

Common Skin Infections among Secondary School Students in Mbaise, Imo State, Nigeria: Proxy Predictor of Environmental Hygiene Standards

¹O. Nwankwo Benjamin, ¹N. Amadi Agwu, ²S. Nwoga Kachi, ¹M. Chukwuocha Uche,

¹A. Nwoke Eunice, ³C. Oguejiofor Nnaemekaand and ⁴Odom Uchechukwu

¹Department of Public Health Technology, School of Health Technology,
Federal University of Technology, Owerri, Imo State, Nigeria

²Hands of Joy Health and Community Support Initiative, Aladimma, Owerri, Imo State, Nigeria

³HIV/TB Unit, Federal Medical Center, Owerri, Imo State, Nigeria

⁴Department of Health, Mbaitoli LGA, Nwaorieubi, Imo State, Nigeria

Abstract: The primary aim of the study, was to investigate the prevalence of skin infections among students in secondary schools with particular emphasis in Ahiazu Mbaise Local Government Area of Imo State, Nigeria. Appropriate research questions and hypotheses were formulated that tallied with the objectives of the study. Descriptive survey research design was employed to randomly select a sample of 324 students (162, respectively in both the junior and senior classes) from 6 out of a total of 13 secondary schools in the area. Stratified random sampling technique was used in the selection. A self structured, valid and reliable questionnaire was the main instrument utilized for the collection of data. Results primarily showed that various skin infections exist among the students. The students demonstrated high knowledge of both the causes and prevention of skin infections. Consequently, it was recommended among other things the need therefore for both the school and the home to work in a coordinated manner in order to ensure that the adolescents put into practice what they had learnt to prevent skin infections. Also, prompt medical attention should be sought once any sign of skin infection is noticed among the students.

Key words: Prevalence, skin, infections, students, secondary school, environmental, standard, hygiene, predictor

INTRODUCTION

The human body has been given the most beautiful covering the skin. Nothing is more lovely and attractive than a growing healthy skin. All too often, though one's appearance is marred by ugly scars and chronic eruptions, many of which need never have occurred had the skin received proper care (Hayden, 1985). Skin infection is one of the most common complications for most individuals (O'Dell, 1998; Ko *et al.*, 1998), especially in the tropical areas (Sladden and Johnston, 2004). Many of these infections are caused by poor public health originating from overt, ignorance and population upheaval (Dagan, 1993). This predicament seems to be more rampant among children and adolescents including students being common reasons for consultation in primary care and in dermatology practice (Sladden and Johnston, 2004; Hayden, 1985; Tunnessen, 1984; Findlay *et al.*, 1974). The tropical environment is full of extremes-under

development, population explosions, poverty, very poor hygiene and filthy environment that support the highest number of infectious disease agents. These extreme combinations make this region suitable for many infectious diseases that threaten the life and well being of the inhabitants of this region. This state of affairs has to do with the equable climatic condition that supports the various life cycle patterns and transmission pathways of disease agents. This assertion according to Isaac (2006) are coupled with lack of enlightened information on disease transmission and control as well as very poor socio-economic standard of living, which exposes millions of people to risk of infection.

In rural areas, skin infection represents 30% of all hospital visits (Sladden and Johnston, 2004; Lucas and Gills, 1990). According to Sladden and Johnston (2004), there are many types of skin infections such as viral (Herpes simplex); fungal (Tinea pedis and ringworm) and Bacterial (impetigo and folliculitis). All skin types run the

