

# Determinants of Skin Disorders among School Pupils in South-South, Nigeria

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**Abstract:- High prevalence of skin disorders among children have been documented in several studies around the world. It has been highlighted that some of these skin disorders are preventable with some of the factors affecting its occurrence very modifiable. This study aims at ascertain the determinants of skin disorders among school pupils in south-south Nigeria. The study was a descriptive cross-sectional design. Multi-stage sampling technique was used to randomly recruit 351 pupils from primary schools in the area. Data were collected using validated semi-structured self-administered questionnaire. Dermatological diagnosis was made mainly clinically by Dermatologists. Necessary ethical approval and consents were obtained. Data collected were analyzed using SPSS.**

The point prevalence of skin disorders was 58.7%. The fungal lesion (30.1%) and viral (3.9%) are the most common and the least cause of skin disorders respectively. Statistically significant associations were observed between age ( $p=0.0001$ ), class level ( $p=0.0001$ ), mother's education ( $p=0.003$ ), SES ( $p=0.004$ ), family size ( $p=0.042$ ), number of siblings ( $p=0.002$ ) and the occurrence of skin disorders. Others factors with significant association include; past history of skin disorder ( $p=0.027$ ), BMI ( $p=0.003$ ), frequency of change of underwear ( $p=0.016$ ) as well as protective effect of consistent use of footwear ( $p=0.016$ ). However, the other factors considered were found not to be significantly associated with occurrence of skin disorders. The occurrence of some of the skin disorder are modifiable and preventable with improved hygienic practices, nutrition and change in socioeconomic status. As such, increased public enlightenment and health program on these factors will help reduce the burdens from these skin disorders.

**Keywords:-** Skin Disorders, School Aged Children, Prevalence, Determinants, Port-Harcourt, Nigeria.

## I. INTRODUCTION

Skin disorders are known cause of great burden in children especially in developing countries. This impacts physical, social and psychological stress on them resulting to increased school absence days and financial loss from treatment. [3]. But interestingly, just like any other public health issue an appreciation of the transmission cycle as well as breaking this cycle will help reduce their occurrence and as such they are controllable and preventable.

Climatic exposure, dietary habits and external environment influence skin diseases in children when compared to adults. Exposure of school children to subclinical infection by mingling with one another increases the chances of skin infections among them [11]. It is also noted that skin diseases are more frequent among primary-school children in both developing and industrialized countries causing distress and disability than in the rest of the population Seasonal and climatic variation in occurrence of skin disorders has been documented with the tropical climates implicated in many transmissible skin infections occurring in Africa [7].

Associations has been shown between mother's education, socio economic status, overcrowding, bathing, and wearing washed clothes, toilet facility in the house and the skin diseases occurrence [13]. Other factors considered includes body mass index (BMI), nutritional status, number of siblings, parental education and occupation for mother and father; which were found not to be significantly associated with presence of skin disorders [4].

Factors such as heat and humidity, malnutrition, climatic conditions as well as overcrowding all favor bacterial infections in tropical and sub-tropical countries [14], [12].

However, low socioeconomic status, malnutrition, overcrowding, and poor standards of hygiene are thought to be important factors accounting for the distribution of skin diseases in developing countries [16].

This study is aimed at determining the factors that influence the occurrence of skin diseases among school pupils in an area at south-south region of Nigeria

## II. METHODOLOGY

### A. Study Area

The study was conducted among primary school pupils in Port-Harcourt, Rivers state. Port Harcourt is situated in the South –South region of Nigeria on latitude 4,7892 (447°21.012" N) and longitude 6,9986 (659°54.996" E). It has a tropical climate with a mean relative humidity of 68%. The climatic conditions reveal a distinct wet and dry season. Temperatures throughout the year are relatively constant hovering between 25OC and 28OC.

**B. Study Design**

A descriptive cross-sectional study design was used for this research

**C. Study Population**

The study population was school pupils (4-15 years) in primary schools in Port-Harcourt, Rivers state in South-south region of Nigeria.

