



(RESEARCH ARTICLE)



Analytical study of knowledge, attitude and practices about superficial dermatophytosis among medical students of Kyrgyzstan

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International Journal of Science and Research Archive, 2024, 12(02), 636–647

Publication history: Received on 02 June 2024; revised on 10 July 2024; accepted on 13 July 2024

Article DOI: <https://doi.org/10.30574/ijrsra.2024.12.2.1278>

Abstract

Background: Dermatophytosis is a fungal infection that often manifest as a red or silvery ring. It penetrates the skin's outermost dead layer or keratinized tissue like hairs and nails. Another name for ringworm is tinea. The medical term for ringworm is dermatophytosis. People living in warm and humid climate have a higher risk of getting this infection. This study is aimed to assess the knowledge, attitude and practices of superficial dermatophytosis.

Methodology: A cross sectional study was done using Google forms. A structured questionnaire was given to the UG students of Jalal Abad State University from 1st year to 5th year. Questionnaire based on knowledge, attitude and practices. Where most of the questions types were in the form of yes or no. There were 583 respondents who actively responded to the questionnaires.

Result: In total, 583 Medical students from 1st year to 5th year were selected for the study where the age range was 17 to 27. Majority 64.5% were found to have good knowledge on superficial dermatophytosis. While majority (154) of male gender have poor practices. Most of the students who have good knowledge and good practice are 235 ($p= 0.017$) and with good attitude and good practice are 231 ($p= 0.018$). More concern to those who have poor practice related to superficial dermatophytosis.

Conclusion: Most of the students were aware of the disease superficial dermatophytosis. Still most of the students failed to implement the knowledge about dermatophytosis into their personal hygiene practices.

Keywords: Dermatology; Superficial dermatophytosis; Tinea; Ringworm

1. Introduction

Ringworm is a fungal infection that often manifests as a red or silvery ring – shaped rash on the skin, but it's important to note that it is not caused by worms. The medical term for ringworm is dermatophytosis. Another name for ringworm is tinea, followed by a specific term based on the location of the infection on body [1].

Ringworm infection can affect people of any age, but it is more frequent among children because it spreads quickly through close contact. People living in a warm and humid climate have a higher risk of getting this infection. Those with diabetes, obesity or weakened immune systems are also at increased risk. Coming in close contact with an infected person or animal can increase your probability of getting contaminated. Wearing tight clothing or using public showers or restrooms are other risk factors. Around 20,000 to 25,000 out of 100,000 people are affected annually by ringworm infection worldwide. It is common among children in the age range of 5–10 years[2].

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This infection is more prevalent among females than males. Few symptoms and appearance of ringworm infection can vary depending on which part of body it appears. In the majority of cases, we will notice a raised round patch with a clear center (ring shape). The area inside the ring may contain small bumps. Single or multiple patches can occur on your skin that may appear red, brown, gray or skin – colored.

Treatment of ringworm involves medications and lifestyle adaptations. Medications may include antifungal cream, lotions; oral antifungals can be prescribed to reduce the spread of infection. We should wear light, loose – fitted clothing along with medication. Also disinfect your rooms, toilets and other areas of common use to limit its spread. Change your clothes and socks frequently, if you live or work in a warm, humid climate. Topical antifungals include imidazoles, allylamines, benzoic acid preparations and other agents. Oral antifungals include griseofulvin, fluconazole, ketoconazole, itraconazole and terbinafine [3].

According to the 2023 survey, the New York state department of health reported, ringworm infection is a common infection of skin. About 20 – 25% of population will experience a ringworm infection at any given time [4].

In a study in India there was an initial rise of dermatophytosis until 2019 and thereafter downward trend. Males (60.04%), outnumbered females (39.94%) with ratio of 1.5:1. Most common age group belongs to 21 – 30 years (28.64%) of which majority (53.07%) of patients had disease duration of more than 3 months. The majority of patients (51.1%) belong to rural backgrounds [5].

In Kyrgyzstan according to the national institutes of health, they estimated that a total of 185,961 people (3% of population) have serious fungal infection [6].

