International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 367-376 www.ijdmsrjournal.com ISSN: 2582-6018

"Clinical Profile and Quality of Life in Scabies Patients"

Nath SK[1], Sarker SC[2], Al Miraj AK[3], Chowdhury MAH[4], Firoz AMA[5]

[1]*Registrar, Department of Dermatology & Venereology, Kumudini Women's Medical College Hospital, Tangail, Bangladesh*

[2]*Assistant Professor, Department of Dermatology & Venereology, Kumudini Women's Medical College Hospital, Tangail, Bangladesh*

[3]*Research Assistant, Department of Vascular Surgery Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh*

[4]*Associate Professor, Department of Dermatology & Venereology, Bangabandhu Sheikh Mujib Medical University (BSMMU) Dhaka, Bangladesh*

[5]*Medical Officer, Department of Dermatology & Venereology, Bangabandhu Sheikh Mujib Medical University (BSMMU) Dhaka, Bangladesh*

Corresponding Author: *Dr. Sajib Kumar Nath, Registrar, Department of Dermatology & Venereology, Kumudini Women's Medical College Hospital, Tangail, Bangladesh.*

Submitted: 01-10-2022 Accepted: 10-10-2022

ABSTRACT

Background: Scabies is a common contagious parasitic skin disease and a public health problem, mainly in tropical and subtropical countries. Hundreds of millions of people suffer from infestation in impoverished urban and rural communities worldwide. Scabies can lead to stigmatization, depression, insomnia, and may significantly affect the quality of life. The aim of the study was to find the demographic profile, clinical morphology and quality of life in patients suffering from scabies. **Methods:** This was a prospective, non-interventional, hospital-based, cross-sectional study undertaken from Kumudini Women's Medical College Hospital, Tangail, Bangladesh and BSMMU. The study was conducted from July 2021 to August 2022.One hundred and fifty (150) consecutive patients of scabies were enrolled in the study. Diagnosis of scabies was made by the presence of typical lesions in the site of predilection, nocturnal itching, and occurrence of similar complaints in the contact person. Clinical Profile, Quality Of Life, past history and family history was recorded in a proforma. Questionnaire about quality of life was given to the patients and a detailed analysis was done. **Results:** A total of 150 cases of scabies were enrolled in this clinical study. The most affected age group was between 21 and 30 years. Most common site involved was interdigital spaces (81.3%) followed by genitalia (45.3%) and abdomen (40.6%). The most common lesion was excoriation (76.6%) followed by papule (81.3%) and nodules (32%). Out of 150 patients, in children the domain affected maximum was work at school in 9 (30%) followed by play and feeling of embarrassment in 7 (23.3%) cases each. Children reported no or minimal effect on quality of life. None of the patient had severely impaired quality of life. 111 (92%) patients experienced difficulty in working at the work place, 83.3% of patients had feeling of embarrassment, social relationship was affected in 82.5% of patients, sexual relationship was affected in 71% of patients. 64% of the patients had depression. Majority of the patients (38%) had mild impairment of quality of life. **Conclusions:** Scabies moderately affected the quality of life of the patients in the present study in the form of feeling of embarrassment, stigmata and shame associated with this disease. All these findings were more frequently observed among adult patients as compared to children. Feeling of embarrassment, difficulty in work place, social stigmata and depression were frequently observed in patients with scabies. In our study scabies mildly affected the quality of life. **Keywords:** Scabies, Sarcoptesscabiei, Quality of life, Embarrassment.

I. INTRODUCTION

Scabies is a common contagious parasitic skin disease and a public health problem, mainly in tropical and subtropical countries [1,2]. Hundreds of millions of people suffer from infestation in impoverished urban and rural communities worldwide [3,4,5,6]. Outbreaks of scabies in closed groups have been reported particularly from high income countries, but the disease is more common in resource-poor communities in low and middle income countries in tropical climate zones [7,8,9]. High prevalence and re-infestations in endemic settings are correlated with armed conflicts, homelessness, crowding, and communal use of

