

Knowledge, Attitude, and Practices of Medical Doctors on Atopic Dermatitis in a Tertiary Hospital in Sokoto, North Western Nigeria

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ABSTRACT

Background: Atopic dermatitis (AD) is a common chronic pruritic inflammatory skin condition affecting all age groups. Goals of management include reduction of symptoms and prevention of flares. Treatment modalities include general and specific measures to manage and prevent the condition.

Objectives: We aimed to assess the Knowledge, Attitudes, and Practice (KAP) of medical doctors of various cadres in 3 departments of Atopic Dermatitis in Usmanu Danfodiyo University Teaching Hospital, (UDUTH) Sokoto, Nigeria.

Methods: A descriptive cross-sectional study using a purposeful sampling method was conducted amongst medical doctors of various specialties and cadres in 3 departments between July 2019 and March 2020. A standardized questionnaire exploring various components of KAP was used for data collection.

Results: Of the 64 respondents, 35 (54.7%) were males with a male-to-female ratio of 1.2:1. Majority of the respondents 40 (62.5%) were between the ages of 30-39 years, Paediatricians were 34 (53.1%) and the majority of participants were registrars 37 (57.8%). The overall average score for each of the parameters of KAP showed the doctors had a very poor level of knowledge (44.4%), with harmful attitudes (48.9%) but average practices (73.1%). Paediatricians had significantly higher practice scores than other respondents ($F=12.890$, $p=0.045$) but no significant difference in knowledge or attitude.

Conclusions: This study showed that doctors have very poor levels of knowledge, and harmful attitudes but average practice scores regarding AD. This signifies education gaps in the management of AD. There is a need for the development of a Nigerian-based AD management guideline widely circulated in all parts of the country.

Keywords- Attitude, Atopic dermatitis, Knowledge, Practice, Sokoto

Connaissances, Attitudes et Pratiques des Médecins sur La Dermatite Atopique dans un Hôpital Tertiaire de Sokoto, au Nord-Ouest du Nigeria

Abstrait

Contexte: La dermatite atopique (DA) est une affection cutanée inflammatoire prurigineuse chronique courante qui touche tous les groupes d'âge. Les objectifs de la prise en charge comprennent la réduction des symptômes et la prévention des poussées. Les modalités de traitement comprennent des mesures générales et spécifiques pour gérer et prévenir la maladie.

Objectifs: Nous avons cherché à évaluer les connaissances, attitudes et pratiques (CAP) des médecins de divers cadres dans 3 départements de dermatite atopique à l'hôpital universitaire Usmanu Danfodiyo, (UDUTH) Sokoto, Nigeria.

Méthodologie: Une étude transversale descriptive utilisant une méthode d'échantillonnage raisonnée a été menée auprès de médecins de diverses spécialités et cadres dans 3 départements entre juillet 2019 et mars 2020. Un questionnaire standardisé explorant diverses composantes de CAP a été utilisé pour la collecte de données.

Résultats: Sur les 64 répondants, 35 (54,7 %) étaient des hommes avec un ratio homme-femme de 1,2:1. La majorité des répondants 40 (62,5 %) étaient âgés de 30 à 39 ans, les pédiatres étaient 34 (53,1 %) et la majorité des participants étaient des registraires 37 (57,8 %). Le score moyen global pour chacun des paramètres de CAP montre que les médecins ont un niveau de connaissance très faible (44,4%), avec des attitudes néfastes (48,9%) mais des pratiques moyennes (73,1%). Les pédiatres avaient des scores de pratique significativement plus élevés que les autres répondants ($F = 12,890$, $p = 0,045$), mais aucune différence significative dans les connaissances ou l'attitude.

Conclusions: Cette étude a montré que les médecins ont des niveaux de connaissances très faibles et des attitudes néfastes mais des scores de pratique moyens concernant la MA. Cela signifie des lacunes en matière d'éducation dans la gestion de la MA. Il est nécessaire d'élaborer une directive de gestion de la DA basée au Nigéria et largement diffusée dans toutes les régions du pays.

