ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 11| Issue: 11| November 2025|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2025: 8.691 || ISI Value: 1.188

DIARRHEAL DISEASES AMONG CHILDREN UNDER FIVE IN KOSTI, SUDAN – 2024

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ABSTRACT

Diarrheal diseases remain a leading cause of morbidity and mortality among children under five years of age, particularly in low-resource settings. This study, conducted in Kosti, Sudan, in 2014, aimed to assess the prevalence, risk factors, and health outcomes associated with diarrheal illnesses in this vulnerable population. A cross-sectional survey was carried out involving 384 caregivers of children under five, selected through systematic random sampling from households across urban and peri-urban areas of Kosti. Data were collected using structured questionnaires and analyzed to identify key determinants such as water, sanitation, hygiene (WASH) practices, feeding patterns, and healthcare-seeking behaviors. The findings revealed a high two-week prevalence of diarrhea (approximately 22%), with significant associations observed between diarrheal episodes and inadequate access to safe drinking water, poor sanitation facilities, lack of handwashing with soap, and early cessation of breastfeeding. Children from households with lower socioeconomic status were disproportionately affected. The study underscores the urgent need for integrated public health interventions targeting WASH infrastructure, maternal education, and community-based health promotion to reduce the burden of diarrheal diseases among under-five children in Kosti. These results provide valuable evidence to inform local and national policies aimed at achieving child health targets under the Sustainable Development Goals.

KEY WORDS: *Diarrheal Diseases,*

BACKGROUND

Omar et al. (2019): Social and economic factors, including poverty, education, and access to healthcare, significantly impact diarrhea spread among children. Low socioeconomic households often lack access to clean water and sanitation facilities, increasing the risk of diarrhea. Mohamed et al. (2021): Children from families with insufficient water supplies in White Nile State are three times more likely to suffer from diarrhea compared to those with access to improved water sources. Maternal education plays a crucial role in child health outcomes, as educated mothers are more likely to adopt practices that reduce diarrhea risk (Elgali et al., 2022). Survey in Mbour (February-March 2014): A cross-sectional survey to estimate the burden of diarrheal diseases (episodes in the two weeks before the survey) and associated risk factors. Data from 596 households revealed significant associations between diarrhea and factors such as maternal unemployment and improper waste disposal. Study in Cochabamba, Bolivia (2008): Examined the relationship between diarrhea prevalence in children and caregivers' knowledge of diarrhea causes and prevention. Found that a lack of awareness about handwashing with soap and proper food handling significantly increased diarrhea risk. 7 UNICEF Warning (August 2022): Highlighted the deadly combination of severe acute malnutrition and waterborne diseases like cholera and diarrhea, exacerbated by a lack of safe drinking water in regions like the Horn of Africa and the Sahel. Systematic Review in Africa (2013-2023): Found that diarrheal disease burden varied across the continent, influenced by factors such as age, gender disparities, maternal occupation, child waste disposal practices, and economic status. Cross-sectional Study in Gonder, Ethiopia (January 2023): Evaluated diarrhea prevalence and its determinants among children in flood-prone areas, finding significant associations with environmental and sanitation factors.

MATERIALS AND METHODS

Study Design, Descriptive analytical study, the Study covered all seasons, with a special focus on the flood period. Research Population, Children under five years of age reside in Kosti, Block (41).Sample Size was determined based on Krejcie and Morgan's formula to ensure adequate representation. Sampling Method: Stratified random sampling to ensure equal representation of all groups in the target community.

