

Parental Factors Influencing the Prevalence of Skin Infections and Infestations Among Nigerian Primary School Pupils

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Abstract

Background: The various factors including parental which influence the prevalence of childhood skin infections and infestations (SII) in the developing countries have been subjected to very little research. Yet, the health and well-being of children is dependent on their parents.

Objectives: To determine the prevalence and influence of parental factors of skin infections and infestations (SII) among primary school children in Ijesa-land, Nigeria and influence of parental factors.

Methodology: A total of 1,120 pupils from 30 non-boarding public schools in 6 Local government areas of Ijesa-land, were recruited by a multi-staged random technique. Physical and laboratory examinations for SII were conducted and parental socio-demographic data documented.

Results: The overall prevalence rate for SII was 40.4%. Impetigo (19.4%), Tinea (15.0%), Pityriasis versicolor (6.1%) and Scabies (4.3%) were the most prevalent. Hitherto, majority (88.9%) of affected pupils were unaware of their skin disease. Higher prevalence of SII was observed among children of unmarried parents ($p = 0.034$), poorly-educated mothers ($p < 0.001$), poorly-educated fathers ($p = 0.002$), low maternal ($p < 0.001$) and low paternal ($p < 0.001$) occupational groups and those with low parental socio-economic status ($p < 0.001$).

Conclusions: SII are very common among Primary school pupils in Ijesa-land. Low parental occupational grouping, poor parental socio-economic, educational and marital status may be contributory.

Recommendation: Enhanced parental, particularly female education, poverty alleviation and improved school health programme may mitigate the effects and prevalence of SII among school children in this community.

INTRODUCTION

Skin infections and infestations (SII) are common in childhood worldwide. They affect 49.2 - 80.4% of African primary school children.^{1, 2} There is paucity of literature on SII among primary school pupils in Western Nigeria.³ The few previous studies on this subject portray SII as an emerging scourge in Africa.^{1,2,3} This is in spite of all the attempts made at reducing the burden of infections and infestations by different governmental and non-governmental agencies in the last few decades. Most of the previous studies^{1,2,3} were undertaken outside this region and the parental factors affecting prevalence of SII were understudied. However, it is desirable to know the parental factors

associated with SII, because the identification of these factors may be the key to the control of these diseases. The study therefore aims to document the prevalence of SII among primary school pupils and to determine the various parental factors associated with SII among the affected pupils. The study was carried out in Ijesa-land which encompasses six Local Government Areas located in Western Nigeria.

METHODOLOGY

From February 2003 to July 2003, the cross-sectional survey was conducted among the 58, 424 pupils of the 166 registered non-boarding public primary schools in Ijesa-land.

Informed parental consent through the various school head teachers and a formal consent from the 6 Local Government Educational Authorities were obtained. By multistage sampling technique stratifying for pupil age, sex and class and school location (urban/ rural), 1,120 pupils from 30 schools from 4 of the 6 Local Government Areas were recruited randomly.

Socio-demographic data which included parental educational attainments, marital status and occupation were obtained via a semi-structured questionnaire. The pupils were allocated into social classes using a combined score derived from occupation and educational attainments of both parents as described by Oyedeleji. ⁴ Parents with none or less than primary six completed formal education were classified as poorly-educated and the rest as better-educated. Parents with occupation belonging to the professional and semi professional cadres such as doctors lawyers bankers and senior public servants were grouped into the higher occupational groups, while all other parental occupations such as drivers, artisans, policemen, junior public servants, subsistence farmers and similar grades were classified as lower occupational groups. Social class I and II were classified as higher social classes and III to V as lower social classes. ⁴

Diagnoses of the skin infections and infestations were made following physical examination aided by the use of a magnifying glass and a self-instructional pictorial manual. ⁵ Each child was undressed and his/ her skin was physically examined in good light noting the presence of any infection or infestation. Mycological, bacteriological, and mite identifications were also conducted to confirm etiological diagnoses. All subjects with SII were asked if previously aware of their disease while appropriate treatment and instruction care were thereafter provided. Data were analyzed with the Chi square (χ^2) tests using the SPSS for windows software version 11. Values of 'p' < 0.05 were accepted as statistically significant.

