

An Assessment of Awareness of Risk Factors for Skin Infections and its Impact on Life

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Abstract: Objective: The skin infection is a worldwide prevalent disease and there is a strong need to make people aware about its causes and its impact on life. Hence aim of this study is to assess awareness of skin infection, among adults at tertiary care center.

Methods: A observational, prospective study was conducted among out dermatological adult patients. By administering a questionnaire among 120 patients to elicit information on sociodemographic factors, awareness, family history, and prevalence of skin infection. QOL was investigated by a validated questionnaire DLQI (Dermatology life quality index). Statistical analysis was employed to determine relationships between variables if any.

Results: Among 120 patients, Acne (n=35) was prevalent, followed by warts (n=31), ringworm (n=28), vitiligo (n=11), Athlete's foot (n=10), and psoriasis (n=5). It was found that most of patients were aware of the risk factors of skin infection. It was found that their QOL if affected in term of physical symptoms caused by Symptoms and feeling (85.8%). It was noted that most of patients were familiar with the term skin infection (81.7%). Most of patients were aware of sharing personal belongings. (n=80.0%). Several significant associations ($p < 0.05$) between variables of awareness of risk factors associated with skin infection and QOL were documented.

Conclusion: Our findings revealed skin disease had negatively impacted individual QOL with different level of aspects. Most of the patients were found to be aware of skin infection. Nevertheless, patients reported that their QOL was affected due to physical symptoms and treatment of skin infection.

Key words: Skin infection, Awareness, Risk Factor, Quality of life

I. INTRODUCTION

Functioning as the exterior interface of the human body with the environment, skin acts as a physical barrier to prevent the invasion of foreign pathogens while providing a home to the commensal microbiota [1, 2] and excess water loss [3]. It also plays important role in Protection, excretion, sensation, heat regulation, storage, synthesis and absorption [4]. Our skin is home to millions of

bacteria, fungi and viruses that compose the skin microbiota. Similar to those in our gut, skin microorganisms have essential roles in the protection against invading pathogens, the education of our immune system and the breakdown of natural products [5, 6, 7]. The skin infection is caused due to germs, this happen when there is cut, wound or break on your skin. When the immune system is weakened due to diseases, skin infection easily occurs. Skin infection is an infection of skin in human but also occurs in animals, that affects the associated soft tissues such as loose connective tissue and mucous membranes. Although all skin infection results in skin inflammation [8]. Studying the composition of the microbiota at different sites is valuable for elucidating the aetiology of common skin disorders, which often have a preference for specific skin sites, such as eczema inside the elbow [9] and psoriasis on the outside of the elbow [10]. Skin infection can be categorised as bacterial, fungal, viral or parasitic. Bacterial skin infection is normal, when they occur, they range in size from tiny spot to the entire body surface. Bacterial infection ranges from harmless to life threatening. Some of the fungi naturally reside in the body are cellulites, Impetigo, Erythrasma etc. Fungi are not dangerous, but some of them can be harmful to health. A mycosis is also called as fungal infection, is an infection by fungus. Mild fungal skin infection appears as rash and is very common. Some of the fungi naturally reside in the body. Example of viral infection are Tinea corporis, Athlete's Foot etc. Viral skin infection is caused by viruses and infect the skin. The viral infection is different from skin infection caused by bacteria or fungi, but some of their symptoms may be similar. Examples includes Mouth blister, Shingles etc. Parasite causes the parasitic skin infection. Spread of this infection is beyond the skin to the blood stream and organs. These infections aren't life threatening but it can be uncomfortable. Example is lice, Scabies etc. [11, 12] Skin diseases are a major problem worldwide that affects teenagers and adults. Historically, skin

diseases were believed to have insignificant impact on 's quality of life More recently, there has been widespread acknowledgment that skin diseases can affect physical, social and psychological aspects of s' everyday lives, as well as their partners, family, and friends [13]. Lack of awareness of risk factors is a major contributor to the development of skin infections [14]. In these past few years, measuring quality of life (QOL) had become an important aspect of medical research into skin disorders, as with other chronic illnesses [15]. Although skin infection has lower impact on mortality than other diseases, the morbidity associated with it has a great impact on QOL, especially when it involves disability, disfigurement and symptoms such as pain, stinging and itchiness [16]. Studies have also shown that patients with skin conditions namely, acne, atopic dermatitis (AD) and psoriasis are willing to spend and pay much more for a cure for their disease as compared to patients with angina, asthma and hypertension [17, 18]. Researcher has also reported that night sleep and social status of nearly 60% of the patients were disturbed due to skin infection [19]. Some studies have also pointed out that, most of the lesion due to fungal infection was in the covered area of the body [20]. The pattern of skin diseases in India is influenced by the developing economy, level of literacy, lower standards of hygiene, tropical climate, overcrowding, industrialization, quality accessible health care, nutrition, and different religious ritual and cultural factors [21].