Mots-clés: Attitude, Dermatite atopique, Connaissance, Pratique, Sokoto

Introduction

Atopic dermatitis also known as atopic eczema is a complex trait with multiple genetic and environmental factors contributing to the pathogenesis.^[1] It is a common chronic, pruritic, inflammatory skin disease that affects people of all ages.^[2-6] Up to 25% of children and 3% of adults have AD with increasing prevalence in children aged 6-7 years.^[6] Atopic dermatitis typically starts in early infancy in 60%-65% of cases or before the age of 5 years in 85.0% of cases.^[8,9,10] The frequency of AD in patients seen in Kaduna State, Nigeria was 13,8% in 2007 compared to 5.2% in the previous study 30 years earlier.^[11]

Patients with AD are predisposed to skin infections as a result of compromised physical barriers, in addition to diminished immune recognition and impaired antimicrobial peptide production.^[2] *Staphylococcus aureus* is a frequent pathogen as well as a skin colonizer,^[2,12] that triggers multiple inflammatory cascades in the absence of overt infection.^[2] During flares, eczema in remission or with stable sub-acute or chronic eczema changes to acute eczema.^[3]

The diagnosis of AD is based on a history of pruritus which is the hallmark, typical morphology and distribution, a chronic or relapsing dermatitis, and a personal or family history of atopy.^[4,2] Clinical findings include erythema, oedema, xerosis, vesiculation, erosions/excoriations, oozing, crusting, and lichenification which varies by patient's age and chronicity of lesions.^[3,4,7]

The goals of management include the reduction of symptoms and the prevention of flares.^[4] Treatment modalities include general and specific measures that can be undertaken to manage and prevent the condition. General measures are important to lessen exacerbations and include avoiding environmental aggravators, wearing cotton clothing, avoiding overheating, soap-free baths, and avoiding hot baths.^[13] Specific measures are classified into two main categories: anti-inflammatory and anti-infective measures.^[13] However, A combination of emollients and anti-inflammatory agents (topical corticosteroids) remains the common first-line therapeutic approach.^[1,4,10,13,14]

Despite their frequent use in clinical practice, oral antihistamines, and systemic antimicrobials appear to be of benefit only in specific circumstances.^[12] The use of systemic antibiotics in the treatment of non-infected AD is not recommended.^[12] Short-term, intermittent use of sedating oral antihistamines has been used in the management of pruritus in patients with AD to improve their quality of life such as loss of sleep. However, there is insufficient evidence to recommend its general use as part of AD treatment or as a substitute for topical therapy.^[12]

A study by Kouotou *et al*^[15] assessed the KAP of medical personnel on AD in Yaounde, Cameroon reported poor levels of KAP of the medical staff regarding AD implying non-optimal management in their setting. No study has been conducted in our hospital to assess the practice of our doctors regarding the treatment of AD. Information obtained from this

study may aid in improving the KAP of AD and also may drive the need to develop a Nigerian guideline for the treatment of AD. We aimed to assess the KAP of medical doctors of various cadres in three departments concerning AD in UDUTH, Sokoto, Nigeria.

Methodology

The study was a descriptive cross-sectional study conducted in 3 departments in UDUTH, Sokoto, Nigeria namely Paediatrics, Internal Medicine, and Family Medicine. Data was collected between July 2019 to March 2020 at 2 different intervals (between July and September 2019; January and March 2020) to incorporate new residents that were employed during the study period. Our hospital has two Consultant Dermatologists one each in Internal Medicine and Paediatric Departments, with one Dermatology Senior resident in Internal Medicine.

The study population comprised various cadres of medical doctors which included medical officers, junior registrars, senior registrars, and consultants. The doctors irrespective of gender or cadre that consented to participate were included, while House officers/Interns were excluded from the study. The 2 Consultant Dermatologists also participated in the study and they constituted 3.1% of the study population. There is no Dermatology rotation for the residents in the Paediatric department. A purposeful sampling method was used to collect data.

