles of respect and voluntary participation.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest related to this study.

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