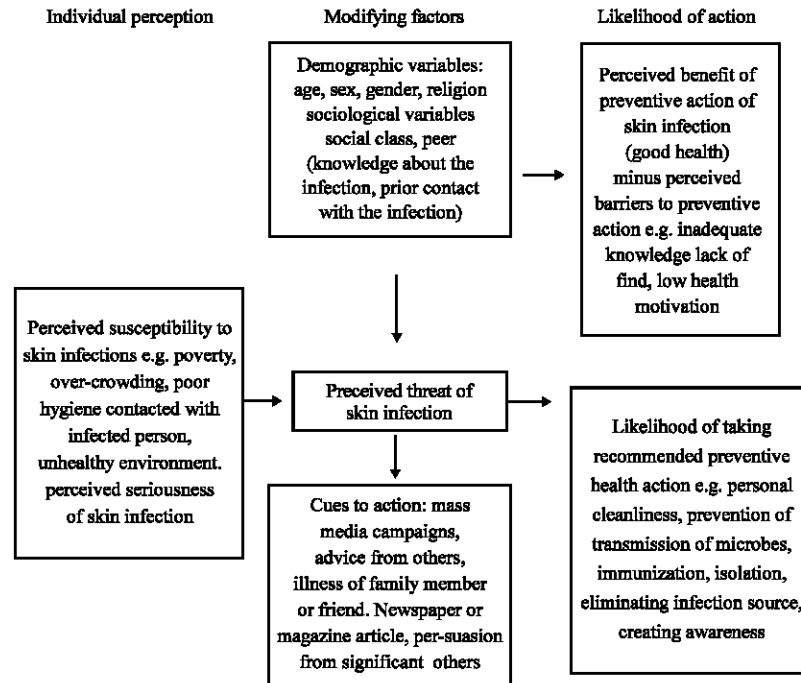


Fig. 1: Adaptation of the health belief model

risk of infections. Evidence has shown that several factors predispose students to skin infection. These include inability to maintain personal hygiene, overcrowding, poverty, lack of knowledge, direct contact with the infected person, using contaminated skin care products (Ogbuagu and Eneanya, 2006). Causes of skin infections according to Abanobi (1999) may sometimes follow the epidemiological multiple cause-single effect model.

Some of the signs and symptoms of skin infection include pains, swellings, redness or warmth around the area, red streaks extending from the area, fever, chills, sweating, headache, muscle aches and fatigue, rashes, sores, inflammation, itching, skin blister or pimples may develop because of skin infections. The effects of skin infections on students and their age cohorts are very obvious. Poor school attendances, discomforts, intellectual depravity, huge financial and health care cost on families or even death are examples (Obionu, 2004).

In the light of the foregoing discussion, the researchers were motivated to ascertain the prevalence of skin infection among students in secondary schools in Ahiazu Mbaize Local Government Area. To these end the study sought further to ascertain the various forms of skin infections that exists among students; the most prevalent skin infection in relation to gender, religion or items/personal effects shared at home; the student's knowledge of the causes and preventive measures of the skin infections; the relationship between prevalent skin

infection conditions and living conditions at home and finally on whether knowledge of both the causes and the preventive measures of skin infection is related to student's class of study.

It is hoped that this study will apart from forming a good base line study for other researchers, may be of great significance to the students, teachers, curriculum planners, parents, government and non governmental organizations.

Theoretical framework in understanding the prevalence of skin infections among students in secondary schools:

Theories and models are very important tools in health education because they provide strategies for understanding human behaviours and those factors that influence their behaviours. According to Handwerker (1997), theories and models are usually adopted in studies to provide clear explanation of how the important variables are linked, so that hypothesis and instrument developed would capture concepts being studied (Winefield and Peay, 1980). Example of the model is the health belief model (Fig. 1).

Health belief model is one of the most influential approaches designed to account for the ways in which health and even sick people seek advice to avoid illness condition. The model provides a tool for identifying client's perception of disease and the decision-making process the person uses in seeking health care services.

Health-care seeking behaviour viewed from the perspectives of the model is influenced by several variables (Abanobi, 2005). The major elements of health belief model are individual perceptions about the threat of diseases, modifying factors and the likelihood of action.

Individual perceptions of the threat of the disease or infection result from 2 factors: Perceived susceptibility and perceived seriousness. Perceived susceptibility is the extent to which an individual feels threatened with a health problem, while perceived seriousness is the perceived threat of a health problem. The individual perception of the seriousness of the threat is an important inducement for a positive pattern of behaviour.

According to Rosenstock (1974), the possibility of the individual to be motivated in taking the appropriate course of action is also influenced by a set of variables or modifying factors like age, gender, level of education. These modifying factors can influence both perception and the corresponding cues necessary to initiate appropriate health behaviour referred to as cues to action.