International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 367-376 www.ijdmsrjournal.com ISSN: 2582-6018

clothes, beds, and pillows [10, 11]. The global prevalence of scabies is estimated at 300 million cases [12], with large variations between countries. In the UK, no up-to-date robust prevalence data exist, but general practitioners recorded approximately 1200 new cases per year in the 1990s [13]. In resource-rich communities, scabies tends to occur in cyclical epidemics, particularly within institutional-living situations such as nursing homes [14], or the army [15]. There is some seasonal variation with incidence being greater in the winter than the summer, perhaps related to the tendency for more indoor overcrowding in colder weather [16]. In resource-poor communities, the occurrence pat-tern is quite different with the disease being endemic in many areas [17]. For example, the prevalence of scabies among the remote Aboriginal communities of Northern Australia is around 50% in children and 25% in adults [18]. As it is not possible to eliminate scabies, morbidity control is the only option to reduce the disease burden [19]. Morbidity is not only reflected by the degree of clinical pathology but also includes the emotional aspects of a skin disease. Both types of morbidity may reduce the quality of life. Over the past few years, there has been an increasing interest in assessing the quality of life of patients with skin diseases as well as in the development of methods of assessment [20]. Between 18% and 70% of people are reported to be affected in resource-limited communities in India, on south Pacific islands, and in Australian Aboriginal communities [1,8,21], with severe morbidity being common, such as abscess formation, lymphadenopathy, and poststreptococcal glomerulonephritis [8,13,22,23]. This psychosocial aspect of skin disease has important implications for optimal management of patients with scabies. Although dermatologists and other clinicians have long recognized the impact of skin disease on a patient's life, it is only recently that quality of life measures have been used as assessment parameters in the management of skin diseases [24, 25]. The aim of the study was to find the demographic profile, clinical morphology and quality of life in patients suffering from scabies.

II. MATERIALS AND METHODS

This was a prospective, non-interventional, hospital-based, cross-sectional study undertaken from Kumudini Women's Medical College Hospital, Tangail, Bangladesh and BSMMU. The study was conducted from July 2021 to August 2022.One hundred and fifty (150) consecutive patients of scabies were enrolled in the study. Diagnosis of scabies was made by the presence of typical lesions in the site of predilection, nocturnal itching, and occurrence of similar complaints in the contact person.

Inclusion criteria:
Patients of either gender age between 5 to 60 years with scabies disease.

Exclusion criteria:
Pregnant and lactating females, children less than 5 year of age and patients having atypical skin lesions and crusted scabies were excluded from the study. Patients who had other chronic skin or systemic disease like psoriasis, atopic dermatitis, diabetes mellitus were excluded from the study. Relevant data on demographic details, clinical findings, family history and relevant past history were noted in predesigned proforma. A pre-validated questionnaire about the quality of life impairment was distributed to the patients so as to be filled as a part of the study.

Statistical analysis: Data was compiled in Microsoft excel after coding and was analyzed using SPSS 20 version software. Qualitative datawas represented by frequencies and proportions and analyzed.

III. RESULTS

A total of 150 cases of scabies patients attending skin OPD during 1 year duration period were included in the study. The mean age of the study population was 35.18±2.44 (5-67) years. The most common age group affected was 21-30 years in 48 (32%) patients in table-1.

Table-1: Age distribution.

Age (years)	Frequency	Percentage (%)
5-10 yrs	26	17.3
11-20 yrs	4	2.66
21-30 yrs	48	32.0
31-40 yrs	29	19.3

International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 367-376 www.ijdmsrjournal.com ISSN: 2582-6018

41-50 yrs	20	13.3
51-60 yrs	10	6.66
Above 60	13	8.66
Total	150	100

In fig-1, out of total 150 patients, 84 (56%) were males and 66 (44%) were females.