II. AIM OF WORK

Current study was aimed to evaluate to determine the awareness of skin infection among adults and to study the effect of skin infection on quality of life of patients.

III. MATERIALS AND METHODS

The Study design of this research work is observational and prospective study. Random sample of patients with skin diseases (n = 120) who were attending their scheduled follow up appointment at dermatology clinic and meeting the inclusion and exclusion criteria were included

Inclusion and Exclusion criteria:

Inclusion criteria:
patients with either of one or more types of infection. (Bacterial, fungal, viral and parasitic)

Only adult (Age 18 years or more).

Patients able to communicate either English of Gujarati.

Exclusion criteria:

who did not give informed written consent.
patients with severe skin condition.

All patients were interviewed regarding their skin condition and given the translated DLQI questionnaire to complete while waiting the medical consultation in the physicians' waiting room. Data regarding their skin characteristics such as severity of skin disease were recorded by attended physician. Study procedure was explained to the patients coming for skin infection treatment and their written consent form was obtained before performing any study related procedure. The inclusion/exclusion was review to ensure that the qualifiers for the study. After obtaining the consent from the patients, the questionnaires were given to the patients for the collection of data. Data obtained of patients was collected and documented into excel sheet. Collected data was analyzed using t-test. Result and conclusion were drawn from data obtained.

In this study, dermatology life quality index (DLQI) was used to assess the impact of skin diseases on s' QOL. DLQI was the first dermatology-specific Quality of Life instrument. And considered one of the most frequently used instruments in dermatology studies. It is a simple 10-question validated questionnaire that has been used in over 40 different skin conditions in over 80 countries and is available in over 90 languages. Questions are classified into six domains: symptoms and feelings, daily activities, leisure, working and schooling, personal relationships, and treatment.

The Dermatology Life Quality Index (DLQI) is a simple, self-administered and user-friendly validated questionnaire designed to measure the health-related quality of life of adult patients suffering from a skin disease.

Each question is scored on a four-point Like scale:
Very much = 3, A lot = 2, A little = 1, Not at all = 0, Not relevant = 0, Question unanswered = 0

The score is calculated by summing up the score of each question, resulting in a maximum score of 30 and a minimum score of 0. The greater the score, the more QOL is impaired [22].

- 0-1 = no effect at all on one's life.
- 2-5 = small effect on one's life.
- 6-10 = moderate effect on one's life.

- 11-20 = very large effect on one's life.
- 21-30 = extremely large effect on one 's life

The score can be expressed as a percentage of the maximum possible score of 30.

Sub-scales:

Table:1 Subclass/Section wise No of Questions and maximum score:

Subclass/Section	Questions	Score
Symptoms and feeling	Question 1 and 2	Maximum 6
Daily activities	Question 3 and 4	Maximum 6
Leisure	Question 5 and 6	Maximum 6
School and work	Question 7	Maximum 3
Personal relationship	Question 8 and 9	Maximum 6
Treatment	Question 10	Maximum 3

The scores for each of these sections can also be expressed as a percentage maximum score of the section i.e., either 3 or 6.

Scoring question 7

The first part of question 7 asks: 'Over the last week, has your skin prevented you from working or studying?'

If working or studying is not relevant to the subject, the response is 'Not relevant' (scored 0).

If the skin disease has prevented the subject from working or studying, the answer is 'Yes'. As 'prevention' is the biggest possible impact it is scored the maximum, 3.

If the skin disease has not prevented the subject from working or studying, the answer is 'No'. It is therefore assumed that as the skin disease has not prevented the subject from working or studying, the subject is able to continue to work or study, but that the skin disease may be a problem while doing so.

