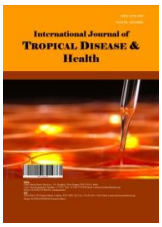

International Journal of TROPICAL DISEASE & Health

42(2): 39-46, 2021; Article no.IJTDH.66316
ISSN: 2278–1005, NLM ID: 101632866

Prevalence and Types of Skin Diseases Seen among Children Attending the Children's Outpatient Clinic in a Tertiary Care Hospital in Southern Nigeria- A Descriptive Study

Uju S. Azubogu[1*] and Inumanye Ojule[2]

[1]Department of Pediatrics, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria.
[2]Department of Community Medicine, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria.

Authors' contributions

This work was carried out in collaboration between both authors. Authors USA and IO designed the study. Author USA performed the statistical analysis, managed the literature searches and wrote the first draft of the manuscript. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/IJTDH/2021/v42i230438
Editor(s):
(1) Dr. Shankar Srinivasan, Rutgers - School of Health Professions, USA.
Reviewers:
(1) Edy Fachrial, Universitas Prima Indonesia, Indonesia.
(2) Ruqaya mohammed ibraheem, Al-Nahrain university, Iraq.
Complete Peer review History: http://www.sdiarticle4.com/review-history/66316

Original Research Article

Received 02 January 2021
Accepted 05 March 2021
Published 18 March 2021

ABSTRACT

Aims: To determine the prevalence and types of skin diseases seen among children attending the Children's Outpatient Clinic of the University of Port Harcourt Teaching Hospital (UPTH).
Study Design: A descriptive Cross sectional study design was used.
Place and Duration of Study: The study was conducted in the Children's Outpatient Clinic of the University of Port Harcourt Teaching Hospital from June to August 2020 (3 months).
Method: It involved 370 children aged less than 18 years. A semi structured interviewer-administered questionnaire was used to obtain all relevant data. This was followed by dermatological examination of the children to make diagnosis of skin diseases. Laboratory confirmation was carried out where necessary.
Results: The study participants consisted of 370 children aged 1 month to 17 years with a mean age of 8.4±5.9 years. The male to female ratio was 0.9:1 and the overall prevalence of skin

**Corresponding author: Email: branduju@yahoo.com;*

diseases among the children studied was 23.7%. The three most common aetiologic categories of skin diseases seen were: Infective (13.5%), Inflammatory (5.7%) and infestations (3.5%). The five most common skin diseases identified included: Impetigo (4.1%), Scabies (3.5%), Atopic dermatitis (3.0%), Tinea capitis (2.7%) and Pityriasis versicolor (2.4%).

Conclusion: Skin diseases are common among children attending the children's outpatient clinic in our hospital with Infective skin diseases predominating. Greater efforts need to be put into the treatment, prevention and control of these skin diseases in order to limit morbidity and mortality.

Keywords: Prevalence; skin diseases; children.

1. INTRODUCTION

The skin is the largest organ in the human body and it accounts for about 15% of the total body weight [1]. It functions as a protective barrier from physical, biologic and chemical harm, prevents excessive loss of water from the body and also plays a role in thermoregulation [1]. Skin diseases are common in children occurring in 27.2% to 72.3% of children around the world [2-4]. The aetiologic agents of skin diseases in children are broadly categorized into the following: infective, infestations, inflammatory, neoplastic and other and the infective skin diseases are further subdivided into: bacterial, viral and fungal skin infections [5].

The prevalence of skin diseases varies in different regions of the world [6]. It is often influenced by factors such as genetics, environmental differences, socioeconomic factors, cultural variations and hygiene practices [7]. Whereas eczematous skin disorders tend to predominate in children in developed countries, infections and infestations are predominant in the developing world [8].

In India, Suman et al. [9], conducted a cross sectional study of 1448 primary school children aged 5-14 years. They found the overall prevalence of skin disease to be 42.3% among the students studied. The commonest skin disorder seen was Pityriasis alba (14.3%) followed by pediculosis capitis (6.5%). Other skin diseases reported included phrynoderma, scabies, pityriasis versicolor and acne vulgaris.