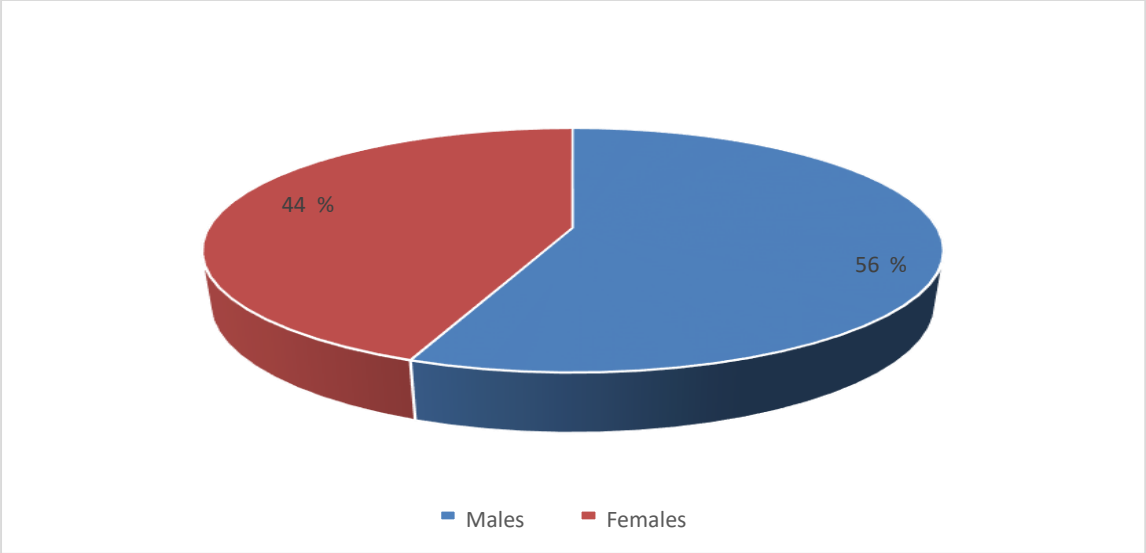

Fig-1: Distribution of gender.

Table-2: Distribution of occupation of the patients.

Occupation	**Number of patients (Percentage)**
Student	58 (38.6%)
Housewife	32 (21.3%)
Worker, Farmer, Laborer	16 (10.6%)
Business	5 (3.33%)
Professional	2 (1.33%)
Job	15 (10.0%)
Retired	2 (1.33%)
Others	20 (13.3%)
Total	70 (100%)

In table 2, total 58 (38.6%) students were affected followed by 32 (21.3%) housewives and least were retired person.

Table-3: Clinical profile of patients with scabies.

Complaints	**Frequency**	**Percentage (%)**
Nocturnal aggravation of itching	124	82.6
Skin lesions	101	67.0
Family history	130	86.0
Past history	30	20.0

International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 367-376 www.ijdmsrjournal.com ISSN: 2582-6018

Secondary infection	12	8.0

Nocturnal exacerbation of itching was present in 120 (80%) patients. Positive family history was seen in 130 (86%) patients. Skin lesions was present in 101 (67%) patients. Past history of scabies was seen in 30 (20%) patients and secondary infection was seen in 12 (8%) patients. Multiple sites were involved in majority of the patients in shows Table-3.

Table-4: Distribution of lesions according to the site.

Site	Frequency	Percentage (%)
Interdigital spaces	122	81.3
Hands	55	36.6
Wrist	28	18.6
Forearm	43	28.6
Arm	32	21.3
Axilla	44	29.3
Abdomen	61	40.6
Thorax	19	12.6
Gluteal area	28	18.6
Genitalia	68	45.3
Groin	46	30.6
Legs	13	8.66

Most common site (Table 4) involved was interdigital spaces (81.3%) followed by genitalia (45.3%) and abdomen (40.6%).

Table-5.1: Impairment in quality of life in children.

Severity of Impairment in quality of life (n=30)					**Sex wise distribution of impairment (n=30)**		
Questions	A	B	C	D	Male	Female	Total
	(very Much)	(quite a lot)	(only a little)	(not at all)	(n=17)	(n=13)	(n=28)
Feeling embarrassed	0	0	6 (20.0%)	24 (80.0%)	4(23.5%)	3(23.07%)	7(23.3%)
Affected studies	0	3(10.0%)	10 (33.3%)	17 (56.6%)	6(35.2%)	3(23.07%)	9(30.0%)
Affected playing	0	3(10.0%)	11(36.6%)	16(53.3%)	3(17.6%)	3(23.07%)	6(20.0%)
Experienced teasing	0	2 (6.66%)	8 (26.6%)	20 (66.6%)	3(17.6%)	1 (7.69%)	4(13.3%)
Affected friendship	0	1(3.33%)	3(10.0%)	26(86.6%)	1(5.88%)	3(23.07%)	4(13.3%)

International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 367-376 www.ijdmsrjournal.com ISSN: 2582-6018

Table-5.2: Impairment of quality of life in adult patients.

