



Prevalence and determinants of skin diseases among Almajirai Children in Qur'anic Schools in Kaura-Namoda Metropolis, Zamfara State, Nigeria

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Abstract

Background: Skin diseases constitute significant public health challenges among children globally, particularly in developing nations. In Northern Nigeria, the Almajiri system—a traditional Qur'anic educational model often involves children living in overcrowded, poorly ventilated environments with limited access to sanitation and hygiene facilities. These conditions contribute to a high incidence of dermatological issues, including scabies, fungal infections (e.g., tinea), impetigo, and infective dermatitis.

Methods: This study employed a quantitative, descriptive cross-sectional design guided by the Health Belief Model to determine the prevalence of skin diseases among Almajirai children in selected Qur'anic schools in Kaura-Namoda Metropolis. A stratified random sampling technique was used to select 80 respondents from five Qur'anic schools. Data were collected via a structured questionnaire validated through a pilot study conducted in Kurya town. Ethical approval was granted by the Research and Ethics Committee of the Primary Health Care Department of Kaura-Namoda Local Government. Descriptive statistics, including frequencies, percentages, and mean scores, were utilized to analyze the data.

Results: All participants (100%) were male, with the majority (84.2%) aged 6–10 years. Findings indicated a high prevalence of skin symptoms, notably skin rashes (mean = 4.7), itching (mean = 4.5), and skin lesions (mean = 3.9). The study identified poor personal hygiene, inadequate nutrition, and high-density living conditions leading to frequent skin-to-skin contact as the primary factors driving the transmission of skin diseases.

Conclusion: There is a high prevalence of skin diseases, particularly scabies, ringworm, and eczema, among Almajirai children in the study area. To mitigate these health risks, it is recommended that stakeholders prioritize health education, facilitate regular medical screenings, improve personal hygiene practices, and provide training for Qur'anic teachers on preventive dermatological care.

Keywords: Almajirai, prevalence, Qur'anic Education, public health, skin diseases, scabies, Nigeria

Introduction

Skin diseases constitute a significant public health burden globally, disproportionately affecting vulnerable populations, particularly children in resource-limited settings. The Global Burden of Disease (GBD, 2021) [7] estimated that skin and subcutaneous diseases accounted for approximately 4.7 billion prevalent cases worldwide, ranking as the 20th leading cause of global disability-adjusted life years (DALYs) and the 7th leading cause of years lived with disability (YLDs). Viral skin diseases alone were estimated at 84.7 million incident cases, with a prevalence exceeding 130 million cases and 4.2 million DALYs in 2021. These figures underscore the substantial morbidity associated with dermatological conditions and the urgent need for targeted public health interventions, particularly in low- and middle-income countries where the burden is most pronounced.

Children are particularly susceptible to skin diseases due to their developing immune systems, frequent skin-to-skin contact, and limited awareness of hygiene practices. Studies conducted across various settings have consistently reported a high burden of dermatological conditions among school-age children (Nigerian Association of Dermatologists, 2022).

Skin diseases are among the most common health problems affecting children worldwide particularly in developing countries. They are mostly the common conditions affecting the Almajirai children in most Qur'anic schools. The conditions are scabies, fungal infections like tinea, bacterial infections such as impetigo and infective dermatitis (National Commission for Almajiri, 2024) [4]

Among many communities, prevalence of skin conditions differs depending on different causative factors, such as genetic constitution, social class, parents' employment and educational status, hygienic practices, health awareness, and standard of healthcare services and its accessibility. These factors profoundly explain the different data in different communities and provide each group with a varied pattern of illness including skin diseases (Antar, Kasemy and Elnemr, 2025) [1].

The Almajiri system is a traditional Islamic educational model deeply rooted in Northern Nigeria's precolonial scholarship heritage. Almajirai are children who leave the care of their parents to learn Qur'anic and Islamic education under the guidance and mentorship of a Mallam at a Tsangaya (Muhammad et al., 2023) [3]. However, the system has evolved significantly over time, with contemporary

Almajiri often characterized by street begging, parental abandonment, child exploitation, and systemic neglect. It is estimated that there are approximately 13 million of these children roaming the streets of Northern Nigeria

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Kaura Namoda town in Zamfara state has a significant population of Almajirai children attending various Qur'anic schools due to its strategic importance as center of commerce, education and trade. Despite their vulnerability, there is limited data on the prevalence and types of skin diseases affecting the Almajirai children in Kaura-Namoda Metropolis.