RESULTS

PREVALENCE

Of the 1,120 pupils [546 boys, 574 girls] studied, 453 pupils [268 boys, 185 girls] had skin infections and infestations (SII) giving a prevalence of 40.4% (male: female ratio = 1.4: 1). This greater male affectation with SII was statistically significant ($\chi^2 = 10.8$, $p = 0.001$). No SII were seen in the remaining 667 (59.6%) pupils. Table I shows the pattern of

SII. Impetigo (19.4%), Tinea (15.0%), Pityriasis versicolor (6.1%) and Scabies (4.3%) were the most prevalent. Hitherto, 403 (88.9%) affected pupils were unaware of their skin disease.

PARENTAL EDUCATIONAL ATTAINMENTS

Table II shows the relationship between the presence of SII in the pupils and the educational levels attained by their parents. Out of the 1,120 mothers, 19 (1.7%) attained postgraduate and graduate levels, 95 (8.4%) school certificate plus professional training [e.g. nursing], 333 (29.7%) school certificate or grade 2 certificate, 441 (39.4%) primary six completed and modern 3, while 232 (20.7%) had none or less than primary six completed formal education. Among the 232 pupils with poorly-educated mothers, 119 (51.3%) pupils had SII compared with 334 (37.6%) of the 888 pupils of better-educated mothers ($\chi^2 = 14.3$, $p < 0.001$). Also, 96 (50.3%) of the 191 pupils with poorly-educated fathers had SII compared with 357 (38.4%) of the 929 whose fathers' were better-educated ($\chi^2 = 9.2$, $p = 0.002$). Thus, poor parental educational attainment, more especially maternal was associated with a high prevalence of SII with statistical significance.

OCCUPATION OF THE PARENTS

The occupational distribution and the rates of SII seen among the parents of the various children are shown in Table III. Majority of parents of the children [1,016 (90.7%) mothers and 953 (85.1%) fathers] were in lower occupational group. There were 104 (9.3%) mothers and 167 (14.9%) fathers in the higher occupational groups. Among the 453 children with SII, 430 (94.9%) and 412 (90.9%) children had mothers and fathers in the low occupational groups respectively while 23 (5.1%) and 41 (9.1%) had mothers and fathers in the high occupational groups respectively. Thus, increased prevalence of SII was found among the lower than the higher occupational groups for both mothers ($\chi^2 = 15.9$, $p < 0.001$) and fathers ($\chi^2 = 20.6$, $p < 0.001$). The findings are statistically significant.

PARENTAL SOCIO-ECONOMIC STATUS

Table IV shows the social class distribution of the parents. Majority of the pupils' studied 978 (87.3%) belong to the lower social classes (III to V) while the remaining 142 (11.7%) were from higher social classes (I and II). However, 32 (22.5%) of those from the higher social classes as against 421 (43.0%) of those from the lower social classes had SII. This greater percentage of pupils from the lower classes as

compared with those from the higher social classes having SII was statistically significant ($\chi^2 = 21.7$, $p < 0.001$).

PARENTAL MARITAL STATUS

Of the 1,120 pupils studied, 1,074 (95.9%) had married parents while for 46 (4.1%), the parents were not married. Four hundred and twenty-seven (39.9%) of the 1,074 pupils with married parents as against 26 (56.5%) of the 46 pupils with unmarried parents had SII. Thus, significantly, many more children with unmarried parents suffered SII than those whose parents were married ($\chi^2 = 4.5$, $p = 0.034$).

Figure 1

Table 1: Pattern of Skin Infections and Infestations among the 435 Pupils.