DATA COLLECTION

Questionnaires: To collect quantitative data on health status and environmental and social factors. o Personal Interviews to gather qualitative data and understand the social and cultural context of the target community. Direct Observation to observe

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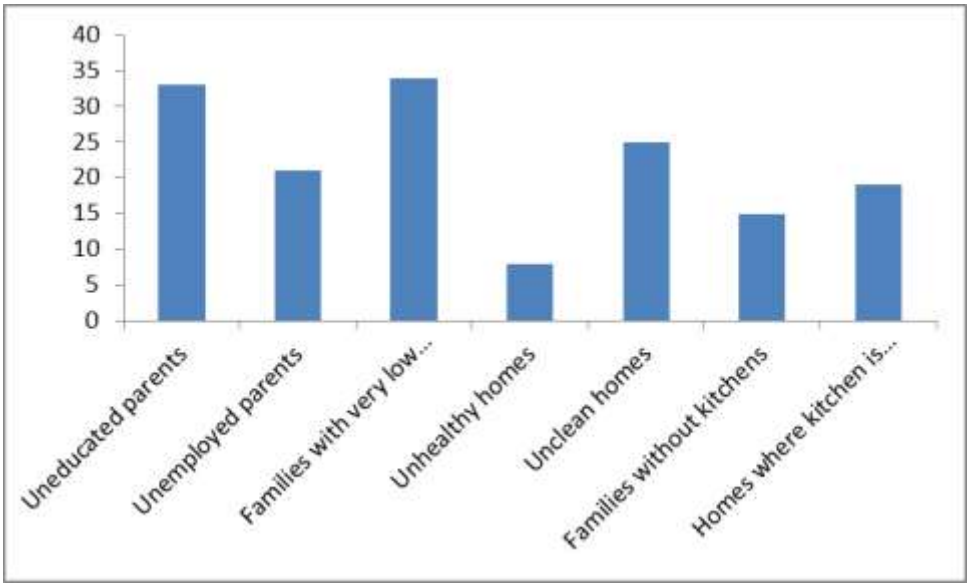
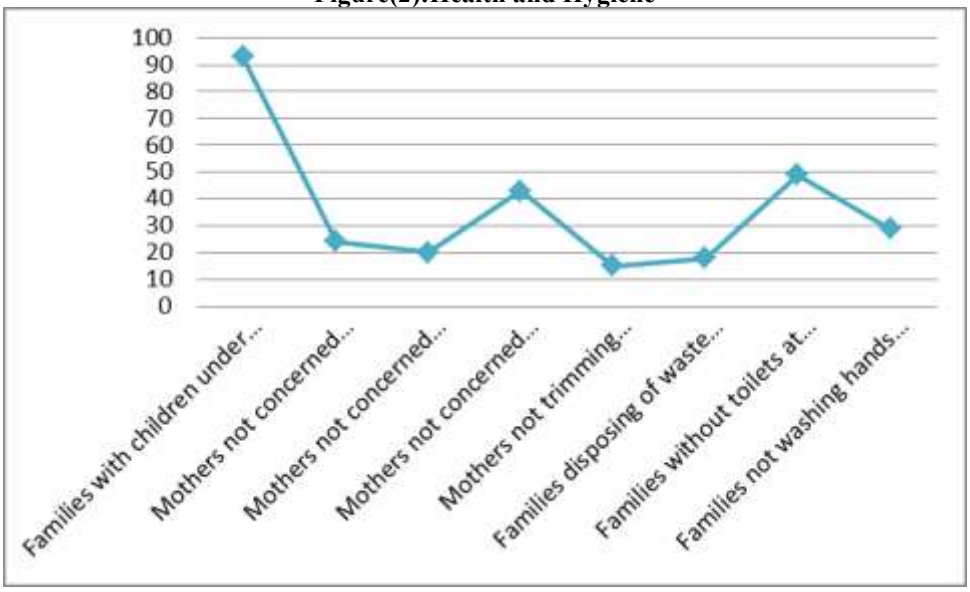
environmental and health conditions. Health Records Review to collect data on registered cases from health centers. Data Analysis, SPSS version 20 ,was used to analyze data and extract key results.. Research Ethics: o Informed Consent: Obtained from participating families. Data Confidentiality: Ensuring that information is used solely for research purposes.