**D. Inclusion Criteria**

- All children in public primary schools in Port-Harcourt, Rivers state
- School children within the age range 4-15 years in these schools.

**E. Exclusion Criteria**

Unwillingness of the pupil to participate in the study

**F. Sample Size Determination**

Using Cochran formula with the prevalence value of 35% from previous study at Ibadan [14] at a precision of 95%. The calculated sample size was 350 but with non-response adjustment of 10% it came to 385. The study had response rate of 96% (369) and completeness rate of 91% (351). The later was used for the analysis of the study.

**G. Sampling Method**

A multi-stage sampling technique was employed.

**➤ Stage One – Cluster Sampling**

The comprehensive list of primary schools in the area obtained from the Ministry of Education was grouped into twelve communities (as designated in the list) and they were further divided into 3 equal clusters of four each. By simple random sampling using balloting, one community was selected from each of the clusters.

**➤ Stage two – Simple Random Sampling**

Due to the heterogeneous distribution of the schools in these communities, the sampling proportion was calculated to be one for every six schools in these communities. Then, by simple random sampling of each of the community, five (5) schools were selected.

**➤ Stage 3 – Stratified Sampling**

At each of these schools, the total numbers of registered pupils and by sex were obtained from the Head Teachers giving a total of 1219 as the study population. Using the sample size of 385, the sampling ratio of 0.316 was calculated. Using equal sampling ratio (proportional allocation), appropriate number of pupils by sex was allocated to each of the school. Simple random sampling using table of random numbers was employ in selecting pupils from each of the school by the calculated proportion.

Then, each of the selected pupils received a questionnaire and subsequently examined by the dermatologist.

**H. Study Instrument**

A semi-structured, pre-tested, standardized and self-administered questionnaire was issued to each of the randomly selected pupil. The questionnaires with accompanying research information and parents' consent form were issued to the selected pupils to take home. The parents after reading the research information and consenting to their children participating in the study by signing the consent form they completed the questionnaires (Sections A-C) and returned them.

On return of a well-completed consent form and the questionnaire, the pupils were exposed in a well-lit and secluded room and then, their skins were examined by the accompanying consultant dermatologists using the dermoscope (where necessary) with one of the teachers as a chaperon. Provisional diagnoses made and observations from the skin examination were filled into the section D of the questionnaire by the consultant dermatologist.

**I. Data Processing**

Data were checked, coded, entered and analyzed by using Statistical Package for Social Sciences (SPSS) version 22. Data were presented in frequencies and percentage; and descriptive statistics used (mean and standard deviation) were calculated. Chi-square or Fisher exact tests were used when appropriate, P value < 0.05 was considered statistically significant.

**J. Ethical Considerations**

University of Port-Harcourt ethics Committee's approval was obtained prior to the study. Furthermore, approval from State Ministry of Education as well as from the principals and teachers of the selected school were also obtained. Then, written consents were obtained from the parent/guardian of the pupils as well as oral consent obtained from the pupils.

No identifiable information was collected as most responses were coded in brackets or initial (like the name).

Research procedures was carried out without causing any harm to participants, rather participants had prescriptions for mild skin diseases while the complex ones were referred to hospital

**III. RESULTS****A. Response Rate/Completeness of Data**

A total of 385 self-administered questionnaires were shared to the pupils for their parents/guardian to complete and return. However, only 369 of the questionnaires were retrieved giving a response rate of 96%. Furthermore, the questionnaires were checked for completeness of which only 351 were correctly and completely filled as such giving a completeness rate of 91%. As such analysis was done using n = 351.