This study used a pretested, adapted questionnaire for data collection which suited our setting from some of the questions used by Kouotou *et al.*^[15] However, approval to use the questions was not received as the author could not be reached by email. The questionnaire consisted of a set of close-ended, multiple-choice questions divided into three sections exploring components of AD (Knowledge, Attitudes, and Practice). Each respondent ticks Yes or No as a response. In addition, information about age, gender, specialty, cadre, and years of practice were also asked. However, our study did not include a clinical picture of lesions for identification as used by Kouotou *et al.*^[15]

The scoring by Essi *et al.*^[16] on KAP studies was used to establish the scores for each part of the questionnaire as previously used by Kouotou *et al.*^[15] Each of the

items (knowledge, attitude, and practice) was graded on a 4-point Likert scale as follows^[16]:

- **Knowledge:** very poor (score <50%); poor (score: ≥ 50 to <65%); moderate (score: ≥ 65 to <85%); good (score $\geq 85\%$).
- **Attitude:** harmful (score <50%); wrong (score: ≥ 50 to <65%); approximate (score: ≥ 65 to <85%); right (score $\geq 85\%$).
- **Practice:** harmful (score <50%); inadequate (score: ≥ 50 to <65%); average (score: ≥ 65 to <85%); adequate (score $\geq 85\%$).

Data and Statistical Analysis

Data analysis was performed using the Statistical Package for Social Sciences (SPSS) software, version 23.0 (SPSS Inc., Chicago, Illinois, USA). Categorical variables were presented as frequency (percentage) distribution tables. Chi-Square (χ^2) and Fisher's exact tests were used to determine the association between categorical variables. The level of statistical significance was set at a p-value < 0.05.

Ethical Considerations

Ethical approval for the study was obtained from the Ethics Committee of Usmanu Danfodiyo University Teaching Hospital Sokoto. Verbal consent was sought and obtained from all the participants, and individual signed written consents were also obtained. Permission to adapt the questions used in the Cameroon study could not be obtained as several emails sent failed to be delivered.

Results

Of the 125 questionnaires distributed, only 64 returned, giving a 51.2% response rate. There were 35 (54.7%) males and 29 (45.3%) females, giving a male-to-female ratio of 1.2:1. Majority of the respondents 40 (62.5%) were between the ages of 30-39 years, Paediatricians constituted the majority 34 (53.1%) and more than half of the respondents were registrars 37 (57.8%) as shown in table 1. There was an equal number of respondents that had years of practice of fewer than five years and also between 5-10 years with 23 (35.9%) in both groups as seen in table I.

Table I: Demographics of the respondents

Demographic variable	Frequency	Percentage
Gender		
Male	35	54.7
Female	29	45.3
Age range (years)		
<30	11	17.1
30-39	40	62.5
40-49	12	18.8
>50	1	1.6
Department		
Paediatrics	34	53.1
Internal Medicine	19	29.7
Family Medicine	11	17.2
Cadre		
Medical officer	3	4.6
Registrar	37	57.8
Senior registrar	12	18.8
Consultant	12	18.8
Years of practice		
<5 years	23	35.9
5-10 years	23	35.9
11-15 years	13	20.3
15-20 years	4	6.3
>20 years	1	1.6

Knowledge

General knowledge

Table II shows the results on general knowledge. The majority of the respondents 52(81.2%) were able to define AD correctly. Asthma and conjunctivitis were identified as associated pathologies by 89.1% and 82.8% of the respondents respectively. Allergy was identified as the cause of AD by 92.2% and genetics by 85.9% of respondents. Most of the respondents (65.6%) described the evolution of AD as a chronic disease while 70.3% considered it to be both acute and chronic.

Theoretical clinical knowledge

Table III shows the results of the theoretical clinical knowledge. More than half of the respondents chose xerosis cutis, erythema, and desquamation as primary lesions of AD. The face and lower limbs were considered to be common sites in children (70.3% and 59.4% respectively). While in adults, 78.1% and 75.0% considered the upper and lower limbs

respectively to be the common sites.

Prevention/ Education on skin care

With regards to AD education on skin care for relapse prevention, the majority of the respondents 56 (87.5%) provide patients and caregivers with advice and information. While 43 (67.2%) recommended cotton clothes, 8 (12.5%) recommended nylon or wooly clothes. Fifty-three (82.8%) and 14 (21.9%) recommended the use of moisturizers and antiseptic soap respectively.