The subject is therefore asked the following question about the magnitude of the impact thus: 'If "No" (in other words 'If the skin disease has not prevented

you from working or studying?'), over the last week how much has your skin been a problem at work or studying?'

There are three possible responses to the question 'How much has your skin been a problem at work or studying':

'A lot' (scored 2), 'A little' (scored 1), 'Not at all' (scored 0).

The data were collected using questionnaire and converted in to spread sheet. Data were expressed at the mean value \pm SD, number and percentage. Descriptive statics [Mean (SD), frequency (%)] was used to depict profile study patients.

Awareness and Quality of life (QOL) related to skin infection were contrasted against socio-demographic variables and clinical profiles using Chi-Square test, T-test, depending on variable.

IV RESULT AND DISCUSSION

Result:

The socio-demographic characteristics of the patients are represented in table 2.

Table 2: Distribution of patients attending at out departments according to their sociodemographic characteristics

Sr No	Sociodemographic factor	Character	Frequency	(%)
1	Gender	Male	66	55.0
		Female	54	45.0
		Transgender	0	0.0
2	Age	18 to 25	28	23.3
		26 to 40	58	48.3
		41 to 55	21	17.5
		56 to 70	11	9.2
		> 70	2	1.7
3	Education	Illiterate	18	15.0
		Primary	28	23.3
		Secondary	26	21.7
		Higher Secondary	28	23.3
		Graduate	15	12.5
		Postgraduate	5	4.2
4	Marital status	Single/divorced/widow	46	38.3
		Married	74	61.7

5	Employment	Unemployed	22	18.3
		Temporary	28	23.3
		Part time	32	26.7
		Full time	33	27.5
		Retired	05	4.2
		6	Annual household income (in Rs)	Below 15000
15000 - 25000	24	20.0		
25000 - 40000	42	35.0		
Above 40000	26	21.7		
7	Current skin disease	One	86	71.7
		Two or more	34	28.3

Out of 120 patients, (55%) were male and (45%) were female. The main age group of Patients were between 26-40 years old (48.3 %), followed between 18-25 years old (23.3 %) The majority of patients were with average education status. All most equal

distribution was seen with respect to employment and annual house hold income status except more patients were with income between Rs. 25000-40000. More patient has only one skin infection.

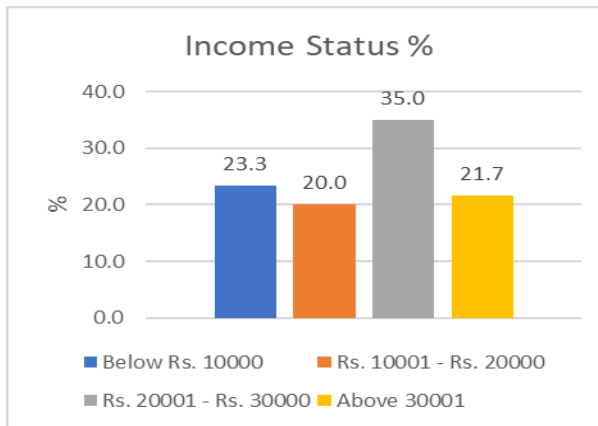
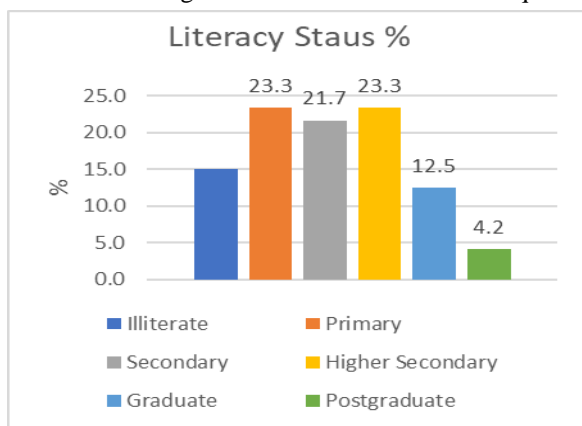


Figure :1 Literacy wise distribution of patients Figure :2 Income wise distribution of patients

Gender wise distribution of different sin disease in patient with skin infections is reported in table 3.