Similarly, In a cross-sectional population based study, Hogewoning et al. [10], evaluated the prevalence of skin diseases among 4839 school children in Ghana, Gabon and Rwanda. The prevalence of skin diseases in two Ghanaian studies were 34.6% and 42.0%, 45.8% in Gabon and 26.7% in Rwanda. Skin infections were the most frequently occuring skin diseases accounting for 14.7% 17.6% in the Ghanaian studies, and 27.7% and 22.7% in Gabon and Rwanda respectively. Also, Tinea capitis was the most common skin disease reported in the children studied.

In Cote d'Ivoire, Yotsu et al. [11] studied skin disease prevalence in 13,019 school children age 5-15 years. The prevalence of skin diseases in the children studied was 25.6%. The predominant diagnoses were fungal infections (22.3%) and inflammatory skin diseases (6.9%). With regards to specific skin diseases, pityriasis versicolor was the the most common skin disease seen. One case of multi-bacillary type leprosy was detected.

A cross sectional study of 1066 school children carried out by Ogunbiyi et al. [12] in Ibadan, Nigeria, reported the prevalence of skin disorders to be 35.2% among the children studied. The most common infective skin disorders encountered included dermatophytosis (15.2%), pityriasis versicolor (4.7%), scabies (4.7%), papular urticaria (3.3%) and angular cheilitis (2.5%). Other skin disorders included tribal marks (12.9%), scarification marks (7.25%) and melanocytic nevi (3.8%). Atopic eczema and viral warts were virtually absent.

Futhermore, Emodi et al. [13] studied the pattern of skin diseases among children attending the outpatient clinic of a tertiary hospital in Enugu. The study was a retrospective review of the medical records of the 16,337 children aged one week to 16 years seen in the clinic over a 10 year period. Skin diseases accounted for 1.3% of cases encountered in the clinic. The most common skin diseases reported were pyodermas (29.81%), non specific dermatitis (24.17%), scabies (13.55%), allergic dermatitis(13.21%) and superficial mycoses (13.15%).

The University of Port Harcourt Teaching Hospital is a major tertiary-care, teaching and research facility located in the city of Port Harcourt in the oil-rich Niger-Delta region of

Southern Nigeria. It is a 790 bed-space facility with different specialties one of which is Pediatrics.

This study aimed to determine the prevalence and types of skin diseases seen among children attending the children's outpatient clinic in UPTH Port Harcourt. Findings from this study will help clinicians in the early recognition and treatment of these skin diseases so as to improve outcome.

2. MATERIAL AND METHODS

2.1 Study Design

We conducted a descriptive cross sectional study among children attending the Children's outpatient clinic over a 3 month period (June 2020- August 2020).

2.2 Study Area

The study site was the Children's outpatient clinic of the University of Port Harcourt Teaching Hospital (UPTH).

2.3 Study Population and Sampling Method

Our study population consisted of children aged less than 18 years who were seen in the Childrens' outpatient clinic within the period of the study. All children within this age bracket whose parents gave consent were included in the study. Neonates were excluded from the study to allow for a more consistent sampling as only a small fraction of them present to the Childrens' outpatient clinic with the majority receiving care at the Special Care Baby Unit (SCBU) or through the Children's Emergency Ward (CHEW). A sample size of 370 was derived based on the sample size formula for prevalence studies and using the prevalence from a previous Nigerian study by Ogunbiyi et al [12]. Systematic sampling method was used to recruit the study participants using a sampling interval of two as derived from the estimated number of children to be seen in the clinic over the given period which was nine hundred.

2.4 Methods

Relevant data were obtained from participating children using a semi-structured interviewer administered questionnaire. These data included socio-demographic characteristics, history and types of skin diseases. This was followed by a complete physical examination to detect the presence of skin lesions. Diagnosis of skin diseases were mainly clinical but were accompanied by laboratory confirmation where necessary. All diagnoses of skin diseases were made by a trained paediatric dermatologist.

2.5 Statistical Analysis

Data collected was coded and entered into Microsoft excel before analysis using the IBM SPSS Statistics version 25.0. Descriptive statistics were reported using frequency tables and charts.

3. RESULTS

We studied a total of 370 children aged 1 month to 17 years. The mean age of study participants was 8.4±5.9 years and the male to female ratio was 0.9:1 (180 males and 190 females). The overall prevalence of skin diseases among the children studied was 23.7%.