Severity of impairment of quality of life (N=120)					Sex wise distribution (N=120)		
Questions	A (%)	B (%)	C (%)	D (%)	Male N=67 (%)	Female N=53 (%)	Total N=120 (%)
Feeling embarrassed	9 (7.5)	39 (32.5)	52 (43.3)	20 (16.6)	58 (48.3)	42 (35)	100 (83.3)
Affected the work activities	21 (17.5)	51 (42.5)	39 (32.5)	9 (7.5)	65 (54)	46 (38)	111 (92)
Social contacts	5 (4)	22 (18.3)	72 (60)	21 (17.5)	57 (47.5)	42 (35)	99 (82.5)
Sexual relationship	13 (10.8)	45 (37.5)	27 (22.5)	35 (29)	45 (37.5)	40 (33.3)	85 (70.8)
Feeling depressed	11 (9)	12 (10)	41 (34)	56 (46.7)	34 (28)	30 (25)	64 (53)

Out of 150 patients, in children the domain affected maximum was work at school in 9 (30%) followed by play and feeling of embarrassment in 7 (23.3%) cases each. Children reported no or minimal effect on quality of life. None of the patient had severely impaired quality of life in table 5.1. 111 (92%) patients experienced difficulty in working at the work place, 83.3% of patients had feeling of embarrassment, social relationship was affected in 82.5% of patients, sexual relationship was affected in 71% of patients. 64% of the patients had depression (Table 5.2).

Table-6: Morphology of lesion of scabies.

Sites	No. (%)
Nodules	48 (32.0%)
Vesicles	18 (12.0%)
Burrows	22 (14.6%)
Eczematisation	74 (49.3%)
Excoriations	115 (76.6%)
Papules	122 (81.3%)

In table 6, most common lesion seen was papules in 122(81.3%) cases followed by excoriations in 115 (76.6%) cases. Majority of the patients (38%) had mild impairment of quality of life, Moderate effect was seen in 28.4% of patients, severe effect was seen in 16.1% and 17.5% patients did not have any effect on quality of life (fig-2).

International Journal Dental and Medical Sciences Research
Volume 4, Issue 5, Sep-Oct 2022 pp 367-376 www.ijdmsrjournal.com ISSN: 2582-6018

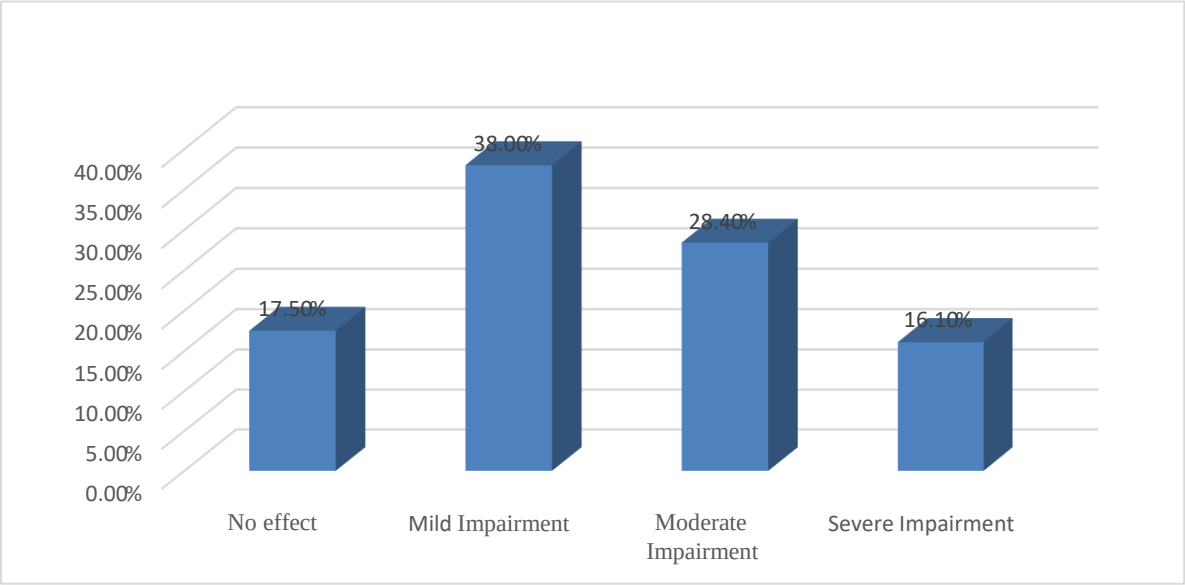

Fig-2: Effect on quality of life.