Another phase of the health belief model is the likelihood of action. Despite recognition that action is necessary, a person might still not be sufficiently motivated to act. The likelihood of action is enhanced when the benefit of taking the action is realized. Barriers like inadequate knowledge, lack of fund can prevent students from initiating appropriate actions. Conversely, those children with low health motivation were also reported by Gochman (1981), as not likely to have the future intention of seeking medical advice. Health belief model therefore, serves useful purpose in preventive as well as curative situations particularly with voluntary behaviours (Fig. 1).

MATERIALS AND METHODS

The researchers employed the survey method of research design in order to ascertain the prevalence of skin infection among students in secondary schools in Ahiazu Mbaise. The method is considered appropriate for this study because it deals with the general description of the present situation. According to Ejifugha (1998), descriptive survey adopts the self-report research style of finding out current status of phenomenon from a population who supply the relevant data and to whom the data is generalizable. Other authorities (Onyeniyi, 2000), had utilized descriptive survey research design in ascertaining prevalence of scabies among primary school pupils in Oyo state schools, in western Nigeria.

The area of the study is Ahiazu Mbaise Local Government Area, which was created in 1976. Geographically, Ahiazu Mbaise Local Government Area has boundaries on the North with Isiala Mbano and Ehime Mbano Government Areas, on the South with Aboh Mbaise Local Government Area and on the East with Ihitte/Uboma Local Government Area. Ahiazu Mbaise covers an area of about 107 km² and a projected population of 242,996 based on a 25% annual growth rate of the 1963 census figure of 118,080. There are about 48 primary schools with very large enrollment and 13 secondary schools. In the health sector, malaria and other infections remain major health problems in the area. The target population of the study consisted of all secondary school students in the 13 existing secondary schools in Ahiazu Mbaise Local Government Area. The accessible population of the study consisted of 3240 students in the 6 randomly drawn secondary schools in Ahiazu Mbaise Local Government Area. The sample for the study consisted of 324 students drawn randomly from schools already selected (10% of the accessible population). The stratified random sampling technique was adopted. Based on their year of study, JSS1-SS3 classes were randomly stratified using equal allocations. Nine students in one stream of each class in the 6 schools were selected for the study. Each class has 6 streams (a-f). A total of 54 students/school were enrolled.

A close ended, structured questionnaire, which was divided into 2 sections was the major tool used for data collection. The instrument was subjected to a test-retest reliability exercise in another but similar LGA and was found consistent ($r = 0.98$). The instrument administration, which lasted 14 days, was done on a face to face basis after due authorization was obtained from the principals.

RESULTS AND DISCUSSION

Demographic data of respondents: Out of the 324 students that responded to the questionnaire, 182 (56.2%) are females while 142 (43.8%) are males. Students are predominantly Christians (98.5%), few (1.5%) are traditionalists. No student mentioned Islamic religion. On their living condition/arrangements at home, study revealed that majority 153 (47.2%) of the students were living with 2-3 inmates in a room, many, 139 (42.9%) were living with one person in a room while some, 32 (9.9%) were living with >4 persons in a room. Students were also asked to mention house items or personal effects that they share with others at home. Majority, 120 (37.0%) share clothes commonly, many, 100 (30.9%) exchange their foot wears, some, 82 (25.3%) share towel commonly, while a few, 22 (6.8%) of the students use hair comb commonly.

Table 1: Frequency distribution of various forms of skin infections

Forms of skin infections	F (%)
Athletes foot	44 (13.6)
Eczema	176 (54.3)
Chicken pox	48 (14.8)
Scabies	36 (11.1)
Herpes simplex (type 1)	20 (6.2)
Total	324 (100.0)

Table 2: Knowledge of causes and prevention of skin infections

Issue	Knowledge level			Total (%)
	High (%)	Moderate (%)	Low (%)	
Cause of skin infections	186 (57.4)	120 (37.0)	18 (5.6)	324 (100)
Prevention of skin infections	156 (48.1)	100 (30.9)	68 (21.0)	324 (100)

Prevalent forms of skin infection and students perception of vulnerability:

Respondents listed Chicken pox, Athletes foot, Scabies, Herpes simplex and Eczema as common skin infections in the area. Among these (Table 1) Eczema (54.3%) was regarded as the most prevalent. This was followed by Chicken pox (14.8%), Athletes foot (13.6%), Scabies (11.1%) and Herpes simplex (6.2%). On personal vulnerability to any of these infections, 240 students (74.1%) agreed that they had at one time or the other been affected by skin infections while, 84 (25.9%) of them said they have never been affected by skin infection. For those 240 affected by skin infections, many 215 (89.6%) have had between 1-2 experiences, while a few 25 (10.4%) have experienced it >2 times. It should be noted that the student's recall of these conditions were based on diagnosis made on them by physicians when they experienced some signs and symptoms. These findings however, are in agreement with the submission of Onuzulike (2001) that forms of skin infections among adolescents may include athlete foot, eczema or contact dermatitis, acne or pimple, chicken pox, warts and scabies. Onuzulike (2001), further opined that athlete foot is particularly common in warm climates and in individuals whose feet are constantly warmer because of excessive sweating. It will be recalled that though chicken pox seem to be under control, however, sporadic outbreaks and epidemics still occur from time to time especially in our rural settings obviously due to poor hygiene standards.

Respondents were tested on their knowledge of either the cause or preventive measures of skin infections. Appropriate questions were asked with coding of the responses indicating knowledge level (high, moderate or low) only known to the investigator. Majority 186 (57.4%) of the students (Table 2) showed high knowledge of the causes of skin infections, 120 (37.0%) of the students exhibited moderate knowledge level, while 18 (5.6%) of the students demonstrated low/poor knowledge. On preventive measures majority 156 (48.1%) of the students

Table 3: Living conditions and prevalence of skin infection

Living conditions	Affected (%)	Never affected (%)	Total (%)
0-1 in a room	108 (33.3)	31 (9.6)	139 (42.9)
2-3	110 (33.9)	43 (13.3)	153 (47.2)
4 and above	22 (6.8)	10 (3.1)	32 (9.9)
Total	240 (74.1)	84 (26.0)	324 (100.0)

χ^2 cal = 1.76; χ^2 0.05 = 5.99; d/f = 2

Table 4: Class of study and the knowledge of the causes of skin infections

Knowledge of causes	JSS1-3 (%)	SS1-3 (%)	Total (%)
Knowledgeable	150 (46.3)	156 (48.1)	306 (94.4)
Not knowledgeable	12 (3.7)	6 (1.9)	18 (5.0)
Total	162 (50.0)	162 (50.0)	324 (100.0)

χ^2 cal = 2.1; χ^2 0.05 = 3.841; df = 1

demonstrated high knowledge, 100 (30.9%) of the students displayed moderate knowledge, while 68 (21.0%) of the students had low/poor knowledge level. Ewuzie (1998), was of the view that knowledge of the classification and nature of organisms causing infections is essential in understanding of the nature of the infection. Similarly other researchers (Abanobi, 2005, 1999), opined that lack of knowledge of diseases leads to lack of understanding of function of how diseases are caused and what constitute serious symptoms. Hence, adolescents in senior secondary suffer fewer infections than those in junior secondary and this is attributable to the knowledge acquired and their level of understanding. Again Rosenstock (1974), stated that the possibility of an individual to be motivated in taking the appropriate course of action is influenced by a set of variable like level of education.

Test of hypotheses: Prevalent skin infections and living conditions at home Table 3 shows the various types of living conditions of the secondary school student who responded to whether they have been affected by any skin infection or not. Of the 240 (74.1%), who have experience one form of skin infection or the other, majority 108 (33.3%) lived alone, many 110 (33.9%) lived 2-3 persons, while some 22 (6.8%) lived with >4 person. Further, chi-squared (χ^2) analysis indicated that living conditions does not affect the prevalence of skin infections ($p > 0.05$). Fuller *et al.* (2003) and Dagan (1993) had earlier asserted that skin infections are particularly common in institutions where athletics are encouraged or in schools, universities and in certain industries where communal bathing occurs. They further stated that skin infection may be an occupational character or may be encountered in everyday life.