Attitude

Most of the respondents 27 (42.2%) had no idea about the occurrence of AD based on race as shown in table IV. Similarly, 31 (48.4%) had no idea about the evolution of AD. Relatives can contribute to the care of patients with AD as obtained in 39 (60.9%) of the respondents. Sixty (93.8%) of the respondents think AD can be managed in our hospital setting as shown in table IV.

Practice

Out of the 64 respondents, 49 (76.6%) reported attending to at least a case of AD during consultation in a month. More than two-thirds (70.3%) saw between 1–10 cases per month during a consultation and only 2 (3.1%) attended to > 20 cases monthly as shown in Table V below. The most commonly prescribed drug for relapse was corticosteroid 81.2%, prescribed topically by 81.2% and to be applied twice daily by 62.5%. Pruritus was commonly treated by the use of both antihistamines alone or in combination with corticosteroids by more than half of the respondents. Although only 23 (35.9%) responded that xerosis cutis should be treated.

Scores of knowledge, attitudes, and practices of doctors

a. General scores

Score of knowledge

Forty (62.5%) of the respondents had a very poor level of knowledge, with none having moderate or adequate knowledge as shown in table VI below.

Score for attitudes

The majority 29 (45.3%) had the wrong attitude with only 2 (3.1%) having the right attitude concerning AD.

Score for practices

The overall score for practice by all departments was average or adequate as shown in table VI below.

The overall average score for each of the parameters of knowledge, attitude, and practice showed that doctors in UDUTH have very poor knowledge (44.4%), with harmful attitudes (48.9%) but average practices (73.1%).

There was no statistically significant difference between gender for knowledge ($\chi^2=3.546$, $p= 0.136$), attitude ($F=7.516$, $p= 0.057$) nor with practice ($F=4.57$, $p=0.245$).

b. Scores according to department

Scores of knowledge

None of the departments had moderate or good

knowledge. The department of Paediatrics had the highest number of respondents with very poor knowledge scores seen in 20 (31.3%) and also poor knowledge scores in 14 (21.9%) as shown in table VI.

Scores of attitude

Similarly, table VI shows none of the departments scored the right attitude to AD. Paediatricians constituting the majority also had the highest number of respondents with approximate, wrong, and harmful attitudes to AD.

Scores of practice

Paediatricians had average to adequate practice, while 8 (12.5%) of Internal medicine respondents had inadequate practice as shown in table VI.

Paediatricians had a significantly higher practice score than respondents from Internal medicine and Family medicine ($F=12.890$, $p=0.045$). However, there was no statistically significant difference in knowledge and attitude among the various departments ($\chi^2=0.486$, $p= 0.784$; $F=10.285$, $p=0.113$ respectively).

c. Scores according to the cadre

Scores of knowledge

None of the cadres had moderate or good knowledge. Residents of the various departments had very poor knowledge and poor knowledge scores as shown in table VII above.

Scores of attitude

Table VII shows only 2 (3.1%) of the residents had the right attitude toward AD while 22 (34.3%) had harmful attitudes toward AD.

Scores of practice

Amongst all the cadres, Residents of all the departments had average to adequate practice, while 2 (3.1%) of the senior residents had harmful practice.

There was no statistically

Table II: General knowledge about AD

Question	Yes response n(%)	No response n(%)
General Knowledge		
<i>Definition</i>		
AD is chronic and inflammatory	52(81.2)	12(18.8)
AD is chronic or inflammatory	2(3.1)	62(96.9)
AD is inflammatory and acute	7(10.9)	57(89.1)
<i>Associated pathologies</i>		
Asthma is an associated pathology	57(89.1)	7(10.9)
Conjunctivitis is an associated pathology	53(82.8)	11(17.2)
Chronic cough is an associated pathology	29(45.3)	35(54.7)
<i>Causes</i>		
The cause is psychological	2(3.1)	62(96.9)
The cause is allergic	59(92.2)	5(7.8)
The cause is genetic	55(85.9)	9(14.1)
The cause is infectious	5(7.8)	59(92.2)
<i>Evolution</i>		
Evolution could be acute	40(62.5)	24(37.5)
Evolution could be chronic	42(65.6)	22(34.4)
Evolution is acute and chronic	45(70.3)	19(29.7)
Evolution is exclusively acute	1(1.6)	63(98.4)
Evolution is exclusively chronic	8(12.5)	56(87.5)