Table 1. Shows that majority of the respondents were five years and above. There were 190(51.4%) females and 180 (48.6%) males. Also majority of the study participants were in pre-nursery/nursery and primary schools, and sub-urban and urban locations were the predominant areas of residence. The Ikwerre ethnic group was the largest ethnic group seen.

Table 2. Shows that majority of the parents of respondents had secondary education and belonged to the middle socio-economic class. Cement house was the more common type of housing and majority of respondent were living in ≤ 2 rooms with 4-6 household members.

Table 3. Shows that the average duration of symptoms among the study subjects was three weeks. Rash (86.4%) and Itching (19.2%) were the most common presenting complaints while the most commonly affected body regions were the Trunk (44.3%) and the upper limbs (42.0%).

Fig.1 shows that the five most common skin diseases identified included: Impetigo (4.1%), Scabies (3.5%), Atopic dermatitis (3.0%), Tinea capitis (2.7%) and Pityriasis versicolor (2.4%).

Fig. 2 shows that the three most common aetiologic categories of skin diseases seen were: Infective (13.5%), Inflammatory (5.7%) and infestations (3.5%).

Table 1. Socio- demographic characteristics of the respondents n=370

Variable	Frequency(n) 370	Percent
Age group		
Less than 5 years	144	38.9
5years and above	226	61.1
Sex		
Male	180	48.6
Female	190	51.4
Class		
Pre nursery/Nursery	164	44.3
Primary	156	42.2
Junior secondary	30	8.1
Senior secondary/Year one	20	5.4
Residence		
Rural	11	3.0
Sub-urban	194	52.4
Urban	165	44.6
Tribe		
Ikwerre	128	34.6
Igbo	111	30.0
Kalabari	18	4.9
Ogoni	17	4.6
Yoruba	15	4.1
Ijaw	12	3.2
Others	69	18.6

Table 2. Other Socio-demographic characteristics of respondents

Variable	Frequency (n) 370	Percentage
Mother's education		
Primary	20	5.4
Secondary	190	51.4
Tertiary	160	43.2
Fathers education		
Primary	33	8.9
Secondary	175	47.3
Tertiary	162	43.8
Social class		
Low	77	20.8
Middle	170	45.9
High	123	33.2
No of People living in home		
1-3	47	12.7
4-6	255	68.9
More than 6	68	18.4
Rooms in home		
1	110	29.2
2	171	46.2
3 and more	89	24.1
Type of house		
Batcher	15	4.1
Cement house	355	95.9

Table 3. Characteristics of skin disease among the respondents n=80

Variable	Frequency(n) 370	Percent
Duration of disease		
1-3 Weeks	45	51.1
4-5 Weeks	16	18.2
6 Weeks and More	27	30.7
***Symptoms**		
Rash	76	86.4
Itching	71	19.2
Pain	6	6.8
***Distribution of symptoms**		
Upper limbs	34	38.6
Trunk	33	37.5
Leg	24	27.2
Fingers	18	20.5
Neck	17	19.3
Face	14	15.9
Private part	12	13.2
Head	8	9.1
Toes	3	3.4
***Area affected on Physical examination**		
Trunk	39	44.3
Upper limbs	37	42.0
Leg	23	26.1
Fingers	16	18.2
Neck	14	16.0
Private part	9	10.2
Head	8	9.0
Face	7	8.0
Toes	2	2.3
Aetiologic category of skin disease		
Infective	50	56.8
Inflammatory	21	23.9
Infestation	13	14.8
Other	4	4.5