According to another study in Bangladesh, 320 clinically suspected cases of dermatophytosis. 105 cases (32.8%) were positive for fungus in direct microscopy while 97 (30.3%) were culture positive. Out of 320 cases male were 194 (60.6%) and female were 126 (39.4%) with a male – female ratio 1.54:1 [7].

2. Methodology

The cross sectional study was conducted between January and May of 2024 using Google forms.

2.1. Study Setting

Jalalabad State University, Medical Faculty, Kyrgyzstan.

2.2. Participants

Respondents were undergraduate medical students ranging from 1st year to 5th year.

2.3. Sampling Technique

Convenient sampling was employed, where participants were selected based on their availability and willingness to participate.

2.4. Sample Size

A total of 583 undergraduate medical students participated in the study.

2.5. Data Collection Method

The study utilized Google Forms as the platform for data collection.

The questionnaire was shared via a Google link to ensure easy access and participation.

2.6. Questionnaire Structure

2.6.1. Section 1: Socio-demographic Information

This section collected data on participants' age, gender, year of study, and any other relevant demographic information.

2.6.2. Section 2: Knowledge Related to Dermatophytosis

Participants were asked close-ended questions to assess their knowledge about dermatophytosis, its causes, symptoms, modes of transmission, and preventive measures.

2.6.3. Section 3: Practices to Deal with Dermatophytosis

This section focused on participants' behaviors and practices related to dermatophytosis, including hygiene practices, treatment seeking behavior, and use of preventive measures.

2.6.4. Section 4: Attitude Toward Skin Infections

Participants' attitudes toward skin infections, specifically dermatophytosis, were explored through questions assessing their perceptions, concerns, and beliefs.

2.7. Data Analysis

Quantitative data collected through Google Forms was analyzed using Statistical Package for Social Sciences.

Descriptive statistics such as frequencies, percentages, and means were used to summarize socio-demographic characteristics, knowledge levels, practices, and attitudes of the participants.

2.8. Ethical Considerations

Participants were informed about the purpose of the study and provided with informed consent before participating.

Confidentiality of participants' responses was maintained throughout the study.

Limitations

- The study utilized convenient sampling, which may limit the generalizability of the findings to other populations.
- The use of close-ended questionnaires may restrict the depth of understanding compared to open-ended or mixed-method approaches.
- This chapter deals with superficial dermatophytosis an analytical study of knowledge, attitudes & practices among the medical students.

3. Result

Table 1 Distribution of respondents according to their socio demographic information

Responses	Frequency	Percentage
Respondent's Age		
17-19	67	11.5
19-21	232	39.8
21-24	246	42.2
24-27	38	6.5
Respondent's Gender		
Female	262	44.8
Male	322	55.2
Respondent's Year		
1 st year	162	27.8
2 nd year	147	53.0
3 rd year	11	54.9

4 th year	245	96.9
5 th year	18	100.0
Respondent's Religion		
Hindu	266	45.6
Muslim	294	50.4
Christianity	13	2.2
Others	10	1.7
Respondent's Country		
India	443	76.0
Pakistan	117	20.1
Bangladesh	21	3.6
Kyrgyzstan	2	3
Father's occupation		
Business	273	46.8
Government sector	105	18.0
Teacher	60	10.3
Doctor	45	7.7
Farmer	86	14.8
Unemployed	14	2.4
Mother's occupation		
Government sector	81	13.9
Housewife	429	73.6
Doctor	27	4.6
Private sector	45	7.7

Table 2 Distribution of respondents regarding their knowledge on dermatophytosis

Responses	Frequency	Percent
Does sharing of clothes and objects spread it?		
Yes	485	83.2%
No	98	16.8%
Do you know any 5 sites where dermatophytosis can occur in your body?		
Yes	407	69.8%
No	176	30.2%
Dermatophytosis is only contagious when symptoms are present?		
Yes	299	51.3%
No	284	48.7%
Can dermatophytosis affect any part of the body other than skin, hair and nails?		