significant difference between the various cadres concerning knowledge ($\chi^2=3.546$, $p= 0.315$), attitude ($F=11.579$, $p= 0.258$), and practice ($F=10.142$, $p= 0.339$).

Similarly, there was no statistically significant difference between years of practice vis a vis knowledge ($\chi^2=3.546$, $p= 0.839$), attitude ($F=7.625$, $p= 0.814$) nor with practice ($F=10.111$, $p= 0.606$).

Discussion

This study assessed the knowledge of doctors in various departments and cadres and their attitudes and practices toward AD. The overall average scores of KAP were respectively 44.4%, 48.9%, and 73.1% which contrasts 65.0%, 64.0%, and 50.0% reported in a similar study in Cameroon.^[15] Even though their study included Paediatricians, residents, general practitioners, and nurses, the average scores of knowledge, and attitude reported in the Cameroon study were better than what was obtained in our study, although our study had a better practice score. A similar Saudi Arabian study conducted amongst primary healthcare providers reported 74.45% of the respondents had fair knowledge while 69.57% had a negative attitude regarding AD.^[17]

Another Saudi Arabian study among primary healthcare physicians in Jeddah assessed three domains amongst family medicine certified board, family medicine residents, family medicine diploma, interns, paediatricians, and general practitioners.^[18] They reported correct scores in the knowledge, self-assessment, and clinical competency domains as 49.8%, 55.2%, and 68.5% respectively.^[18]

The reason may be as a result of fewer cases of AD seen in our hospital or due to the fact majority of the respondents were registrars with fewer years of

Table III: Clinical theoretical knowledge as medical personnel

Question	Yes response n(%)	No response n(%)
Theoretical clinical knowledge		
<i>Primary lesions</i>		
Xerosis cutis is a sign of AD	36(56.2)	28(43.8)
Erythema is a sign of AD	54(84.4)	10(15.6)
Desquamation is a sign of AD	46(71.9)	18(28.1)
Diffuse ulceration is a sign of AD	18(28.1)	46(71.9)
Moist skin is a sign of AD	4(6.2)	60(93.8)
Cyanosis is a sign of AD	1(1.6)	63(98.4)
<i>Sites in children (0-5 years old)</i>		
The face is a site of AD	45(70.3)	19(29.7)
The torso is a site of AD	30(46.9)	34(53.1)
The lower limb is a site of AD	38(59.4)	26(40.6)
<i>Sites in adults (25 years and above)</i>		
The face is a site of AD	23(35.9)	41(64.1)
The torso is a site of AD	37(57.8)	27(42.2)
The upper limb is a site	50(78.1)	14(21.9)
The lower limb is a site of AD	48(75.0)	16(25.0)

n= number, %=percentage

experience. A study in 2004 by Onayemi *et al*^[19] reported AD to be seen in only 14.1% of patients attending the Dermatology clinic in UDUTH, Sokoto, although the number may have increased currently with more awareness. However, there is no recent data on AD in UDUTH Sokoto to confirm an increase in the prevalence of AD. Secondly, AD was not found to be a common co-morbidity in asthmatic children in the same hospital in 2019 as only 29.5% had AD.^[20] This shows that there is a need for continuing medical education, training, and retraining of doctors to improve the management of AD in UDUTH, Sokoto, Nigeria.