**Multiple responses were noted*

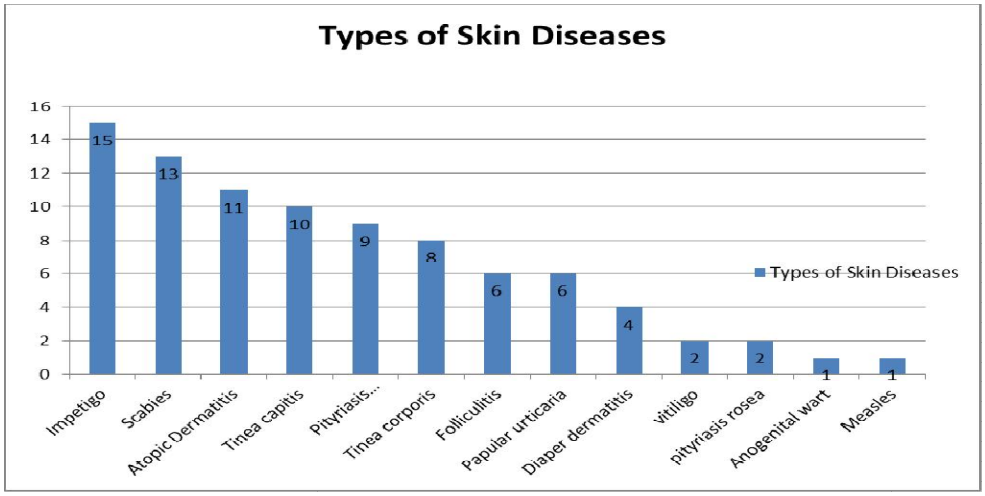

Fig. 1. Types of skin diseases

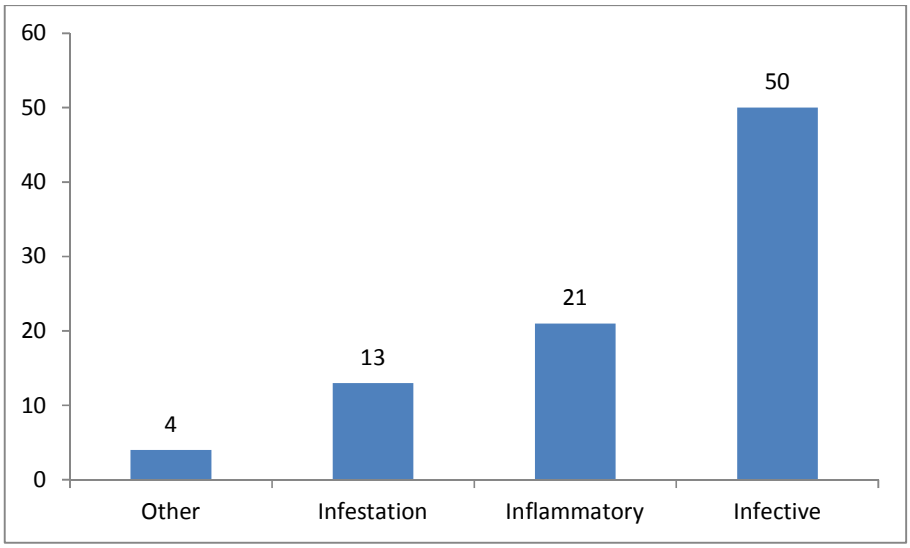

Fig. 2. Aetiologic categories of skin diseases

4. DISCUSSION

The prevalence of skin diseases in the present study was 23.7%. This is lower than the prevalence of 35.5% reported by Ogunbiyi et al. [12] in Ibadan, Nigeria. It is also lower than prevalence rates of 72.3%, 58.3% and 42.3% reported in studies from Nigeria, Ethiopia and India respectively [3,4,9]. It however compares favorably with the prevalence of 25.6% reported by Yotsu et al. [11] in Cote d'Ivoire and 27.2% reported in Saudi Arabia [2]. This difference noted between the present study and those in comparison may reflect variations in other contributory factors to skin diseases among children such as environmental, socio-demographic and hygiene-related practices. The prevalence rate from this study is also much higher than the 1.3% reported in Enugu by Emodi et al. [13]. This may be partly due to the use of a retrospective study design in their study which could be limited by incomplete records and the exclusion of some patients resulting in a lower prevalence rate than would be expected.

Concerning the types of skin diseases seen among children in this study, impetigo (4.1%) was the most frequently occurring skin disease recorded. A similar finding was noted in two Nigerian studies [13,14] and also by Karthikeyan et al. [15] in India and Kelbore et al. [8] in Ethiopia. Impetigo is a very common bacterial skin disease in children most commonly caused by *Staphyloccocus aureu.* It is especially predominant in the warm, humid climatic conditions of the tropical region where these studies were conducted. This contrasts with the studies by Ozcelik et al. [16] in Turkey and Toraub et al. [17] in Mauritius which both reported acne vulgaris as the most common skin disease in children they studied. This difference may be explained by the fact that their studies involved much more adolescents than the present study and acne vulgaris is known to be more common in the adolescent age group. Furthermore, Vakirlis et al. [18] found atopic dermatitis to be the most common skin disease among children in their study done in Greece. This was not so in the present study as atopic dermatitis was the third most common skin disease seen. This is understandable as atopic dermatitis which is an allergic and inflammatory skin disease is known to be predominant in the temperate climes whereas infections and infestations predominate in the tropics.