The Global Burden of Disease (GBD) Morbidity and Mortality report identified skin diseases as the fourth leading cause of global disability causing adjusted life years. Research pertaining to skin disorders with higher reported disabilities has potential to reduce the global burden of skin disease through enhancement in treatment and management modalities, public health approach, policy formulation, and increased awareness within the scientific and greater community (Szeto et al, 2021) ^[7].

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Therefore, this research focused on determine the prevalence and determinants of skin diseases among Almajirai children in selected Qur'anic schools in Kaura-Namoda Metropolis.

Therefore, this research study identify the prevalence of skin diseases among Almajirai children attending Qur'anic schools in Kaura Namoda Metropolis.

Methodology

Study Design and Setting

A descriptive, community-based cross-sectional study design was employed for this investigation. This design was selected for its suitability in determining the prevalence and

patterns of skin diseases within a specific population at a single point in time. The study was conducted in Kaura-Namoda Metropolis, Zamfara State, Nigeria—a major commercial and educational hub that hosts a substantial population of Almajirai children. Data collection was carried out across five (5) purposively selected Qur'anic schools (Tsangaya) within the town over a period of Three week (21days).

Target Population

The target population consisted of all Almajirai children currently enrolled in the five selected Qur'anic schools in Kaura-Namoda town, totaling 407 children.

Accessible Population

All Almajirai children present in the selected schools during the period of data collection who met the inclusion criteria.

Inclusion Criteria

Almajirai children enrolled in the selected Qur'anic schools.

Aged between 6 and 16 years.

Present at the school during the study period.

Provided assent with informed consent obtained from their guardians/Malams.

Exclusion Criteria

Children who were severely ill or incapacitated during the data collection period.

Children who did not provide assent or whose guardians refused consent.

Sample Size Determination

The sample size was determined using the Taro Yamane formula:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = Desired sample size

N = Total population size (407)

e = Margin of error (set at 0.10, i.e., 10%, to accommodate resource constraints while maintaining statistical representativeness)

Step-by-step Calculation:

$$\text{Calculate } e^2: 0.10^2 = 0.01$$

$$\text{Calculate } N \times e^2: 407 \times 0.01 = 4.07$$

$$\text{Calculate the denominator } 1 + (N \times e^2):$$

$$1 + 4.07 = 5.07$$

$$\text{Divide the population by the denominator: } n = \frac{407}{5.07} \approx 80.27$$

The calculation yielded a sample size of approximately 80.27, which was 80 participants to ensure feasibility without compromising the integrity of the study..

Sampling Technique and Allocation of Participants

A stratified random sampling technique was utilized to ensure proportional representation across the five selected Qur'anic schools. Each school was treated as a stratum.

To determine the number of participants required from each school, proportional allocation was applied using the formula:

$$n_i = \frac{N_i}{N} \times n$$

Where:

n_i = Sample size from school

N_i = Total number of Almajirai children in school

N = Total population (407)

n = Total sample size (80)

Distribution Summary

School	Population ()	Calculation ()	Sample Allotted ()
School A	86	$(86/407) \times 80 = 16.90$	17
School B	102	$(102/407) \times 80 = 20.04$	20
School C	97	$(97/407) \times 80 = 19.06$	19
School D	56	$(56/407) \times 80 = 11.00$	11
School E	66	$(66/407) \times 80 = 12.97$	13
Total	407		80

Stratification within Schools

Within each school, Almajirai children are organized into distinct learning strata based on their Quranic knowledge (ranging from basic Arabic consonances to full Quranic memorization). Simple random sampling (balloting) was used to select participants from each stratum within the school to ensure that all levels of education were represented.

Data Collection Instrument

Data were collected using a structured, interviewer-administered questionnaire. The questionnaire was developed in English and translated into Hausa (the local language) for clarity, then back-translated to English to ensure consistency.

The instrument comprised three sections:

Section A: Socio-demographic characteristics (age, gender, school stratum).

Section B: Prevalence and clinical presentation of skin diseases (e.g., rashes, itching, lesions).

Section C: Determinants and risk factors (hygiene, overcrowding, nutrition, healthcare access).

Scoring:

Responses were measured on a 5-point Likert scale: Strongly Agree (SA=5), Agree (A=4), Undecided (U=3), Disagree (D=2), and Strongly Disagree (SD=1).