Table 3: Gender wise distribution of each disease in patient with skin infections:

Gender	Acne (%)	Athlete's Foot (%)	Ring-worm (%)	Psoriasis (%)	Vitiligo (%)	Warts (%)
Male	16 (13.3)	7 (5.8)	16 (13.3)	3(2.5)	5 (4.2)	19 (15.9)
Female	19 (15.8)	3 (2.5)	12 (10.0)	2 (1.7)	6 (5.0)	12 (10.0)
Total	35 (29.2)	10 (8.3)	28 (23.3)	5 (4.2)	11 (9.2)	31 (25.9)

Out of Total 120 participants of skin infection included in this study. Acne was found to be more prevalent (n=35), followed by Warts (n=31), ringworm (n=28), vitiligo (n=11), athlete's foot (n=10) only 5 cases of psoriasis have been reported.

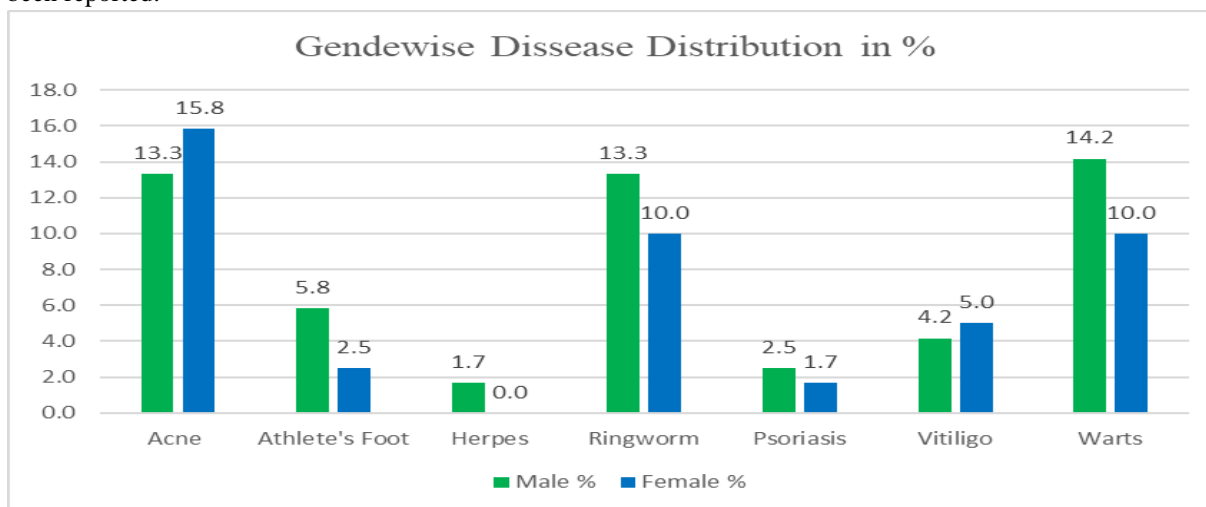


Fig :3 Gender wise disease distribution

Further table 4 represents the level of awareness of skin infection among patients with skin infection.

Table 4: Level of awareness of skin infection among patient:

Sr no.	Awareness Variables	Patient Frequency	Patient %
1	Familiar with term skin infection.	98	81.7
2	Awareness of risk of sharing personal belongings.	96	80.0
3	Awareness of risk of wearing tight, non-cotton clothes.	65	54.2
4	Awareness of sharing cosmetic.	73	60.8
5	Awareness of risk of tattoo and piercing.	86	71.7
6	Awareness of risk of associated with perspiration.	91	75.8

As per the results most of patients seems familiar with the term skin infection (81.7%). The data collected also suggested the patients are well aware about some of risk factors leading to acquiring/spread of skin infection. For instance, 80.0% patients knew that sharing their belongings are a risk factor while 75.8% were aware of heavy

perspiration being a risk factor of skin infection. In addition, 60.8% of patients knew that sharing of cosmetics are a risk factor and 71.7% of them were aware that tattoo and piercing as being a risk factor. Only 54.2% were aware about wearing tight, non-cotton clothes may lead to skin infection.