Table 4 shows the class level of sampled students and their knowledge of the causes of skin infections. From the Table 4, it is evident that 150 (46.30%) of the junior students were knowledgeable while 12 (3.7%) of the junior students were not knowledgeable. Similarly, out of the 162 students from S.S. 1-3, 156 (48%) were knowledgeable

Table 5: Class of study and the knowledge of preventive measures of skin infection

Knowledge of preventive measures	JSS1-3 (%)	SS1-3 (%)	Total (%)
Knowledgeable	120 (37.00)	136 (41.9)	256 (79.1)
Not knowledgeable	42 (12.96)	26 (8.1)	68 (20.9)
Total	162 (50.00)	162 (50.0)	324 (100.0)

χ^2 cal = 4.98; χ^2 0.05 = 3.84; df = 1

while 6 (1.9%) were not knowledgeable. Further, χ^2 analysis revealed that the knowledge of the causes of skin infection does not relate to classes of study among students ($p > 0.05$). This particular finding was not in agreement with other studies (Abanobi, 1999, 2005) that claimed ignorance as a significant factor that enhances the risk of infection especially, in children and adolescent.

Table 5 presented data on whether respondent's knowledge of preventive measures of skin infections is associated with student's class of study. Many of the students demonstrated high knowledge of preventive measures of skin infections. As such the hypothesis was rejected and the study concluded that knowledge of the preventive measures of skin infection relates to students class of study ($p < 0.05$). Interestingly, this finding did not agree with previous submissions of Johnston and Sladden (2004, 2005), who submitted that perfect integrity of the skin and careful attention to cleanliness prevent the development of most of the parasitic and microbial skin diseases despite the class level of the individual.

CONCLUSION

The present study is constrained to conclude that various forms of skin infections exist among students in the study area. Eczema and athlete's foot were the most prevalent. Majority of the students had at one time or the other been affected by skin infection while many had been affected 1-2 times. Students in the study area had adequate knowledge of the causes and preventive measures of skin infections. Living condition was not found to be related to the prevalence of skin infection among students ($p > 0.05$). Student's class level was also not found to be associated with the knowledge of the causes of skin infections ($p > 0.05$). However, the class level of students was found to be significantly associated with the knowledge of the preventives measures of skin infections ($p < 0.05$).

Public health implications: Since, the majority of the students had adequate knowledge of skin infection yet they are all the same affected by this scourge, there is need therefore, for both the school and the home to work in a coordinated manner in order to ensure that the adolescents put into practice what they had learnt to

prevent skin infections. It might also be that there is delay in treating the students various skin problems. In the light of this, parents should be involved through Parents Teachers Association (PTA) meetings, seminars, conferences, which should inculcate in them the need for prompt treatment of their children once they notice any sign of skin infection. Health instruction should be directed to the students early in life to widen their knowledge of the prevention of skin infections and those who had no access to early teaching on that should be taught not minding their age.

RECOMMENDATIONS

It is therefore, advocated that health promotion and education should be included in the junior school curriculum as a course of its own so as to inculcate health knowledge from the grassroots and early enough on the students by the government through the Secondary Education Management Board (SEMB). Students should also be taught of the dangers of sharing clothes, towels and beddings together, which is mostly experienced by students living in the dormitory. The school should organize periodic seminars/workshop for the students as this will help to enlighten them more on the causes and preventive measures of some common skin infections. Teachers should act as role models in keeping themselves neat as this will influence the student's behaviour towards personal cleanliness. Government through the ministry of health should appoint inspectors for different secondary schools to ascertain the hygienic standard of the schools toward the maintenance of healthy school living. Government should make housing cheaper for the citizenry as this will reduce the incidence of overcrowding, which is one of the factors in the spread of skin infections. Since, the maintenance of good personal hygiene is an important aspect in the prevention of skin infections, the design of the houses in the community should therefore be in a pattern to accommodate all their daily activities to avoid indiscriminate dumping of refuse. The mass media should increase their concern in prevention modalities by educating the populace on clean and healthy environment and make them to understand the meaning of the old and wise saying that prevention is better and cheaper than cure. The National Food, Drug Administration and Control (NAFDAC), should ensure that body creams and cosmetics harmful to the skin are not produced or circulated in our markets especially, those that contain hydro quinone, mercury and corticosteroid as these predispose the skin to infections. Parents should seek medical attention on time rather than go on self medication anytime they observe changes on

their children. They should also ensure that their children receive necessary vaccinations to boost their immune system against such infections. Parents should also inculcate the habit of general cleanliness into their children from birth, for knowledge acquired from children is difficult to forget even in adolescent or adulthood. They should also follow their children up with adequate nutrition from birth.