**B. Socio-demographic characteristics versus skin disorder in children**

From Table 1, there was an obvious percentage increase in the occurrence of skin disorder with advance in age. Of the children in each of the age group, this association were statistically significant (P = 0.0001)

Out of the 165 male pupils, 102 (61.8%) had a skin disorder while 104 (55.9%) of 186 female had a skin disorder. This association was not statistically significant (P = 0.262)

Also the highest class had the highest prevalence of skin disorder. As in the table, of the 56pupils in class 2, 19(33.6%) had skin disorders; 46(63%) of the 73pupils in class 4 and 40 (87%) of the 46pupils in class 6 had skin disorders. There is statistically significant association with the factor – “class level” (P = 0.0001)

The socioeconomic status (SES) of the family of the children was calculated using the father’s educational level, father’s occupation category and average monthly income of the family. The classification was based on Modified Kuppuswamy SES scale (2018 updated) adapted to Nigeria economy; Class I (upper class): 26 - 29, Class II (upper middle): 16 -25, Class III (lower middle): 10 -15, Class IV (upper lower): 5 – 10 and Class V (lower): <5. The Majority of the families of these children are in the Class IV - “lower middle” and Class V - “lower” Socio-Economic Class (SES) i.e. 84.6% while only 1.4% and 14% of the families are in the “upper” and “upper middle” classes respectively.

The table also shows that there is a decline in the prevalence of skin disorder with upgrade in the SES. This association is statistically significant (P = 0.004).

Variables	Skin disorder		Total n (%)
	Present n (%)	Absent n (%)	
<b>Age</b>			
4 – 6 years	17 (34.0)	33 (66.0)	50 (100.0)
7 – 9 years	70 (49.0)	73 (51.0)	143 (100.0)
10 – 12 years	92 (74.2)	32 (25.8)	124 (100.0)
≥13 years	27 (79.4)	7 (20.6)	34 (100.0)
<i>Chi Square = 36.481; p-value = 0.0001* df = 3</i>			
<b>Gender</b>			
Male	102 (61.8)	63 (38.2)	165 (100.0)
Female	104 (55.9)	82 (44.1)	186 (100.0)
<i>Chi Square = 1.257; p-value = 0.262; df = 1</i>			
<b>Class level</b>			
Primary 1	15 (40.5)	22 (59.5)	37 (100.0)
Primary 2	19 (33.9)	37 (66.1)	56 (100.0)
Primary 3	24 (39.3)	37 (60.7)	61 (100.0)
Primary 4	46 (63.0)	27 (37.0)	73 (100.0)
Primary 5	62 (79.5)	16 (20.5)	78 (100.0)
Primary 6	40 (87.0)	6 (13.0)	46 (100.0)
<i>Chi Square = 58.242; p-value = 0.0001*; df =5</i>			
<b>Socio-economic class</b>			
Class I	0 (0.0)	5 (100.0)	5 (100.0)
Class II	23 (46.9)	26 (53.1)	49 (100.0)
Class III	79 (60.8)	51 (39.2)	130 (100.0)
Class IV	97 (65.1)	52 (34.9)	149 (100.0)
Class V	7 (38.9)	11 (61.1)	18 (100.0)
<i>Chi Square = 15.563; p-value = 0.004*; df = 5</i>			

*\*Statistically significant*

Table 1:- Socio-demographic characteristics versus skin disorder in children

**C. Family characteristics versus skin disorder in children**

From Table 2, it was observed that prevalence of skin disorders increased with increase in family size and number of siblings. There is statistically significant association between these factors and occurrence of skin disorders (Family size p = 0.042; Number of sibling, P= 0.002).

However, there is no statistically significant between birth order (P= 0.986) and type of house (P= 0.918) with the occurrence of skin disorders. Furthermore, the number rooms the family live in (P= 0.091), the number of person that sleep in the same room with the child (P= 0.168) and the type of toilet facility (P= 0.085) were no statistically associated with the occurrence of skin disorders.