RESULTS

Figure(1): Demographic Data



Figure(2):Health and Hygiene



DISCUSSION

Demographic and Social Characteristics: Education: 33% of parents are uneducated, which may explain the lack of health awareness and knowledge of preventive measures. Unemployment: 21% of parents are unemployed, increasing economic challenges and affecting the ability to ensure a healthy environment. Income: 34% of families have very low income, limiting access to health services and proper sanitation facilities.Housing: 8% of homes are unhealthy, and 25% are unclean, exacerbating health issues. Kitchen Location: 19% of families have kitchens near toilets, increasing the risk of cross-contamination and disease spread. Health and Hygiene: Children's Hygiene: 43% of mothers do not pay attention to their children's personal hygiene, and 15% do not trim their children's nails, increasing the risk of infection. Environmental Hygiene: 18% of families' dispose of waste near their backyard without burning it, contributing to environmental pollution and disease spread.Toilet Use: 49% of families do not have toilets at home,

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forcing them to use public toilets or unhealthy practices. Handwashing: 29% of families do not wash their hands with soap and water after using the toilet, increasing the risk of infection. Water and Nutrition: Water Sources: 18% of families use water directly from the Nile, and 64% do not use chlorine tablets or any means to purify water, exposing them to water contamination risks.Food Hygiene: 17% do not wash vegetables and meat well before cooking, increasing the chances of food poisoning and disease spread.Malnutrition: 25% of children suffer from acute malnutrition, weakening their immune system and increasing the likelihood of diarrhea. Knowledge and Health Awareness:Mothers' Knowledge: 57% of mothers lack sufficient knowledge about diarrheal diseases and their symptoms, and 57% do not know 18 how to prepare oral rehydration solution at home, reducing their ability to manage illness effectively.Treatments: 27% of diarrheal treatments are unavailable, and 46% of individuals only take their children to the hospital when they suffer from severe diarrhea, delaying treatment and increasing case severity. Breastfeeding: 13% of mothers do not continue breastfeeding their children when they have diarrhea, reducing the chance for children to receive necessary nutrients for recovery. Interpretation of Results: Demographic and Social Characteristics:Education: With 33% of parents uneducated, we can understand the low health awareness and knowledge of necessary preventive measures, directly affecting the family's ability to adopt healthy practices. Unemployment and Income: The high unemployment rate (21%) and low income level (34%) increase economic challenges, limiting access to health services and sanitation facilities.Housing: 8% of homes are unhealthy and 25% are unclean, creating an ideal environment for disease spread. Health and Hygiene:Children's and Environmental Hygiene: 43% of mothers do not pay attention to their children's personal hygiene, 15% do not trim their children's nails, and 18% dispose of waste near their backyard, increasing the risk of pollution and infection. Toilet Use: 49% of families do not have toilets at home, increasing the risk of contamination and diarrhea spread.Handwashing: 29% of families do not wash their hands with soap and water after using the toilet, promoting infection spread. Water and Nutrition:Water Sources: Using water directly from the Nile by 18% of families and lacking water purification means by 64% exposes them to water contamination and disease spread. Food Hygiene and Malnutrition: Not washing vegetables and meat well (17%) and acute malnutrition among children (25%) increase susceptibility to diarrhea.

Knowledge and Health Awareness: Mothers' Knowledge: Lack of knowledge about diarrheal diseases and symptoms (57%) and the inability to prepare oral rehydration solution (57%) limit mothers' ability to handle illness.Treatments and Awareness: Unavailability of treatments (27%) and delayed response to severe cases (46%) increase disease severity. Additionally, lack of health awareness (57%) significantly impacts prevention and treatment. Achieving Research Objectives: General Objectives: 1. Assessing the Prevalence of Diarrheal Diseases: This objective was achieved through comprehensive data collection on children's health and influencing factors. 2. Analyzing Contributing Factors: Environmental, social, economic, and health factors contributing to the spread of diarrheal diseases were analyzed. 3. Providing Actionable Recommendations: The results and discussions provided clear recommendations to improve health and environmental conditions in the area.

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