REFERENCES

- Abanobi, O.C., 2005. Health: Wellness and illness states. Owerri: Opinion Research and Communications Inc., pp: 344. ISBN: 978-34508-8-3.
- Abanobi, O.C., 1999. Core concepts in epidemiology and community health practice. Owerri: Opinion Res. Commun. Inc., pp: 205. ISBN: 798-34508-3-2.
- Dagan, R., 1993. Impetigo in childhood: Changing epidemiology and new treatments. *Ped. Annals*, 22: 235-240.
- Ejifugha, A.U., 1998. Fundamentals of research in health education, Owerri: Luso Publishers, pp: 201. ISBN: 978-33959-2-0.
- Ewuzie, M.A., 1998. Fundamentals of communicable and non-communicable diseases. Owerri: Cherybren Publishers, pp: 131. ISBN: 978-333732-2-6.
- Findlay, G.H., H.F. Vismer and T. Sophianos, 1974. The spectrum of pediatric dermatology. Analysis 10,000 cases. *Br. J. Dermatol.*, 91: 379-87.
- Fuller, L.C., F.J. Child, G. Midgley and E.M. Higgins, 2003. Diagnosis and management of scalp ringworm. *BMJ.*, 326: 539-5341.
- Gochman, D.S., 1981. Some correlates of children health care belief and potential behaviour. *J. Health Soc. Sci.*, 12: 148-154.
- Handwerker, L., 1997. Medical risk, implicating poor pregnant women. *Soc. Sci. Med.*, 38 (5): 665-675.
- Hayden, G.F., 1985. Skin diseases encountered in a pediatric clinic. A 1 year prospective study. *Am. J. Dis. Childhood*, 139: 36-38.
- Isaac, E., 2006. Prevention and treatment of skin infections. *Nig. Sch. Health J.*, 28 (6): 11-13.
- Johnston, G. and M. Sladden, 2005. Scabies: Diagnosis and treatment. *BMJ.*, 331: 619-622.
- Ko, W.T., K.A. Adal and K.J. Tomecki, 1998. Infectious diseases. *Med. Clin. North Am.*, 82: 1001-1031.
- Lucas, A.O. and H.M. Gills, 1990. A New Short Textbook of Preventive Medicine for the Tropics. 3rd Edn. Sevenoaks UK, Holder and Stoughton, pp: 322.
- Obionu, C.N., 2004. Primary health care for developing countries. Enugu: Delta Publishers, pp: 256.
- O'Dell, M.L., 1998. Skin and wound infections: An overview. *Am. Fam. Phys.*, 57: 2424-2432.
- Ogbuagu, K.F. and C.I. Eneanya, 2006. A multi center study of the effect of mectizan treatment on onchocerciasis skin disease. *Clin. Dem.*, 24(3): 176-180. DOI:10.1016/j.clindermatol.205.11.008.
- Onuzulike, N.M., 2001. Personal health. Owerri: Mac-Williams Publishers, pp: 154. ISBN: 978-35503-9-X.
- Onyeniyi, P., 2000. Prevalence of scabies among primary school pupils in Uyo. *J. Nig. Assoc. Phys. Health, S D*, 2 (2): 91-97.
- Richard, I.D. and M.R. Berker, 1988. The epidemiology and prevention of important diseases. London, Mosby Co.
- Rosenstock, I.M., 1974. Historical origins of the health belief model. *Health Education Monographs*, 2: 328-335.
- Sladden, M.J. and G.A. Johnston, 2005. More common skin infections in children. *BMJ.*, 330: 1194-1198.
- Sladden, M.J. and G.A. Johnston, 2004. Common skin infections in children. *BMJ.*, 329: 95-99 (10 July), DOI: 10.1136/bmj.329.7457.95.
- Tunnessen, W.W., 1984. A survey of skin disorders seen in pediatric general and dermatology clinics. *Pediatr. Dermatol.*, 1: 219-22.
- Winefield, H.R. and M.Y. Peay, 1980. Behavioural science in medicine. London: George Allen and Unwin, XIII, pp: 344.