Variables	Skin disorder		Total n (%)
	Present n (%)	Absent n (%)	
<b>Family size</b>			
≤3	13 (50.0)	13 (50.0)	26 (100.0)
4 – 6	116 (54.7)	96 (45.3)	212 (100.0)
>6	77 (68.1)	36 (31.9)	113 (100.0)
<i>Chi Square = 6.354; p-value = 0.042*; df = 2</i>			
<b>No of siblings</b>			
≤2	53 (46.9)	60 (53.1)	113 (100.0)
3 – 5	115 (61.5)	72 (38.5)	187 (100.0)
>5	38 (74.5)	13 (25.5)	51 (100.0)
<i>Chi Square = 12.348; p-value = 0.002*; df=4</i>			
<b>Birth order</b>			
1	51 (58.0)	37 (42.0)	88 (100.0)
2	104 (58.4)	74 (41.6)	178 (100.0)
3	48 (60.8)	31 (39.2)	79 (100.0)
4	2 (50.0)	2 (50.0)	4 (100.0)
5	1 (50.0)	1 (50.0)	2 (100.0)
<i>Fisher's exact test = 0.351; p-value = 0.986</i>			
<b>Type of house</b>			
Thatch house	42 (58.3)	30 (41.7)	72 (100.0)
Flat	137 (59.1)	95 (40.9)	232 (100.0)
Bungalow	20 (60.6)	13 (39.4)	33 (100.0)
Duplex	7 (50.0)	7 (50.0)	14 (100.0)
<i>Chi Square = 0.502; p-value = 0.918; df=3</i>			
<b>Number of rooms family live in</b>			
1	66 (68.8)	30 (31.2)	96 (100.0)
2	89 (56.3)	69 (43.7)	158 (100.0)
3	41 (54.7)	34 (45.3)	75 (100.0)
4	10 (45.5)	12 (54.5)	22 (100.0)
<i>Chi Square = 6.461; p-value = 0.091; df=3</i>			
<b>Number of persons in the child room</b>			
≤2	75 (53.6)	65 (46.4)	140 (100.0)
3 – 4	93 (60.0)	62 (40.0)	155 (100.0)
≥5	38 (67.9)	18 (32.1)	56 (100.0)
<i>Chi Square = 3.564; p-value = 0.168; df=2</i>			
<b>Type of toilet facility in house</b>			
Pit latrine	39 (68.4)	18 (31.6)	57 (100.0)
Water cistern	157 (55.9)	124 (44.1)	281 (100.0)
Open bush	10 (76.9)	3 (23.1)	13 (100.0)
<i>Chi Square = 4.929; p-value = 0.085; df=2</i>			

\*Statistically significant

Table 2:- Family characteristics versus skin disorder in children

## D. Health History Versus Skin Disorder in Children

Variables	Skin disorder		Total n (%)
	Present n (%)	Absent n (%)	
<b>Family history of skin disorder</b>			
Yes	37 (67.3)	18 (32.7)	55 (100.0)
No	169 (57.1)	127 (42.9)	296 (100.0)
<i>Chi Square = 1.982; p-value = 0.159; df=1</i>			
<b>Past history of skin disorder</b>			
Yes	74 (67.3)	36 (32.7)	110 (100.0)
No	132 (54.8)	109 (45.2)	241 (100.0)
<i>Chi Square = 4.868; p-value = 0.027*; df=1</i>			
<b>BMI classification</b>			
Thinness	55 (45.8)	65 (54.2)	120 (100.0)
Normal	102 (68.5)	47 (31.5)	149 (100.0)
Over-weight	32 (60.4)	21 (39.6)	53 (100.0)
Obese	17 (58.6)	12 (41.4)	29 (100.0)
<i>Chi Square = 14.105; p-value = 0.003*; df=3</i>			
<b>MUAC</b>			
Moderate	34 (70.8)	14 (29.2)	48 (100.0)
Normal	172 (56.8)	131 (43.2)	303 (100.0)
<i>Chi Square = 3.382; p-value = 0.066; df=1</i>			

\*Statistically significant

Table 3:- Health history/Status versus skin disorder in children

From table 3, in considering the family history of skin disorder even though there were 67.3% of pupils with family history of skin disorders against 54.8% of those without family history of skin disorder that have skin disorder; there is no statistically significant association established. ( $p = 0.159$ )