Skin Infections and Infestations (SII)	Numbers (Percentages) of Pupils with SII*	Case Prevalence
1. Impetigo	217 (38.8%)	19.4%
2. Tinea	168 (30.0%)	15.0%
3. Pityriasis versicolor	88 (12.0%)	8.1%
4. Scabies	48 (8.6%)	4.3%
5. Viral warts	21 (3.8%)	1.8%
6. Papular urticaria	16 (2.9%)	1.4%
7. Furuncle	9 (1.6%)	0.8%
8. Creeping eruptions	8 (1.4%)	0.7%
9. Molluscum contagiosum	5 (0.9%)	0.4%

* Some pupils had multiple affection hence, a total number of 560 SII were recorded.

Figure 2

Table 2: Comparative Analysis of Pupils with SII by Parental Educational Attainments.

Parental Educational Attainments	Number (Percentage) of pupils with SII / Number of Parents in Educational Level	
	Mothers	Fathers
1. Postgraduate and Graduate	4 (21.1%)/ 19	11 (25.8%)/ 43
2. Secondary School and Additional Professional Training	25 (26.3%)/ 95	37 (30.1%)/ 123
3. Secondary School and Grade II Teachers Certificate	118 (35.4%)/ 333	118 (35.4%)/ 333
4. Completed Primary Six or Modern Three	187 (42.4%)/ 441	191 (44.4%)/ 430
5. No Formal Education or Did not Complete Primary Six	119 (51.3%)/ 232	96 (50.3%)/ 191
Total	453 (40.4%)/ 1,120	453 (40.4%)/ 1,120

Figure 3

Table 3: Comparative Analysis of Pupils with SII by Parental Occupational Status.

Parental occupational distribution	Number (Percentage) of pupils with SII / Number of Parents in occupational cadre	
	Mothers	Fathers
1. Professionals (e.g. engineers doctors, managers and similar grades)	3 (15.6%)/ 19	10 (25.0%)/ 40
2. Semi professionals (e.g. Senior school teachers, Technicians, senior public servants and similar grades)	20 (23.5%)/ 85	31 (24.4%)/ 127
3. Insurance agents, police men medium grade traders, medium public servants and similar grades	112 (37.1%)/ 302	130 (40.4%)/ 322
4. Drivers, junior public servants, artisans and similar grades.	176 (41.7%)/ 422	201 (45.7%)/ 440
5. Petty traders, subsistence farmers, labourers and similar grades.	142 (48.6%)/ 292	81 (42.4%)/ 191
Total	453 (40.4%)/ 1,120	453 (40.4%)/ 1,120

Figure 4

Table 4: Distribution of the Pupils by Parental Socio-economic Status.

Social class	Number (Percentages) of Pupils in the social class		Total number (Percentage) of pupils in the social classes
	With SII	Without SII	
I	4 (21.1)	15 (78.9)	19 (1.7)
II	28 (22.8)	95 (77.2)	123 (11.0)
III	93 (36.0)	165 (64.0)	258 (23.0)
IV	172 (41.5)	242 (58.5)	414 (37.0)
V	156 (51.0)	150 (49.0)	306 (27.3)
Total	453 (100)	667 (100)	1,120 (100)

DISCUSSION

Our high prevalence of skin infections and infestations (SII) among primary school pupils is comparable to the 49.2% obtained from Ethiopia. ¹ This comparison stems plausibly from similarities in sanitary and socio-economic standards which are poor in both African countries. ¹ Yet, this is far higher than the 28.2% reported in Taiwan.⁶ Geographic differences may in-part explain this disparity while the Taiwanese national health insurance scheme may also have contributed. ⁶

The high prevalence of SII observed may be a pointer to poor parental supervision, child neglect or ignorance. The latter may be more outstanding judging from the preponderance of pupils with SII whose parents were illiterate or had poor educational attainment. Child survival and health are known to be positively influenced by maternal education. ⁷ Perhaps, educated mothers are better able to appreciate and utilise health promotion and disease prevention services for their children. ⁷ Thus, it was unsurprising to have found a more statistically significant association between poor maternal as compared to paternal education and presence of SII. Thus, efforts aimed at reducing the prevalence of SII in Nigeria may require the

promotion of female education, plausibly by making universal basic education free possibly to the secondary school level. This should be backed up by allocation of sufficient funds and enforceable Legislation. Adult education programmes will however benefit the existing pool of poorly educated parents and the community.