The majority of the respondents were able to define AD correctly as chronic and inflammatory, which is similar to the report by Kouotou *et al*^[15] and by Ee *et al*.^[21] Asthma and conjunctivitis were also recognized as associated pathologies. Allergy was the most common predisposition to AD as against genetic, while psychological was rarely mentioned, a similar finding to the Cameroon study.^[15]

Table IV: Attitudes of medical personnel

Question	Yes response n(%)	No response n(%)
<i>Opinion on occurrence of AD depending on race</i>		
AD mostly affects blacks	12(18.8)	52(81.2)
AD mostly affects Caucasians and blacks	25(39.1)	39(60.9)
<i>Opinion on the evolution of AD with treatment</i>		
Discouraging evolution	12(18.8)	52(81.2)
Favourable evolution	21(32.8)	43(67.2)
<i>Opinion on the contribution of relatives in the management of AD</i>		
Discouraging contribution	9(14.1)	55(85.9)
Favourable contribution	39(60.9)	25(39.1)
<i>Opinion on the ability to adequately manage AD in or setting</i>		
AD can be managed	60(93.8)	4(6.2)
AD cannot be managed	1(1.6)	63(98.4)

n= number, %=percentage

The evolution of AD mentioned that it is acute and chronic by 45.0%, while 42.0% said it could be chronic and 40.0% said it could be acute as similarly observed by Kouotou *et al.*^[15] The complexity, diversity, and variability of the clinical expression of AD can be a challenge to recognizing clinical features of the disease by a non-specialist. Also, the lack of universally accepted diagnostic criteria or the complexity and cumbersomeness of existing diagnostic criteria could be a challenge. The pruritus and erythema in AD are usually attributed to an acute pathology.^[21]

Not many of the respondents were able to select the sites of AD correctly. Sites of AD differ in children and adults; during the infant phase, red scaly lesions develop typically on the cheeks, usually sparing the perioral and perinasal areas with the chin involved and cheilitis is common.^[3] Some infants develop generalized eruptions; however, scalp involvement is not uncommon, and the diaper area is often spared. The cubital/popliteal fossae or other parts of the limbs are sometimes involved.^[3] In the childhood phase, it involves the flexural areas (the antecubital fossae and popliteal fossae) but can also the neck, wrist, and ankles. During the adolescent and adult phases, lesions involve similar areas to those affected

during the childhood phase. Additionally, hand eczema/dermatitis, periocular eczema/dermatitis, and anogenital eczema/dermatitis are also present.^[3]

The majority (87.5%) of the respondents provided advice and information to the patient or caregivers, while 67.2% preferred the use of cotton clothes and 82.8% recommended the use of moisturizers. Our findings were consistent with reports by Kouotou *et al.*^[15] The use of cotton clothing and keeping the skin moisturized is recommended for the management of AD.^[2,3,22] Only 21.9% chose the use of antiseptic soap contrasting 54.0% of the participants from Cameroon.^[15] The use of antiseptic solutions or soaps for baths is not recommended routinely in AD, except when a patient has superinfection.^[3] The education of patients and caregivers is itself an important form of intervention.^[22,23] Patient education is important as it improves treatment adherence and improves the quality of life. A similar study on KAP amongst Asian dermatologists from five different countries showed varying responses regarding patient education.^[21]

With proper treatment, AD tends to have intermittent periods of relapse and remission. The majority of our respondents had no idea about the evolution of AD whereas 59.0% of the Cameroonian participants thought AD has a favorable evolution when properly

Table V: Practice of the doctors in AD treatment

Question	Yes response n(%)	No response n(%)
<i>Number of cases seen during the consultation</i>		
1-10 cases	45(70.3)	19(29.7)
11-20 cases	2(3.1)	62(96.9)
20 cases	2(3.1)	62(96.9)
No case	15(23.4)	49(76.6)
<i>Drug prescription for AD relapse</i>		
Corticosteroid	52(81.2)	12(18.8)
Antihistamine	48(75.0)	16(25.0)
Antifungal	8(12.5)	56(87.5)
Antibiotics	19(29.7)	45(70.3)
Corticosteroids + antihistamine	47(73.4)	17(26.6)
Management of xerosis cutis	23(35.9)	41(64.1)
<i>Drug prescription for pruritus</i>		
Antihistamine	53(82.8)	11(17.2)
Corticosteroid + antihistamine	34(53.1)	30(46.9)
<i>Administration route of corticosteroid</i>		
Oral	29(45.3)	35(54.7)
Topical	52(81.2)	12(18.8)
Oral + topical	31(48.4)	33(51.6)
<i>Administration modalities of topical corticosteroids</i>		
1 application/day	7(10.9)	57(89.1)
2 applications/day	40(62.5)	24(37.5)
3 applications/day	15(23.4)	49(76.6)
<i>Duration of topical corticosteroid treatment</i>		
< 2 weeks	22(34.4)	42(65.6)
2 weeks	28(43.8)	36(56.2)
1 month	7(10.9)	57(89.1)
>1 month	8(12.5)	56(87.5)