However, there is association between past history of skin disorder in the child with occurrence of another skin disorder and this is significant association ( $p = 0.027$ )

Against the conventional formula, Body Mass Index (BMI) and Mid Upper Arm Circumference (MUAC) by age was used and the study showed that 149(42.5%) are within normal range for BMI, 82(23.4%) are either over-weight or obese while 120 (34.2%) were adjudged to be thin. On the other hand, no child was noted to be severely malnourished

but 48 (13.7%) fell in the moderate malnutrition and 303(86.3%) to be fairly nourished.

Across the classification of BMI, it was observed that 55(45.8%) of those that were “thin”, 102 (68.5%) of pupils that were within “normal” range, 32(60.4%) of those that were “overweight” and 17(58.6%) of those that were “Obese” were observed to have skin disorders. This is found to be statistically significant ( $p = 0.003$ ).

On the other hand, 34 (70.8%) of moderately malnourished pupils had skin disorder while 172 (56.8%) of the pupils that are nourished had skin disorder. Literally, it can be said that malnourishment is a predisposing factor for skin disorders but this was not statistically significant ( $p = 0.066$ ).

## E. Hygiene Factors Versus Skin Disorder in Children

Variables	Skin disorder		Total n (%)
	Present n (%)	Absent n (%)	
<b>Frequency of bath per day</b>			
Once	21 (72.4)	8 (27.6)	29 (100.0)
Twice	153 (57.1)	115 (42.9)	268 (100.0)
More than twice	32 (59.3)	22 (40.7)	54 (100.0)
<i>Chi Square = 2.543; p-value = 0.280; df=2</i>			
<b>Frequency of change of underwear</b>			
>1/Day	35 (79.5)	9 (20.5)	44 (100.0)
Daily	149 (56.9)	133 (43.1)	262 (100.0)
3–4 times/week	6 (42.9)	8 (57.1)	14 (100.0)
1–2 times/week	16 (51.6)	15 (48.4)	31 (100.0)
<i>Chi Square = 10.339; p-value = 0.016*; df=3</i>			
<b>Number of times child wear clothes before washing</b>			
1	133 (56.6)	102 (43.4)	235 (100.0)
2	59 (62.8)	35 (37.2)	94 (100.0)
3	11 (68.8)	5 (31.2)	16 (100.0)
≥4	3 (50.0)	3 (50.0)	6 (100.0)
<i>Chi Square = 1.924; p-value = 0.588; df=3</i>			
<b>Sharing of towel with siblings/parents</b>			
Yes	98 (58.3)	70 (41.7)	168 (100.0)
No	108 (59.0)	75 (41.0)	183 (100.0)
<i>Chi Square = 0.017; p-value = 0.897; df=1</i>			
<b>Use of soap during bath</b>			
Yes	201 (58.3)	144 (41.7)	345 (100.0)
No	5 (83.3)	1 (16.7)	6 (100.0)
<i>Fisher's exact test = 1.529; p-value = 0.407; df=1</i>			
<b>Use of lotion, cream or powder after bath</b>			
Yes	195 (57.7)	143 (42.3)	338 (100.0)
No	11 (84.6)	2 (15.4)	13 (100.0)
<i>Chi Square = 3.743; p-value = 0.053; df=1</i>			
<b>Use of footwear outside house</b>			
Yes	184 (56.4)	142 (43.6)	326 (100.0)
No	22 (88.0)	3 (12.0)	25 (100.0)
<i>Chi Square = 9.538; p-value = 0.002*; df=1</i>			
<b>Presence of pet at home</b>			
Yes	33 (68.8)	15 (31.2)	48 (100.0)
No	173 (57.1)	130 (42.9)	303 (100.0)
<i>Chi Square = 2.321; p-value = 0.128; df=1</i>			

\*Statistically significant

Table 4:- Hygiene factors associated with skin disorder in children

Most of the pupils take their bath at least twice a day 185(87.7%) and only 21(12.3%) takes their bath once a day. The table further showed that the occurrence of skin disorder decreased with increase in the frequent of bathing i.e. those bathing once had 72.6% of them with skin disorder while those bathing at least twice had only 57.1% with skin disorder. However, this association was noted not to be statistically significant ( $p = 0.280$ ).