Yes	294	50.4%
No	289	49.6%
Discoloration and thickening of nails can be a sign of dermatophytosis?		
Yes	420	72%
No	163	28%
Can I get dermatophytosis from pet animals?		
Yes	406	69.6%
No	177	30.4%

From the above table respondents regarding to the knowledge based on sharing of clothes and objects, highest 485[83.2%] respondents think sharing of the clothes and objects cause dermatophytosis. From the given table respondents based on knowledge regarding sites of dermatophytosis, 69.8% [407] of respondents knows the sites of the dermatophytosis.

In the given table respondents based on knowledge regarding dermatophytosis is contagious when symptoms are present, 51.3% [299] respondents think that dermatophytosis is contagious when symptoms are present similarly 50.4%[294] respondents think that infections of dermatophytosis can affect other than skin, hair, and nails.

In the above table respondents according to discoloration and thickening of nails can be a sign of dermatophytosis, 72%[420] of respondents think that discoloration and thickening of nails can be sign of dermatophytosis as well the highest 69.6%[406] of respondents think pet animals can be the cause of dermatophytosis.

Table 3 Distribution of respondents according to the attitude among the medical students on superficial dermatophytosis

Responses related to attitude	Frequency	Percentage
Is Poor skin hygiene is a cause of dermatophytosis?		
Yes	505	86.6%
No	78	13.3%
Do you think there are specific measures to prevent dermatophytosis ?		
Yes	393	67.4%
No	190	32.6%
Do you think dermatophytosis is unavoidable and everyone will get it at some point?		
Yes	256	43.95%
No	327	56.1%
Do you believe dermatophytosis is a contagious disease?		
Yes	345	59.2%
No	238	40.8%
Do you think dermatophytosis can heal by itself?		
Yes	395	67.8%
No	188	32.2%
Do you think there is enough information available about dermatophytosis?		
Yes	346	59.3%
No	237	40.7%

The highest 86.6% [505] of respondents think that poor skin hygiene as a cause of dermatophytosis. Among total respondents 43.95% [256] of respondents think that dermatophytosis is unavoidable and everyone will get at some point. The highest 67.8% [395] of respondents think that dermatophytosis heal by itself while 32.2% [188] of respondents didn't think that dermatophytosis will heal by itself similarly 59.3% [346] of respondents think that there is enough information on dermatophytosis.

Table 4 Distribution of respondents according to the practices among the medical students on superficial dermatophytosis

Responses related to practices	Frequency	Percentage
How often do you wash your hands thoroughly with soap and water?		
Only after meal	412	70.7%
Thrice a day	41	7.0%
Whenever hand is dirty	130	22.3%
Do you maintain hygiene in college premises and while eating?		
Yes	546	93.7%
No	37	9.3%
How often do you wash towels?		
Daily	90	15.4%
Weekly	420	72%
Monthly	73	12.5%
How frequently do you change your socks and shoes?		
Once a week	164	28.1%
Once in a month	38	6.5%
Alternate days	380	65.2%
Do you share hair combs/hair brushes?		
Yes	447	76.7%
No	136	23.3%
Do you share your rooms, or do you stay alone?		
Sharing rooms with 4 to 5 members	173	29.7%
Stay alone	410	70.3%
How do you dry your clothes and undergarments?		
In the sun	272	46.7%
Dryer	73	12.5%

Above table shows that the highest 70.7% [412] of respondents wash their hands thoroughly with soap and water similarly maximum 93.7% [546] of respondents maintain hygiene in college premises and while eating majority 73 [12.5%] the respondents change their socks once a week. Among total respondents 136 [23.3%] of them share utilities. Respondents who dry their clothes and undergarments in the sun are 272 [46.7%].

Table 5 Distribution of respondents according to the level of knowledge about superficial dermatophytosis

Responses	Frequency	Percentage
Level of knowledge		
Good Knowledge	376	64.5
Poor Knowledge	207	35.5
Level of Attitude		
Good Attitude	362	62.1
Poor Attitude	221	37.9
Level of Practice		
Good Practice	368	63.1
Poor Practice	215	36.9

According to above table, majority of students have good knowledge [376] 64.5%, and [207]35.5% of them have poor level of knowledge.

In the given table respondents with good attitude are about 62.1% and respondents with poor attitude are 37.9%.