More than one answer was possible

treated.^[15] The reason may be very poor knowledge in our respondents and also variable factors influence the course of atopic dermatitis which may even affect response to treatment.

The majority of our respondents (70.3%) had consulted 1-10 cases of AD per month which is similar to 68.5% reported from Jeddah,^[18] while 23.4% have not seen any case, which is higher than 11.0% from Cameroon.^[15] This may be because not all

doctors attend to AD cases as there are adult and paediatric dermatology clinics where such patients are referred to. Another reason is likely that more AD cases are seen in these countries while previous reports in Sokoto have shown AD is not common.^[19] The disease equally affects Blacks and Caucasians according to 39.1% of our respondents contrasting 84.0% reported from Cameroon,^[22] which may be as a result of better attitude than our respondents.

Table VI: Departmental and general scores of knowledge, attitude and practices of the respondents

Scores	Departments			General Score N=64(100.0%)
	Paediatrics	Internal Medicine	Family Medicine	
Very poor/harmful/harmful				
K	20(31.1)	13(20.3)	7(10.9)	40(62.5)
A	8(12.5)	5(7.8)	6(9.4)	19(29.7)
P	2(3.1)	1(1.6)	2(3.1)	5(7.8)
Poor/wrong/inadequate				
K	14(21.9)	6(9.4)	4(6.2)	24(37.5)
A	18(28.1)	9(14.1)	2(3.1)	29(45.3)
P	5(7.8)	8(12.5)	0(0.0)	13(20.3)
Moderate/approximate/average				
K	0(0.0)	0(0.0)	0(0.0)	0(0.0)
A	8(12.5)	3(4.7)	3(4.7)	14(21.9)
P	11(17.1)	6(9.4)	6(9.4)	23(35.9)
Good/right/adequate				
K	0(0.0)	0(0.0)	0(0.0)	0(0.0)
A	0(0.0)	2(3.1)	0(0.0)	2(3.1)
P	16(25.0)	4(6.25)	0(0.0)	23(35.9)

Number(percentage). Scores are classified as: very poor/harmful/harmful =>50%; poor/wrong/inadequate =>65%; moderate/approximate/average => 85%; good/right/adequate = <85% correct answers
K=Knowledge, A= Attitude, P= Practice

Corticosteroid is the most frequently chosen medication for relapse which is used topically, which is similar to what was reported by Kouotou *et al.*^[15] and Ee *et al.*^[21] The use of topical antihistamines in AD management is not recommended,^[1,2] similarly oral antihistamines are also not used in the treatment of AD.^[1] Almost a quarter of our participants (73.4%) chose corticosteroids and antihistamines for treating relapse which is similar to findings from Cameroon.^[15] However, the use of sedating antihistamines in case of intense pruritus to alleviate sleep disturbance has been recommended.^[4,21,24] The use of a short course of oral antibiotics is recommended in widespread infected AD, but there is no evidence that topical or long-term use of antibiotics helps prevent AD flare.^[1,3] Twice daily application of topical corticosteroid was

recommended by 62.5% of the respondents which is higher than 52.3% reported by Kouotou *et al.*^[15] and 27.9% reported by Smith *et al.*^[10] Most studies on AD treatment show a twice daily application of topical corticosteroid is effective, hence it is the most common clinical practice and also the generally recommended frequency.^[2,3,10] However, there is evidence to suggest that the once-daily application of some potent corticosteroids may be as effective as twice daily application.^[2,25] Regarding the duration of use of topical corticosteroids, 43.8% of our respondents recommended 2 weeks which is higher than 27.9% and 30.0% reported from Australia^[10] and Cameroon^[15] respectively. The use of corticosteroids is dependent on the patient's symptoms, for acute flares