Also similar finding was observed in the number times a child wears a cloth before washing in which pupils

that wash their clothes after one wear had about 56.6% of them with skin disorder against 68.8% in those that wear their clothes thrice before washing. This finding was not statistically significant ( $p = 0.588$ ) probably due to size of the study population or other factors not considered.

Sharing of towel with family members was also not statistically significant ( $P = 0.003$ ) with those that share towel almost same as those that does not share towel (58.3% vs 59%).

However, there was an observed decrease in the occurrence of skin disorder with decrease in the frequency of changing their underwear. This was noted to be statistically significant ( $P = 0.016$ ). This may have been influenced by the size of the study and other confounding factors not considered.

Use of soap during bathing ( $p = 0.407$ ) and lotion after bathing ( $p = 0.0503$ ) were not statistically associated with the occurrence of skin disorder in these children though there were percentage benefits of using soap during bathing than not using (58.3% vs 83.8%) and using lotion/powder after bathing than not using (57.7% vs 84.6%). This dissociation may be attributed to the size of the study population.

Conversely, a consistent use of footwear outside the house was found to be protective to the occurrence of skin disorders (56.4% vs 88%). This association is statistically significant ( $P = 0.002$ ).

Though presence of pet in the house against not having a pet in the house was in the distribution of 68.8% vs 57.1% for those having a skin disorder, this was not statistically associated. ( $P = 0.128$ ).

#### IV. DISCUSSION

The point prevalence of skin disorders observed from this study was 58.7% which is high if compared with studies in the western Nigeria - 35% at Ibadan and 39.6% at Sagamu [14], [4]. The study is at the same time low when compared with studies at the Eastern Nigeria - 72.3% [10]. The high prevalence in this study were believed to be due to polluted environment filled with soot as well as overcrowding observed at the class. The fungal skin disorders (30.1%) were the commonest with the least as the viral skin disorders (3.9%). This agrees with most studies that have documented in Nigeria

The occurrence of skin disorders was observed to rise as the children advance in age ( $P = 0.0001$ ). Though, this was different from the finding from other studies that the reverse is the case. [2], [13]. This was explainable by their usage of higher age range than what was obtainable in this study. Also some thought believes there is initial increase in skin disorders with age but reverse around age 9-10 years with increase in personal hygienic practices, giving a picture of reduction of skin disorders with increasing age. [12]. As explained in a study in south-east Nigeria [10], the supervisory role played by parents during bathing slowly reduces as their children enters primary school; as such the increase in skin disorders with age until they appreciate hygienic practices.

The Male to Female occurrence of skin disorders - 61.8% vs 55.9% tends to agree with the finding by [4] in a similar study - 48.1% vs 31.6%. This was ascribed to the general concern of the females for the appearance and skin than the males which reduces the occurrence of the skin disorders

#### ➤ Socioeconomic Factors

Interestingly, BMI of the children were found to be statistically significant in the occurrence of skin disorder ( $P = 0.003$ ); the study showed that the non-occurrence of skin disorders increases with rise in the BMI. This is quite different from the previous study in [1], [4]; in which no statistical significance was observed but on the other hand, the nutritional status (MAUC) tallies with the same study which no significant correlation was noted with skin disorders ( $P = 0.066$ ). This further highlights the limitation of BMI and MUAC at this age in properly assessing their nutritional status. As such, other factors may have contributed to the result.