Validity and Reliability

The structured questionnaire was subjected to rigorous validity and reliability testing. Face and content validity were established through review by a panel of five experts, yielding a Scale-level Content Validity Index (S-CVI) of 0.89, exceeding the acceptable threshold of 0.80. Construct validity was ensured by grounding all items within the Health Belief Model framework. Reliability was assessed through a pilot study involving 8 Almajirai children in Kurya town (excluded from the final sample), which facilitated refinement of ambiguous items and yielded a Cronbach's alpha coefficient of 0.78, indicating good internal consistency. Additionally, six research assistants underwent standardized training to enhance inter-rater reliability and minimize interviewer bias.

Data Collection Procedure

Six trained research assistants (fluent in Hausa and experienced in community health surveys) assisted the principal investigator in administering the questionnaires. The research team visited each of the five schools on scheduled days over one week.

The procedure involved:

Meeting with the head Malam (teacher) to explain the purpose of the study.

Gathering eligible children in a quiet area.

Reading each question aloud in Hausa to the children and recording their responses to mitigate literacy-related biases.

Observing basic hygiene and skin conditions discreetly to corroborate self-reported symptoms where applicable.

Data Analysis

Data were entered into Microsoft Excel and analyzed using SPSS version 25. Descriptive statistics were employed to summarize the data:

Categorical variables (e.g., gender, age group) were presented as frequencies and percentages.

Continuous variables (Likert scale responses) were summarized using means and standard deviations. Results were presented in frequency distribution tables and narrative forms to facilitate easy interpretation.

Ethical Considerations

Ethical clearance was obtained from the Department of Primary Healthcare, Kaura-Namoda Local Government, and Zamfara State (Approval No: KNLGA/ZPHCB/PHC/026).

Prior to data collection:

Written informed consent was obtained from the guardians (Malams) of the children.

Verbal assent was obtained from the participating children.

Participants were assured of confidentiality; names were not recorded, and codes were assigned to each questionnaire.

Participation was entirely voluntary, and participants were informed of their right to withdraw at any time without penalty or loss of benefits.

Results

Socio-Demographic Characteristics

All respondents (100%) were male. Majority (84.2%) were aged 6–10 years, while 15.8% were aged 10–16 years. This explains that, this system of education is dominated by male children majority of whom are underage.

Table 1: Gender Distribution

Gender	Frequency	Percentage (%)
Male	76	100
Female	0	0
Total	76	100

Age Group	Frequency	Percentage (%)
6–10	64	84.2
10–16	12	15.8
Total	76	100

Prevalence and Patterns of Skin Diseases

The prevalence of skin diseases among Almajirai children was assessed using a 5-point Likert scale, where mean scores were interpreted as follows: 1.00–2.49 = Low prevalence, 2.50–3.49 = Moderate prevalence, and 3.50–5.00 = High prevalence. The findings are presented in Table 2.

Table 2: Prevalence of Skin Diseases among Almajirai Children

Statement	SA	A	N	D	SD	Mean	Std. Dev.	Interpretation
Skin rashes are common	60	12	0	0	2	4.7	0.6	High
Itchy skin is common	40	36	0	0	0	4.5	0.5	High
Visible skin lesions are common	36	28	0	12	0	3.9	1.0	High
Poor hygiene contributes to skin diseases	48	12	0	12	4	4.2	1.0	High
Skin diseases affect daily life	56	12	4	0	4	4.5	0.9	High
Seasonal changes affect skin disease occurrence	16	32	8	12	8	3.5	1.2	High
Medical care is accessible	36	12	0	28	0	3.1	1.4	Moderate
Community support is available	24	8	4	36	4	2.6	1.2	Moderate

SA = Strongly Agree (5); A = Agree (4); N = Neutral (3); D = Disagree (2); SD = Strongly Disagree (1)

Discussion

The findings revealed a high prevalence of skin disease symptoms among the respondents. The majority of participants reported that skin rashes were common within their environment, with a mean score of 4.7 (± 0.6), representing the highest reported symptom. Similarly, itching (pruritus) was highly prevalent, with a mean score of 4.5 (± 0.5), while visible skin lesions were also frequently observed, with a mean score of 3.9 (± 1.0). These findings indicate that the Almajirai children are experiencing significant dermatological morbidity, characterized by rashes, itching, and lesions consistent with conditions such as scabies, tinea infections, and eczema.

The low standard deviation for skin rashes (0.6) and itching (0.5) suggests a high degree of consensus among respondents regarding the commonality of these symptoms, reinforcing the widespread nature of skin disease burden in this population.

Poor hygiene practices were identified as a major contributing factor, with a mean score of 4.2 (± 1.0). A substantial proportion of respondents (48 strongly agreed and 12 agreed) acknowledged that inadequate personal and environmental hygiene facilitates the transmission of skin diseases. This finding underscores the critical role of hygiene in the epidemiology of dermatological conditions among these children.