Table VII: Scores of knowledge, attitude, and practices of the respondents according to the cadre

Scores	Cadre				Total N=64(100.0%)
	Consultant	Senior registrar	Registrar	Medical officer	
Very poor/harmful/harmful K A P	6(9.4)	9(14.1)	22(34.3)	3(4.7)	40(62.5)
	5(7.8)	3(4.7)	8(12.5)	3(4.7)	19(29.7)
	1(1.6)	2(3.1)	1(1.6)	1(1.6)	5(7.8)
Poor/wrong/inadequate K A P	6(9.4)	3(4.7)	15(23.4)	0(0.0)	24(37.5)
	0(0.0)	17(26.5)	6(9.4)	6(9.4)	29(45.3)
	1(1.6)	3(4.7)	9(14.0)	0(0.0)	13(20.3)
Moderate/approximate/ average K A P	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
	1(1.6)	3(4.7)	10(15.6)	0(0.0)	14(21.9)
	6(9.4)	3(4.7)	12(18.8)	2(3.1)	23(35.9)
Good/right/adequate K A P	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
	0(0.0)	0(0.0)	2(3.1)	0(0.0)	2(3.1)
	4(6.3)	4(6.3)	15(23.4)	0(0.0)	23(35.9)

Number (percentage), scores as described by Essi et al¹⁶ K=Knowledge, A= Attitude, P= Practice

it is recommended every day until the inflammatory lesions are significantly improved for 10-14 days^[2] but can last for up to several weeks at a time if not improved.^[2,10]

The use of antihistamines for the treatment of pruritus was considered by the majority (82.8%) of the respondents and 53.1% considered the use of a combination of antihistamines and corticosteroids. Topical corticosteroid alone is effective due to their antipruritic and anti-inflammatory properties.^[2,3]

There is no available guideline for the management of AD in Nigeria that would be used by doctors in the various hospitals in the country to harmonize the successful management of the disease.

Despite the very poor knowledge and 'harmful attitude', the doctors had an average practice which may be due to the hospital being a tertiary centre involved in residency training, the residents rotate through different specialties and might have seen and read about the treatment of AD even though our

hospital has only one Dermatologist each in Internal Medicine and Paediatrics.

Only practice scores had significant differences between Paediatricians and respondents from the other departments. There was no statistically significant difference between knowledge and attitude between the various departments. The Jeddah study^[18] however found a significant difference between the different departments that participated in the three assessed domains.

Similarly, no statistically significant difference was observed between the various cadres for knowledge, attitude, and practice. This may be explained by the overall very poor level of knowledge, with 'harmful attitudes' but average practices. The Jeddah study^[18] reported a significant difference between the different cadres that participated in the three assessed domains.

There was no significant difference between gender, specialty, or with years of experience for knowledge or attitude regarding AD which is similar to findings

reported by Barradah^[17] from Saudi Arabia. However, Almalki and Bardisi^[18] found a significant association between females having better scores in the domains assessed but no relationship with years of experience. The reason for the differences may be due to a larger sample size of 200 participants.

Conclusion

The study has revealed significant practice scores in AD treatment amongst doctors in all the various departments. It has also shown that our respondents have a very poor level of knowledge, a harmful attitude, and average practice regarding AD. These show there are educational gaps in the knowledge and attitude toward the management of AD

Recommendations

There is a need for the development of Nigerian-based AD guidelines which should be widely circulated in all parts of the country. There is a need for continued medical education irrespective of specialty or cadre on the knowledge and management of AD in Sokoto and perhaps Nigeria at large to improve knowledge and potentially attitude and practice of doctors. Training and retraining healthcare workers on recognizing and adequately treating AD is also recommended.

Limitation

This includes the fact that purposeful sampling was used for data collection which may have introduced bias (self-selection bias and under coverage bias), resulting in a less representative sample and unequal sample from the different departments, this was not considered in data analysis.

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