The study showed that the prevalence of skin disorders decreased with increase in the socioeconomic status (SES). It was found that the prevalence of skin disorder was more in the lower SES and lesser in the upper SES and as such statistically significant ( $P = 0.004$ ). In other words, upper SES is a protective factor which is believed to be due to better nutrition and personal hygiene usually seen in these classes. This is similar to the study in [11], in which the prevalence of skin disorder decreases with the higher SES. The latter study further showed a correlation with the father's and mother's occupational level but no such correlation was observed in this study. However, mother's education was of significant correlation to the occurrence of skin disorders ( $P = 0.003$ ) which is similar to the study in [13]. It is generally believed that with the increase in educational level of the mother there will be a better care of the children resulting to healthier children with reduced susceptibility to skin diseases and immediate intervention when there is any disorder.

There were considerations in different studies that family size, number of siblings, number of persons sleeping in the same room with the child, type of house and toilet facility may affect the prevalence of skin disorders in children. This study showed that there is no statistically significant association between birth order ( $P = 0.986$ ), Type of house ( $P = 0.918$ ), number of rooms in the house ( $P = 0.091$ ), specific number of person sleeping in the same room with the child ( $P = 0.168$ ), toilet facility ( $P = 0.085$ ) and the prevalence of skin disorders. On the other hand, there is observed significant association of family size ( $P = 0.042$ ) and number of siblings ( $P = 0.002$ ) to the prevalence of skin disorders. This can be explained by the shared care from the mother with increase in the family size as well as increase in financial demand that makes less symptomatic skin disorder a lesser priority for the limited resources. Conversely, this study does not collaborate the association observed by Janaki [9] between overcrowding, toilet facility in the house and the occurrence of skin disorders.

#### ➤ Hygiene Factors

The hygiene of the children was considered in the study of which frequency of bathing, washing clothes and sharing of towel were observed not to be predictors to the occurrence of skin disorder. However, the frequency of changing underwear (pants and singlets) was shown to be well associated with the occurrence of skin disorders ( $P =$

0.016). This finding partly agrees with the study in [3] except for the protective factors of non-sharing of towel which was not significantly associated in this study. It was discussed that when most children get home from school, they remove their school uniform but many still remain in their underwear for the rest of the day. As such they claimed that the more frequency a child changes his/her underwear which are directly in contact with the skins, the lesser the chance of occurrence of skin disorders. With 91.7% of children taking their bath at least twice a day and only about 33% wearing their clothes twice and above before washing, it is logical to assert to the finding of no significant association of their effect on the occurrence of skin disorders.

Furthermore, a history of known past skin diseases in the children were predictors for occurrence of another skin disorder ( $P= 0.027$ ). However, a family history of skin disorder was not statistically significant with occurrence of skin disorders ( $P= 0.159$ ) as other individual factors may determine the susceptibility to skin disorders.

Other factors like use of soap during and lotion after bathing were not statistically significant to be associated with occurrence of skin disorders ( $P= 0.407$ ;  $P= 0.053$ ). Also presence of pets (like dog, cat) were positively related to occurrence of atopy though not significant enough to be associated with occurrence of skin disorders in general. ( $P= 0.128$ ). Understandably, the consistent use of footwear was observed to be a protective factor to occurrence of skin disorder especially of the lower limbs ( $P= 0.002$ ). These findings were in line with the observations noted in [3] among primary school children in Al-Hassan Saudi Arabia.

## V. CONCLUSIONS

There are a lot of factors that influence the occurrence of the skin disorders depending on their presence or absence in an area or individual. Skin disorders dominant in the tropics is different from that at the temperate regions. It is also evident that some of these factors are modifiable and as such most skin disorders are controllable or preventable. In general, with improved hygienic practices, good nutrition and safer environment the occurrence of skin disorders will markedly reduce. Further buttress the need for our government to provide the basic amenities - water supply, good housing, stable economy that will improve the standard of living of an average citizen.

A massive and conscious effort towards militating the negative factors and improving the positive factor will greatly reduce the burden of skin disorder in our environment.

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