IV. DISCUSSION

Despite scabies being a public health problem in the developing countries for years, still there has been little progress in its control around the world. Scabies transmission via skin to skin contact takes around 20 minutes, so it spreads mainly within the families.[26] In our study the mean age of the study population was 35.18±2.44 (5-67) years. The most common age group affected was 21-30 years in 48 (32%) patients. This is in accordance with the study conducted by Nair PA et al. wherein it was found in 44.11% of patients in the 21-40 years age group followed by 39.2% patients in 5-12 years age group. [27] In contrast to the study conducted by Das S et al. wherein 9% of the patients were in the 0-5 years age group, 22% in both 6-15 years and 16-30 years of age group. [28]In the present study incidence of scabies was approximately same in both sexes i.e. 51.42 % males and 48.57% females. A study conducted by Sambo et al. reported equal incidence in both males and females (1:1) whereas in the study by Das et al. males 70% outnumbered females 30%.[29,43]Transmission is generally by direct, prolonged skin-to-skin contact, but occasionally, the mite can spread indirectly, via clothing, towels, or bedsheets [31]. The life cycle of the scabies mite (S. scabiei var. hominis) begins with the pregnant female burrowing into the human epidermis and laying 2-3 eggs per day. Larvae emerge after 48-72 h and form new burrows. The larvae reach adulthood in 10-14 days, mate, and the cycle is repeated [32]. Human scabies mites are capable of surviving in the environment, outside the human body, for 24–36 h in normal room conditions and during this time, they remain capable of infestation [33]. In classic scabies, lesions favour the finger web spaces, hands, the volar surfaces of the wrists, axillae, feet, waistline, lower buttocks, inner thighs, the areola in women, and genitalia in men. The average mite load is 5 to 15 [34]. Generalized pruritus that is worse at night is a hallmark feature and may be mediated by nonhistaminergic itch mechanisms. Pruritus can be severe, negatively impacting quality of life. However, sensitization to mite antigens occurs 4 to 6 weeks after the initial infestation, and therefore asymptomatic carriage is common during this period. Clinical manifestations of scabies take place from 2 to 6 weeks after initial infestation; however, reinfestation can occur rapidly within 24-48 hours. [35] Most cases of scabies were diagnosed by a history of generalized itching that has been reported to be worst at night. Pruritic papules have been seen in many cases on different sites, such as webs of the fingers, flexor of the wrists, and extensor of the elbows. To enhance the diagnosis of scabies, physicians do a microscopic examination to look for the mites of Sarcoptesscabiei. The number of mites that has been reported in many patients is 10-12. [36] Complications related to scabies are infections, furuncles, impetigo, adenitis, and phlegmons. According to the European guideline for the management of scabies, reducing the risk of transmutation of scabies has been described by avoiding any type of contact with patients and limiting sexual contact, and being always hygienic when living in a crowded area.[37]Itching is particularly severe at night in scabies and thus sleep disturbances are common. Nocturnal