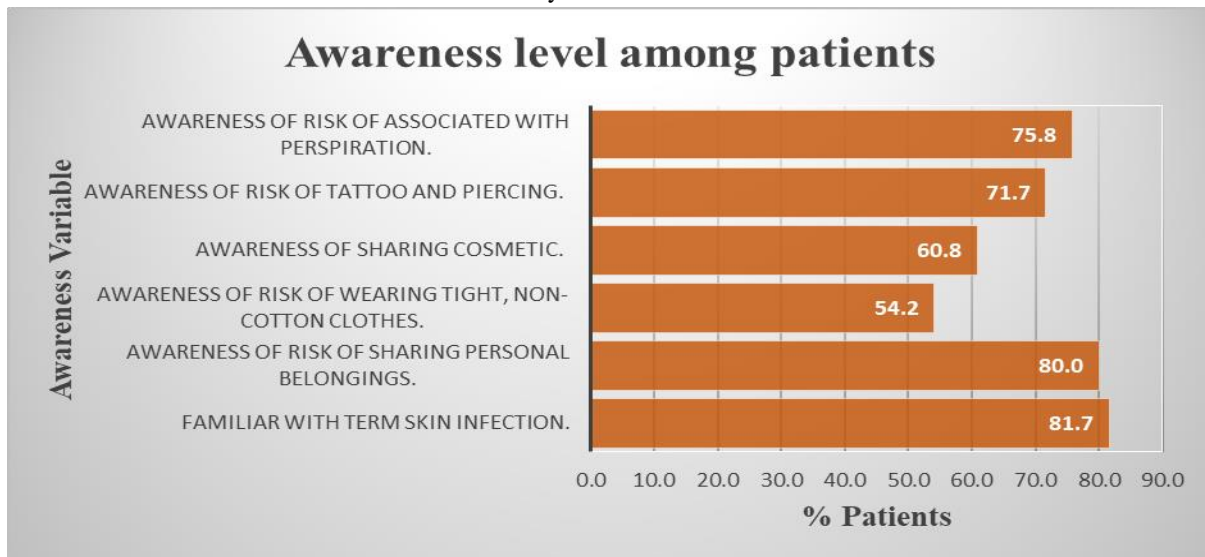


Figure 4: level of awareness of skin infection

Table 5 shows impact of skin diseases on each domain of patients' life.

Table 5: Impact of skin diseases on each domain of patients' life (based on DLQI Scores).

Sr No	Domain	Mean Score (±SD)	% Affected	% Nonaffected
1	Symptoms and feeling	2.58 (±1.26)	103	85.8
2	Daily activities	1.82 (±1.48)	74	61.7
3	Leisure	2.23 (±1.75)	86	71.7
4	School and work	1.02 (±0.69)	55	45.8
5	Personal relationship	0.70 (±0.48)	37	30.8
6	Treatment	0.89 (±0.74)	48	40.0
	Total	9.88 (±7.5)	120	100.0

All patients are any how affected by skin disease at smaller or larger extent.

Skin infection has great negative effects on QOL. The most frequently described aspect was embarrassment and psychological distress due to itchy and painful skin (85.8%) Moreover the burden of skin infection affected the daily activities (61.7%) and also created problems between partners as well as close friends and relatives (30.8%).

The problems caused due to people's reaction to the patient's skin appearance leads to an influence on the patient's clothes also affect the social and leisure activities of the participants (71.7%). The skin also has its effects on the work or study of the participants (45.8%). Amongst all, 40% of the participants are disturbed due to the treatment of the skin infection