Scabies was the most common infestation reported in the present study. Other Nigerian authors have also corroborated this finding [4,12,13,19]. This also agrees with findings by Kelbore at al. [8] in Ethiopia and Karthikeyan et al. [15] in India. The occurrence of scabies as the leading infestation across these studies cited reflects its importance as a neglected tropical disease (NTD) requiring continuing public health measures to bring it under control. Another Ethiopian study [3] however found pediculosis to be the leading infestation from their study.

Although several studies [8,10,11,12,20] have reported superficial fungal infections like *tinea capitis* and *pityriasis versicolor* to be the leading

skin diseases in children, the finding from this study was different. Tinea capitis and pityriasis versicolor were found to be the fourth and fifth most common skin diseases in the present study. The reason for this is unknown but this difference could be as a result of variations in environmental factors and distribution of the pathogens implicated in these two skin diseases.

One (0.3%) case of measles was reported in the present study. This is similar to other previously cited studies all of which reported no case of measles. The low prevalence of measles seen could reflect the gains which have been made in combating the disease through immunization. Other skin diseases also seen with less frequency in the present study include anogenital wart (0.3%), pityriasis rosea (0.5%) and vitiligo (0.5%). These skin diseases were also uncommon in all the previously cited works.

With regards to aetiologic categories of skin diseases, infective skin diseases were the predominant lesion encountered in this study. A similar finding has been reported in several other studies [10,20-22]. It could be inferred that these infective skin diseases predominate in resource limited settings like ours because of the prevailing overcrowding and poor sanitary conditions that promote the breeding of pathogens implicated in the aetiology of these infective skin diseases. A study done in Greece [18] reported inflammatory skin diseases as the leading class of skin disease seen among children in their study.The prevalence of inflammatory skin diseases also appear to be on the increase in our environment as it was the second most common skin disease seen in this study even occurring more frequently than infestations. This increase has been attributed to rising consumption of artificial foods some of which serve as allergens to trigger off these inflammatory skin diseases like atopic dermatitis. Infestationswas the third most common class of skin diseases occurring in 3.5% of children this study. This prevalence is comparable to the 4.5% reported by Ogunbiyi et al. [12] and 4.3% reported by Oyedeji et al. [14] both in western Nigeria. It is however lower than the 6.5% reported in India [9] and 9.6% reported in Ethiopia [8]. Other Nigerian studies have also reported higher prevalence rates than the present study [4,21]. These differences noted may reflect variations in hygiene and household living conditions among the children in the different studies under comparison.

5. CONCLUSION

Skin diseases occur with a prevalence of 23.7% among children attending the children's outpatient clinic in our hospital with infective skin diseases predominating (13.5%). The three most prevalent skin diseases encountered included: Impetigo (4.1%), Scabies (3.5%) and Atopic Dermatitis (3.0%). Greater efforts need to be put into the treatment, prevention and control of these skin diseases in order to limit morbidity and mortality.

CONSENT

Written informed consent was obtained from the parents/Guardians of all participating children. Assent was obtained from children aged 10 years and above.

ETHICAL APPROVAL

Ethical approval was from The University of Teaching Hospital (UPTH/ADM/90/S.11/VOL.XI /815).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Kanitakis J, Anatomy, histology and immunohistochemistry of normal human skin. Eur. J Dermatol. 2002;12(4):390-401.
2. Amin TT, Ali A, Kaliyadar F. Skin disorders among primary school children in Al Hassa, Saudi Arabia: prevalence and socio-demographic correlates. Rural and Remote Health 2011;1(1):1517-22.
3. Lulu Y, Tolesa G, Cris J. Prevalence and associated factors of skin diseases among primary school children in Illuababor zone, Oromia Regional state, South West Ethiopia. Indo American Journal of Pharmaceutical Sciences. 2017;7(1): 7374-7383.
4. Mendiratta V, Mittal S, Jain A, Chander R. Mucocutaneous manifestations in children with Human Immunodeficiency Virus infection. Indian J Dermatol. Venereol. Leprol. 2010;79(5):458-66.
5. Oninla OA, Oninla SO, Onayemi O, Olasode OA. Pattern of Paediatric Dermatosis at dermatology clinics in Ile-Ife

and Ilesha, Nigeria. Pediatrics and International Child Health. 2016;36(2): 106-12.