aggravation of itching was reported by 82% of the patients leading to sleep disturbances and this is similar to that reported by Nair PA et al. [38] The itching has been found to cause moderate to severe sleep disturbance in the vast majority of sufferers and as the scabetic skin characteristically include exposed areas of skin, social stigma is an issue.[39] More commonly, nonspecific secondary lesions are seen, which includes excoriated papules, eczematous plaques, and impetigo. Prolonged scratching can result in lichenification and prurigonodularis [40] Besides the skin lesions, scabies even causes substantial morbidity from secondary infections and post-infective complications such as acute post-streptococcal glomerulonephritis [41] Furthermore, scabies can lead to stigmatization, depression, insomnia, and significant direct and indirect financial costs and may affect the quality of life [42]. Many patients experience persistent symptoms for up to two weeks after curative treatment. This is likely due to the ongoing immune response to mite antigens. However, if symptoms persist beyond this period, a number of possible explanations should be considered. These include incorrect initial diagnosis, incorrect application of the topical scabicide, poor penetration of the agent into scaly skin or hyperkeratotic fingernails, reinfection from untreated contacts or contaminated fomites, misdiagnosis of secondary eczema as treatment failure, contact dermatitis caused by the topical therapy, or finally drug resistant infection [2,4]. Nocturnal exacerbation of itching was present in 80% patients and positive family history was present in 86% of the patients which was in accordance with previous studies.[7, 13] Majority of our patients had multiple body site involvement. Most common site involved was interdigital spaces (81.3%) followed by genitalia (45.3%) and abdomen (40.6%). These findings are in concordance with the study done by Nair et al. [9] In the study done by Das et al genitalia were the commonest site followed by interdigital spaces. The most common lesion was excoriation (76.6%) followed by papule (81.3%) and nodules (32%) which is in contrast to the study by Nair et al [9]where majority of the patients had papules (84.3%) followed by excoriations. Eczematization and secondary bacterial infection was noted in 22.5% and 8% patients respectively. Nair et al [9] found eczematisation in 50% cases and secondary infections in 21.56% patients and Das et al [43] found papular lesions in 76% cases, papulovesicular and eczematous lesions in 23 and 24% patients respectively. Lesser complication rate in this study, may be attributed to the underreporting by the patients due to difficult geography of the region, poverty, distance of the health centres from their homes or because of treatment at primary health care levels or by the quacks. It was observed in the present study that the two prime activities of children i.e. mainly outdoor sports/games and academics/study were adversely affected owing to intense itching of scabetic sites in 20% and 30% children respectively. This sustains that itching in scabies definitely hampers the quality of life in children. Teasing by fellow companions was seen in 13.3% of the children. Discord in friendship and social embarrassment due to scabies was reported in 13.3% and 23.3% of the children respectively. Out of 150 patients, in children the domain affected maximum was work at school in 9 (30%) followed by play and feeling of embarrassment in 7 (23.3%) cases each. Children reported no or minimal effect on quality of life. None of the patient had severely impaired quality of life. In our study, 111 (92%) patients experienced difficulty in working at the work place, 83.3% of patients had feeling of embarrassment, social relationship was affected in 82.5% of patients, sexual relationship was affected in 71% of patients. 64% of the patients had depression. Similar findings were seen in study done by Nair et al [9] where the major domain affected was work activity in 74.2% cases followed by feeling of embarrassment in 64.5% patients. In our study, majority of the patients (38%) had mild impairment of quality of life, Moderate effect was seen in 28.4% of patients, severe effect was seen in 16.1% and 17.5% patients did not have any effect on quality of life. In the study done by Worth et al [27] about one-fifth of the patients did not feel any restriction and scabies had a mild effect on the quality of life in 28.1% patients and a moderate impact on quality of life was seen in 36.8% of adults and large effect on their quality of life was seen in 13.9% of patients with scabies.[6] Limitations of the study: Participants were diagnosed only clinically. Authors did not employ any laboratory or microscopic tests for diagnosis. Small sample size was another limitation.

V. CONCLUSION

Scabies moderately affected the quality of life of the patients in the present study in the form of feeling of embarrassment, stigmata and shame associated with this disease. All these findings were more frequently observed among adult patients as compared to children. More attention should be paid to this contagious disease, its sequelae and concomitant morbidities despite the disease not being life threatening. Feeling of

embarrassment, difficulty in work place, social stigmata and depression were frequently observed in patients with scabies. In our study scabies mildly affected the quality of life. Early diagnosis along with pharmacological intervention and proper patient counselling and education may be an effective strategy to improve quality of life among scabies patients.

Funding: No funding sources.
Conflict of interest: None declared.

REFERENCES:

[1]. Hay R., Steer A., Engelman D., Walton S. Scabies in the developing world—Its prevalence, complications, and management. Clin. Microbiol. Infect. 2012; 18:313–323. doi: 10.1111/j.1469-0691.2012.03798.x.

[2]. Romani L., Koroivueta J., Steer A.C., Kama M., Kaldor J.M., Wand H., Hamid M., Whitfeld M.J. Scabies and impetigo prevalence and risk factors in Fiji: A national survey. PLoSNegl. Trop. Dis. 2015; 9:e0003452. doi: 10.1371/journal.pntd.0003452.

[3]. Chosidow O. Scabies. N. Engl. J. Med. 2006; 354:1718–1727. doi: 10.1056/NEJMcp052784.

[4]. Murray C.J., Vos T., Lozano R., Naghavi M., Flaxman A.D., Michaud C., Ezzati M., Shibuya K., Salomon J.A., Abdalla S. Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990–2010: A systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012; 380:2197–2223. doi: 10.1016/S01406736(12)61689-4.

[5]. Karimkhani C., Colombara D.V., Drucker A.M., Norton S.A., Hay R., Engelman D., Steer A., Whitfeld M., Naghavi M., Dellavalle R.P. The global burden of scabies: A crosssectional analysis from the Global Burden of Disease Study 2015. Lancet Infect. Dis. 2017; 17:1247–1254. doi: 10.1016/S1473-3099(17)30483-8.

[6]. Jackson A., Heukelbach J., Júnior C., de Barros E., Feldmeier H. Clinical features and associated morbidity of scabies in a rural community in Alagoas, Brazil. Trop. Med. Int. Health. 2007; 12:493–502. doi: 10.1111/j.1365-3156.2006.01809.x.