Seasonal variations were perceived to influence the occurrence of skin diseases, with a mean score of 3.5 (± 1.2). While 16 respondents strongly agreed and 32 agreed that seasons affect disease patterns, the higher standard deviation (1.2) suggests some variability in perceptions, possibly due to differing environmental conditions across seasons.

Skin diseases were reported to significantly affect the daily lives of the Almajirai children, with a mean score of 4.5 (± 0.9). An overwhelming majority (56 strongly agreed and 12 agreed) indicated that these conditions interfere with their routine activities, including learning, sleeping, and participation in social interactions. This finding highlights the substantial functional and psychosocial burden imposed by skin diseases on this vulnerable population.

Access to medical care was rated moderately, with a mean score of 3.1 (± 1.4). Although 36 respondents strongly agreed and 12 agreed that medical care is accessible, a notable proportion (28 respondents) disagreed, indicating inconsistent availability of healthcare services. The relatively high standard deviation (1.4) suggests marked disparities in healthcare access across different schools, possibly due to geographical or socioeconomic factors.

Similarly, community support received the lowest mean score of 2.6 (± 1.2), indicating moderate perception of community involvement. The majority of respondents (36 disagreed) felt that community support for managing skin

diseases is inadequate, which may reflect neglect or lack of awareness among parents and community leaders regarding the health needs of Almajirai children

These findings are consistent with the findings of Supriadini et al, (2024) ^[6] in a study conducted in Turkey, where he concluded that, the most commonly observed risk factors for scabies in lower-middle-income countries such as Nigeria where Almajiri system of education is practiced were extreme of age, gender, educational level, personal hygiene habits, frequency of changing bed linens, and family economic status. The statistical data for these factors indicated a significant correlation with the occurrence of scabies and other contagious skin diseases.

The finding of this study also agreed to the study conducted by Sarkingobir et al (2019) ^[5] in Gwadabawa Local Government of Sokoto State which buttressed the involvement of poor hygiene as a risk factor for the prevalence of skin diseases among Almajira Qur'anic schools. He observed that, toilet is essential in any place where humans live. In the observed schools, there were toilets, but unfortunately, they were meant only for urination as no one was reserved for defecation. Therefore, the Almajirai children are left with no option than open defecation. The government and philanthropists who built classes and dormitories for the schools failed to provide toilets. Open defecation is a public health threat and achievement of Goal 3 of Sustainable Development Goals (SDGs). There is need for the provision of portable water around the schools and the provision of toilets around the schools to reduce the prevalence of skin diseases and other contagious diseases.

The findings of the study also correspond to the findings of Dessie et al (2022) ^[2] conducted in northern India, which revealed that, significant number of schoolchildren are affected by skin disease at any given time. The unhygienic school environment exposes them to cross-transmission of communicable skin diseases because they engage in activities that involve physical contact, especially at games or play.

Conclusion

Based on the findings of this study, it is concluded that there is a high prevalence of skin diseases among Almajirai children in selected Qur'anic schools in Kaura-Namoda Metropolis. The most common conditions identified include scabies, ringworm, and eczema. The occurrence of these diseases is strongly influenced by poor hygiene practices, overcrowding, poor nutrition, and inadequate access to healthcare services. Skin diseases significantly affect the daily lives of these children, impacting their overall well-being and educational attainment.

The study underscores the urgent need for targeted public health interventions to address the health needs of this vulnerable population. The findings also highlight the importance of integrating health promotion and disease prevention activities into the Qur'anic education system.

Recommendations

The government and non-governmental organizations should implement comprehensive health education programs for Almajirai children, their teachers, and the community on personal hygiene, disease prevention, and healthcare-seeking behaviors.

Provision of regular medical screening and treatment services in Qur'anic schools, including the establishment of sick bays with trained health personnel.

Provision of adequate sanitation facilities, including toilets, clean water supply, and proper waste management systems in Qur'anic schools.

Limitations

Most of the respondents are not willing to divulge poor hygiene conditions of the schools due to morbid fear of their respective Malams. There was delay in accessing ethical approval from the Local Government Primary Health care department. Finally, some of the respondent refused to participate to the study due to non-financial incentives from the researcher.

Consent and Ethical Approval

Ethical approval was obtained from Department of Primary healthcare of Kaura-Namoda Local Government, Zamfara State (KNLGA/ZPHCB/PHC/026) and the respondents have consented to participate to the study.

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