By our results, SII was more prevalent among children of single parents, those from the lower occupational groups and lower social classes. This was not surprising as poor social class and single parenthood have been earlier documented to have adverse effects on child health.^{8,9} The relationship between social class, occupational status and educational attainment is inter-twined; occupational status is a determinant of social class while educational attainment may be a major determinant of an individual's occupation, thus it is not surprising that the results obtained for educational attainment and occupational attainment and social class mirror each other. Perhaps, the single parent has less financial but more parental obligations, a situation which may require a more skilful and ardent balance of time and funds in order to avoid neglecting their children. To this end, poverty alleviation programmes aimed at job creation and improved remuneration may empower the citizenry economically and bring about an improvement in the socio-economic and health status of the citizens.

The poor level of personal awareness regarding the presence of SII among the pupils in the present study is consistent with findings from other studies and noteworthy.¹⁰ This may also be a reflection of the level of awareness of these diseases or their health implications by the parents and teachers alike. To this end, routine inspection of the pupils for SII and hygiene and health lectures on locally prevalent diseases should be incorporated into the school health programme for pupils, parents and tutors. The teacher training programme should incorporate lessons on health education and hygiene as well as in-service refresher training. Public media outlets including print and electronic, governmental and otherwise, should encourage programmes that promote family health, marital harmony and functional

families. In deed, children with SII need to be followed-up in a future study as a possible indicator of underlying ill-health. This study was carried out on non-boarding children attending public schools. These pupils spend the better part of their time at home under the care of parents. There is need to conduct similar studies among pupils private schools as well as schools with boarding and special educational facilities.

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References

1. Dagnew MB, Erwin G. Epidemiology of common transmissible skin diseases among primary school children in North-West Ethiopia. *Trop Geog Med* 1991; 43: 152-5.
2. Dagnew MB, Gunther E. Epidemiology of communicable skin diseases in school children of a rural area in Northern Ethiopia. *Dermatol Monatsschr* 1990; 176: 219-23.
3. Somorin AO, Nwabudike I, Adetosoye AI, Hunponu-Wusu OO. Dermatophytosis in school children. *Nig J Paediatr* 1997; 4: 39-41.
4. Oyediji GA. Socioeconomic and cultural background of hospitalised children in Ilesa. *Nig J Paediatr* 1995; 12: 111-7.
5. Olumide YN. Common parasitic dermatosis. In: Olumide YMA (ed). A pictorial self instructional manual on common skin diseases. Lagos, Unilag Press 1993; 26-28, 48-54.
6. Wu YH, Su HY, Hsieh YJ. Survey of infectious skin diseases and skin infestations among primary school students of Taitung county, Eastern Taiwan. *J Formos Med Assoc* 2000; 99: 128-34.
7. Cleland JG, Van Ginneken JK. Maternal education and child survival in developing countries: The search for pathways of influence. *Soc Sci Med* 1988; 27: 259-72.
8. Saxena S, Majeed A, Jones M. Socio-economic differences in childhood consultation rates in general practice in England and Wales. *Br Med J* 1999; 318: 624-6.
9. Hartnup T. Divorce and marital strife and their effects on children. *Arch Dis Child* 1996; 75: 1-3.
10. Popescu R, Popescu CM, Williams HC, Forsea D. The prevalence of skin conditions in Romanian school children. *Br J Dermatol* 1999; 140: 891-6.

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