The respondents with good practices are more in number [368] about 63.1% as compare the respondents with poor practices [215]26.9%. This table shows that students are aware of the disease and them preventing themselves by proper hygiene.

Table 6 Correlation between level of knowledge, practice and attitude of students

Responses	Good practices	Poor practices	p value
Good knowledge	235	141	0.017
Poor knowledge	133	74	
Good Attitude	231	131	0.018
Poor Attitude	137	84	

From the above correlation table we can clearly notices that the students with good knowledge and practices are about 235 and there are some students [133] with poor knowledge but they have good practices on superficial dermatophytosis. There are less respondents who have good knowledge with poor practices [141] and poor knowledge and poor practices are about 74 respondents [p value: 0.017].

In the correlation of good attitude and practices there are 231 respondents who have good attitude and also good practices and respondents with poor attitude and good practices are 137. Students with good attitude and poor practices are 131 and poor attitude and poor practices are 84 [0.018].This correlation table clearly shows that the students have good knowledge and attitude but need to implement on good practices.

Table 7 According to the socio demographic the level of knowledge of respondents towards superficial dermatophytosis

Responses	Good knowledge	Poor knowledge	p value
Age			0.016
17-19	36	31	
19-21	166	66	
21-24	151	95	
24-27	23	15	
Gender			0.045
Female	176	85	
Male	200	122	
Year of study			0.003
1 st year	124	38	
2 nd year	92	55	
3 rd year	8	3	
4 th year	141	104	
5 th year	11	7	

From the above given table the students age from 19-21[166] have good knowledge of the disease [p=0.016]. As compare to female, male [200] have good knowledge [p=0.045], where most of the students are from 4th year [141]. [p=0.003].

Table 8 Correlation based on socio demographic factors on attitude towards superficial dermatophytosis

Responses	Good Attitude	Poor Attitude	p value
Age			0.008
17-19	38	29	
19-21	150	82	
21-24	150	96	
24-27	24	14	
Gender			0.017
Female	176	85	
male	186	136	
Father's Occupation			0.026
Business	168	105	
Gov. jobholder	70	35	
Teachers	41	19	
Doctors	24	21	
Farmer	50	36	
Unemployed	9	5	

Year of study			0.019
1 st year	108	54	
2 nd year	85	62	
3 rd year	4	7	
4 th year	154	91	
5 th year	11	7	

From the above given table respondents age groups from 19-21 and 21-24 have good attitude [150]. Respondents with poor attitude are from the age 21-24[96]. [p=0.008]. Males [186] as compared to females [176] have good attitude toward disease but male [136] have poor attitude. This shows that males have good attitude but some of the male students have poor attitude also. [p=0.017].In the father’s education those are in good financial family have good attitude towards superficial dermatophytosis [168] and poor attitude [105].[p=0.026].Students from 4th year have good attitude[154].[p]=[0.019].

Table 9 Correlation table based on socio demographic factors and practices towards superficial dermatophytosis

Responses	Good Practice	Poor practice	p value
Age			0.018
17-19	45	22	
19-21	137	95	
21-24	162	84	
24-27	24	14	
Mother’s Occupation			0.015
Gov. jobholder	45	36	
House wife	281	148	
Doctors	12	15	
Private sector	30	16	
Gender			0.001
Female	200	61	
Male	168	154	
Year of study			0.001
1 st year	83	79	
2 nd year	91	56	
3 rd year	6	5	
4 th year	171	74	
5 th year	17	1	

Above table shows the correlation between socio demographic factors and practices which shows that students from age group between 21-24year have good practice with p value 0.018. Similarly mother’s occupation who are housewife seems to have good practices with p value =0.015. As compare to male respondents, female gender have good practices [200] with p value p=0.001. Students from 4th year maintained good practices towards this disease with p value =0.001.

4. Discussion

Superficial dermatophytosis infection has been reported under a variety of different terminologies since the early days of recorded human civilization. However, it has only been during the past 200 years with the development of modern science that the contagious nature of the disease could be related to the presence of fungal organisms.