6. George IO, Altraide DD. Dermatophyte infections in children: A prospective study from Port Harcourt, Nigeria. TNHJ. 2013; 8(3):52-4.
7. Gallay C, Meylan P, Mermoud S, et al. Genetic predisposition and environmental factors associated with the development of atopic dermatitis in infancy. Eur J Pediatr. 2020;179:1367-1377.
8. Kelbore AG, Owih P, Reid AJ, Bogino EA, Wonderwosen L, Dessu BK. Pattern of skin diseases in children attending dermatology clinic in a Referral Hospital in Wolaita Sodo, Southern Ethiopia. BMC Dermatology. 2019;19:5-9.
9. Suman H, Tulsyan S, Chaudhary D, Mishra A. School survey of dermatological disorders and associated socio-economic factors in Lucknow. Egyptian Dermatology Online Journal. 2012;8(2):4-10.
10. Hogewoning A, Amoah A, Bavinck JN, Boakye D, Yazdanbakhsh M, Adegnika A, et al. Skin Diseases among school children in Ghana, Gabon and Rwanda. Int J Dermatol. 2013;52(5):589-600.
11. Yotsu RR, Kouadio K, Vagamon B, Nguessa K, Akpa AJ, Yao A, et al. Skin disease prevalence study in school children in rural Cote d' Ivoire: Implications for integration of neglected skin diseases (NTDs). Negl. Trop Dis. 2018;12(5): e0006489:1-18.
12. Ogunbiyi AO, Owoaje E, Ndahi A. Prevalence of skin disorders in school children in Ibadan, Nigeria. Pediatr Dermatol. 2005;22(1):6-10.
13. Emodi IJ, Ikefuna AN, Uchendu U, Duru UA. Skin diseases among children attending the outpatient clinic of the University of Nigeria Teaching Hospital Enugu. Afr Health Sci. 2010;10(4):362-66.
14. Oyedeji O, Okeniyi V, Ogunlesi T, Onayemi O, Oyedeji G, Oyelami O. Parental factors influencing the prevalence of skin infections and infestations among Nigerian primary school children. Internet Journal of Dermatology. 2005;3:(2).
15. Karthikeyan K, Thappa DM, Jeevankumar B. Pattern of pediatric dermatosis in a Referral center in South India. Indian Pediatrics. 2004;41:373-77.
16. Ozcelik S, Kalac I, Yazici M, Ocal E. Distribution of childhood skin diseases according to age and gender using institution experience. Turkish Archives of Pediatrics. 2018;53(2):105-112.
17. Toraub K, Jeewan R. Sociodemographic factors and their association to prevalence of skin diseases among Adolescents. Our Dermatology Online. 2013;4(3):281-286.
18. Varkilis E, Theodosiou G, Apalla Z, Arabatszis M, Lazaridou E, Sotiriou E, et al. A retrospective epidemiological study of skin diseases among Pediatric population attending a tertiary dermatology referral center in Northern Greece. Clinical, Cosmetic and Investigational Dermatology. 2017;10:99-104.
19. Altraide DD, Alex-Hart BA. Prevalence and pattern of skin diseases among school Age children at the University of Port Harcourt Teaching Hospital Nigeria: A hospital based study. AJRID. 2020;3(4):29-36.
20. Oninla OA, Oninla SO, Onayemi O, Olasode OA. Pattern of Paediatric Dermatosis at dermatology clinics in Ile-Ife and Ilesha, Nigeria. Pediatrics and International Child Health. 2016;36(2): 106-12.
21. Ayanlowo O, Puddicombe O, Gold-Olufadi S. Pattern of skin diseases amongst children attending a dermatology clinic in Lagos Nigeria. Pan Afr Med J. 2018;29: 162.
22. Gauchan E, Kumar A, Thapa P, Pun J. Relation of Sociodemographics and personal hygiene on different childhood Dermatoses. Kathmandu University Medical Journal. 2015;49(1):29-33.

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sdiarticle4.com/review-history/66316