[7]. Andersen B., Haugen H., Rasch M., Haugen A.H., Tageson A. Outbreak of scabies in Norwegian nursing homes and home care patients: Control and prevention. J. Hosp. Infect. 2000; 45:160–164. doi: 10.1053/jhin.1999.0716. [PubMed] [CrossRef][Google Scholar]

[8]. Heukelbach J., Mazigo H.D., Ugbomoiko U.S. Impact of scabies in resource-poor communities. Curr. Opin. Infect. Dis. 2013; 26:127–132.

[9]. doi: 10.1097/QCO.0b013e32835e847b. [PubMed] [CrossRef][Google Scholar]

[10]. Heukelbach J., Wilcke T., Winter B., Feldmeier H. Epidemiology and morbidity of scabies and pediculosiscapitis in resource-poor communities in Brazil. Br. J. Dermatol. 2005; 153:150–156. doi: 10.1111/j.1365-2133.2005.06591.x. [PubMed] [CrossRef][Google Scholar]

[11]. Feldmeier H., Jackson A., Ariza L., Calheiros C.M.L., de Lima Soares V., Oliveira F.A., Hengge U.R., Heukelbach J. The epidemiology of scabies in an impoverished community in rural Brazil: Presence and severity of disease are associated with poor living conditions and illiteracy. J. Am. Acad. Dermatol. 2009;60:436–443.

[12]. doi: 10.1016/j.jaad.2008.11.005. [PubMed] [CrossRef][Google Scholar]

[13]. Alexander, J. 0.1984. Arthropods and human skin. Springer-Verlag, Berlin, Germany.

[14]. Downs, A. M., I. Harvey, and C. T. Kennedy. 1999. The epidemiology of head lice and scabies in the UK. Epidemiol Infect. 122:471-477.

[15]. Bezold, G., M. Lange, R. Schiener, G. Pabnedo, C. A. Sander, M. Kerscher, and R. U. Peter. 2001. Hidden scabies: diagnosis by polymerase chain reaction. Br. J. Dermatol. 144:614-618.

[16]. Heukelbach, J., E. van Haeff, B. Rump, T. Wilcke, R. C. Moura, and H. Feldmeier. 2003. Parasitic skin diseases: health care-seeking in a slum in north-east Brazil. Trop. Med. Int Health 8:368-373.

[17]. Chosidow, O. 2006. Scabies, ft. Engl. J. Med. 354:1718-1727.

[18]. Currie, B., and U. Hengge. 2006. Scabies, p. 375-388. In S. Tyring, O. Lupi, and U, Hengge (ed.), Tropical dermatology. Elsevier Churchchill Livingstone, London, United Kingdom.

[19]. Feldmeier H, Heukelbach J. Epidermal parasitic skin disease: a neglected category of poverty-associated plagues. Bull World Health Organ. 2009; 87:152–