In this study overall percentage of female respondents are 44.8% and males respondents are 55.2%. In the similar study conducted in Kaduna, north central Nigeria overall 608 were studied where males are 40.2% and females are 59.8% [8]. One more study which was conducted in eastern Nepal there were 95(58.64%) males and 67 (41.36%) are females [9].

4.1. Knowledge about superficial dermatophytosis

In western Kenya the study was conducted related to superficial dermatophytosis where most people (32.5%) were agreed that close contact with pet animals leads to infection [10]. In our research similar study were conducted and 69.6% students agreed that dermatophytosis can occur from pet animals.

The study conducted in Sree Balaji Medical College and Hospital Chennai, Tamil Nadu showed that 45% of patients knew that the infection spread through contact and 55% of patients had no idea about spread of infection through contact [11]. In contrast to this study in our research the students (83.2%) knows that dermatophytosis can spread by sharing clothes and objects.

4.2. Attitude related discussion about superficial dermatophytosis

According to our present study students (86.6%) think that poor skin hygiene is a cause of dermatophytosis whereas in similar study conducted in eastern Nepal that 25.31% agreed to the point that though they keep their body clean still they have problem [9].

In our study students think that dermatophytosis cannot heal by itself (32.2%). In similar study conducted in eastern Nepal where (156) 96.30% students did not agree that it can heal by itself [9].

4.3. Practice related discussion about superficial dermatophytosis.

In our present study students sharing hair comb, hairbrushes and soaps are about 76.7% and who don't share their utilities are about 23.3%. In contrast to this article another survey which was taken in Madras Medical College, Chennai, 2015 showed 73.3% participants shared their combs, this shows that more students are ignoring the hygienic habits which should be taken to prevent dermatophytosis [12]

Participants who didn't take bath daily are about 41.7%. From the article of superficial fungal in western Kenya studies show that participants share bathing towels and clothes are about 45.4% to 57.7% [10].

In other study which was in Kaduna, North central Nigeria, 204/608[33.6%] people believed that the condition was caused by poor personal hygiene [8]. Whereas the study which was conducted in our university found that 93.7% students maintains hygiene and 9.3% not maintains hygiene.

Overall by seeing the result we can conclude that the students are taking preventive measures to prevent from skin related problems, but sharing of personal things may lead to increase of dermatophytosis.

Study which was conducted in eastern Nepal shows that people who dry their clothes in the sunlight are about 89.51% and 10.49% people did not dry their clothes in the sunlight [9], whereas in our study students who dry their clothes in sunlight are about 46.7% and who dry their clothes in the room are 40.8%. Drying clothes in summer is important because it kills bacteria. This is also a preventive measures should be taken by students.

5. Conclusion

In the case of superficial dermatophytosis, more attention should be devoted to the awareness of dermatophyte infections for the students of medical university especially in the rural areas. Beside that there is an urgent need to raise the current control measures and develop effective measures that may reduce the dermatophyte infection, especially among the patients with chronic diseases. We come to the point that about 69.9% of students have knowledge about superficial dermatophytosis which is the good sign that student will take more preventive measures regarding this

disease. Despite students demonstrating good knowledge about mode of spread of dermatophytosis, still most of the students have failed to implement the knowledge in maintaining the personal hygiene practices. So there is need to improve the gap between knowledge about the dermatophytosis and their personal hygiene practices. We come to the conclusion that there should be a proper communication among the students, teachers, society and family members about superficial dermatophytosis infection. This approach will help to improve the adherence of treatment and also prevent the recurrence.

Recommendation

Since the superficial dermatophytosis is a communicable disease, we should arrange the awareness program campaign in different regions or through the posters and social media so that the students can get more knowledge about superficial dermatophytosis. They should well educate regarding Do's and Don'ts to prevent infection. Preventive measures like sharing of clothes and personal utilities should be avoided to reduce the risk of infection. Similar studies need to be carried out in different regions.

Compliance with ethical standards

Disclosure of conflict of interest

The authors have disclosed no potential conflicts of interest, financial or otherwise.

Statement of ethical approval

Ethical clearance was obtained from the Institutional Ethics Committee.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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