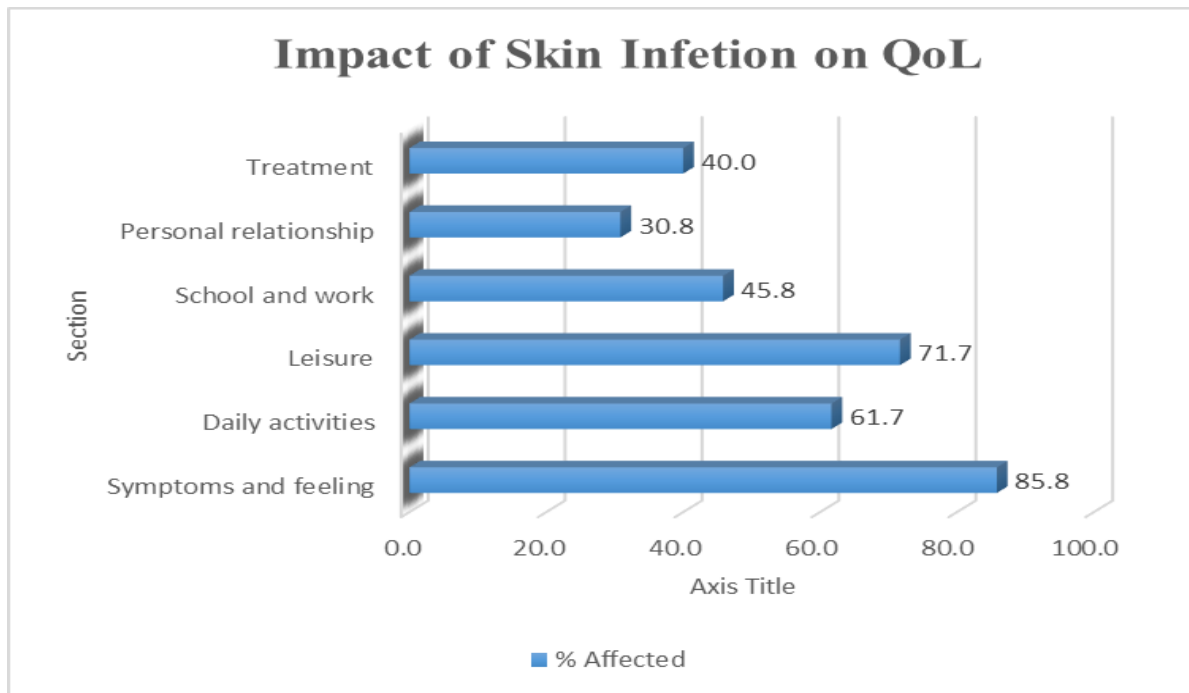


Fig 5: Impact of skin diseases on each domain of patients' life (based on DLQI Scores).

Discussion:

This study was focused on awareness of risk factors for skin infection in adults. The prevalence of skin infection among adults was found to be almost same in both genders. The most prevalent skin infection is the Bacterial skin infection that is acne (29.2%), female are slightly more affected then male, followed by viral skin infection which is Warts (25.9%). Followed by fungal infections ringworm (23.3%), athlete's foot (8.3%). Athlete's foot and psoriasis are less common skin infection observed in this study. Patients of vitiligo have also been reported. Acne and fungal skin infection are most prevalent in these studies since being tropical climate which is marked with hot and humid weather for most of the time. Thus, provides an optimal environment for the growth of bacteria such as propriobacterium leading to acne and growth of fungi causing fungal infection.

Level of awareness of skin infection:

This study revealed that a high number of patients are aware of the term skin infection and risk factors causing skin infection. 81.7% of the patients have good knowledge and awareness on skin infection. High no of participants were aware of the risk factors causing skin infection. The participants have good knowledge and awareness on skin infection, due to the majority of participants having good education and middle socio-economic status. Thus, proper education and healthcare system highlights the

significance of firm awareness of health information.

Impact of skin infection on quality of life:

Scholified et al. observed skin infection to have a great negative effect towards the quality of life [23]. Most patients of this study reported their QOL is affected due to physical symptoms and psychological distress leading to embrasures due to such symptoms (85.8%). Moreover, the burden of skin infection affected leisure activities and sports (71%). Daily activities were also affected specially the clothing due to uncomforted (61.7%). Skin infection also affected the social life, work and academic performance of the participants (45.8 %). Observation indicates skin infection create problems with close friend/relatives and with partner (30.8 %).

V CONCLUSION

This study established that skin disease was negatively affected individual's quality of life.

The study shows that the adults were mostly aware of skin infection and its associated risk factors. Study reveals that acne is most prevalent among all skin infection followed by warts, and ringworm. Participants have good knowledge on the awareness of skin infection and had a good hygiene practice and were highly aware on the factor associated with skin infection. As, skin infection is more prevalent in adults, the study shows that increasing level of

awareness of skin infection will help to prevent the spreading and worsening of skin infection, as the people become more aware of the factors causing the skin infection and have a better QOL. In this population, work and school domain was also affected where it may contribute to the indirect cost and overall economic burden of skin disease. Present study suggested that physical and psychological support should be given to help patients improve their daily lives. As the prevalence of skin infection is on the rise globally, this study shows that increasing the level of awareness of skin infection will help prevent the spreading and worsening of skin infection and have a better QOL as the people become more aware of the factors causing the skin infection.

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