59. [PMC free article][PubMed][Google Scholar]
[20]. [4] Finlay AY, Khan G. Dermatology Life Quality Index (DLQI): A simple practical measure for routine clinical use. ClinExpDermatol. 1994; 19:210–16. [PubMed][Google Scholar]
[21]. Fuller L.C. Epidemiology of scabies. Curr. Opin. Infect. Dis. 2013; 26:123–126. doi: 10.1097/QCO.0b013e32835eb851. [PubMed] [CrossRef][Google Scholar]
[22]. 13. Heukelbach J., Feldmeier H. Scabies. Lancet. 2006;367:1767–1774. doi: 10.1016/S0140-6736(06)68772-2. [PubMed] [CrossRef][Google Scholar]
[23]. 14. Engelman D., Kiang K., Chosidow O., McCarthy J., Fuller C., Lammie P., Hay R., Steer A., on behalf of the members of the International Alliance for the Control of Scabies (IACS) Toward the global control of human scabies: Introducing the International Alliance for the Control of Scabies. PLoSNegl. Trop. Dis. 2013; 7:e2167. doi: 10.1371/journal.pntd.0002167. [PMC free article][PubMed] [CrossRef][Google Scholar]
[24]. 15. Hengge U.R., Currie B.J., Jäger G., Lupi O., Schwartz R.A. Scabies: A ubiquitous neglected skin disease. Lancet Infect. Dis. 2006; 6:769–779. doi: 10.1016/S1473-
[25]. 3099(06)70654-5.[PubMed] [CrossRef][Google Scholar]
[26]. 16. Yeoh D.K., Anderson A., Cleland G., Bowen A.C. Are scabies and impetigo
[27]. 'normalised'? A cross-sectional comparative study of hospitalised children in northern Australia assessing clinical recognition and treatment of skin infections.PLoSNegl. Trop. Dis. 2017; 11:e0005726. doi: 10.1371/journal.pntd.0005726. [PMC free article][PubMed][CrossRef][Google Scholar]
[28]. Carthy JS, Kemp DJ, Walton SF, Currie BJ. Scabies: more than just an irritation. Postgrad Med J. 2004; 80(945):382-7.
[29]. Finlay AY, Khan GK. Dermatology Life Quality Index (DLQI)--a simple practical measure for routine clinical use. ClinExpDermatol. 1994; 19(3):210-6.
[30]. Kouotou EA, NansseuJR.Features of human scabies in resource-limited settings: the Cameroon case. BMC Dermatol.2015; 15: 12.
[31]. Worth C, Heukelbach J, Fengler G, et al. Impaired quality of life in adults and children with scabies from an impoverished community in Brazil. IntJDermatol. 2012; 51:275–82.
[32]. Sambo MN, Idris SH, Umar AA, Olorukooba AA. Prevalence of scabies among schoolaged children in Katanga rural communityin Kaduna state, Northwestern Nigeria. Annals of Nigerian Medicine. 2012; 6:26-29.
[33]. Heukelbach J, Feldmeier H. Ectoparasites--The under estimated realm. Lancet. 2004; 363:889-91.
[34]. Boralevi F, Diallo A, Miquel J, Guerin-Moreau M, Bessis D, et al.Clinical phenotype of scabies by age. Pediatrics 2014; 133: e910-916.
[35]. Marotta M, Toni F, Dallolio L, Toni G, Leoni E. Management of a family outbreak of scabies with high risk of spread to other community and hospital facilities. Am J Infect Control. 2018;46(7):808-13.
[36]. Lassa S, Campbell MJ, Bennett CE. Epidemiology of scabies prevalence in the U.K. from general practice records. Br J Dermatol. 2011; 164(6):1329-34.
[37]. Arlian LG, Runyan RA, Achar S, Estes SA. Survival and infectivity of Sarcoptesscabiei var. canis and var. hominis. J Am AcadDermatol. 1984; 11(2):210-5.
[38]. Mellanby K. The development of symptoms, parasitic infection and immunity in human scabies. Parasitology. 1944; 35:197-206.
[39]. Scott GR, Chosidow O. European guideline for the management of scabies, 2010. Int J STD AIDS.2011; 22: 301-303.
[40]. Hegab DS, Kato AM, Kabbash IA, Dabish GM. Scabies among primary schoolchildren in Egypt: sociomedical environmental study in Kafr El-Sheikh administrative area. ClinCosmetInvestig .2015; 8: 105-111.
[41]. Talukder K, Talukder MQ, Farooque MG, Khairul M, Sharmin F, et al.Controlling scabies in madrasahs (Islamic religious schools) in Bangladesh. Public Health.2013; 127: 83-91.
[42]. Hegab DS, Kato AM, Kabbash IA, Dabish GM (2015) Scabies among primary schoolchildren in Egypt: sociomedical environmental study in Kafr El-Sheikh

administrative area. ClinCosmetInvestigDermatol 8: 105- 111.

[43]. Talukder K, Talukder MQ, Farooque MG, Khairul M, Sharmin F, et al. Controlling scabies in madrasahs (Islamic religious schools) in Bangladesh. Public Health .2013; 127: 83-91.

[44]. Walton SF. The immunology of susceptibility and resistance to scabies. Parasite Immunol. 2010; 32(8):532-40.

[45]. Gang JA, Sheng XX, Sheng BX, Junmin W, Songmei G, Ying YD, et al. Quality of life of patients with scabies. J EurAcadDermatolVenereol. 2010; 24(10):1187-91.

[46]. Heukelbach J, Mazigo HD, Ugbomoiko US. Impact of scabies in resource-poor communities. CurrOpin Infect Dis. 2013; 26(2):127-32.

[47]. Das S, Chatterjee T, Banerji G, Biswas I. Evaluation of the commonest site, demographic profile and most effective treatment in scabies. Indian J Dermatol. 2006; 51(3):186-8.