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## The Factors Affecting the Occurrence of Skin Diseases in Rajshahi, Bangladesh



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### ABSTRACT

Skin diseases are a common health problem worldwide. Age, sex, gender, marital status as well as cultural activities could be risk factor for skin diseases. Nowadays, use of soap and shampoo has been increased significantly because of their advertisement in different media and prescription by dermatologist. However, role of cleansers on skin health is still obscure. Hence, it is essential to know the role of cleanser on the skin health for better selection of the cleanser as well as their suitable frequency of usage to preserve skin health. For this reason, this study was conducted to reveal the role of different factors on the occurrence of skin diseases in Rajshahi, Bangladesh. It was found that occurrence of skin diseases in the surveyed people was varied with age, sex, marital status and frequency of cleansers usage. Elderly and married people were more prone to skin diseases than younger people except acne. Likewise, female were more prone to skin diseases than male except urticaria. People who were adapted to use soap and shampoo more frequently were more prone to skin diseases. It can be decided that frequent use of cleansers was an important factor for affecting the occurrence of skin diseases in Rajshahi, Bangladesh irrespective of their age, sex and marital status.

## INTRODUCTION

Prevalence of skin diseases can be influenced by several factors including geographical and cultural factors (1, 2). One of these factors may be cleansers used in daily life. Frequency of bathing /skin cleansing continues to increase along with improvement of basic hygiene practices globally. Social practices are deviating from basic hygiene to more cosmetic refreshment (3). In some cultures, showering two to three times per day is not unusual (3). Advertisements of different cleansers on different media are also influencing consumer practices to increased exposure to cleansers. Moreover, dermatologists often prescribe cleansers for the treatment of skin diseases especially for hair and scalp disorders (4, 5). However, regular use of cleansers for healthy skin is not a well accepted approach to many researchers(3, 6). Actually, impact of cleansers on skin is not unique to all people, and often dependent on skin characters of users as well as on formulation of cleansers (3, 6, 7). Although skin cleansers differ extensively by formulation, several types of ingredients such as surfactants are common to them (7). Surfactants which are generally labeled by their ionic character in solution are frequently related with significant irritation to the skin (7, 8). Nowadays, milder traditional and synthetic anionic detergents or combinations of surfactants are utilizing in cleansers in order to decrease the negative consequences of surfactants to the skin (3, 7, 9). Hence, it is necessary to understand the fundamentals of cleanser effect on the skin as well as to select the most appropriate cleanser to preserve skin health. This study was done to uncover the role of different factors on the occurrence of skin diseases in Rajshahi, Bangladesh. It was found that occurrence of different types of skin diseases vary with sex, age, marital status of users and type and frequency of cleansers usage.

## MATERIALS AND METHODS

### Data collection

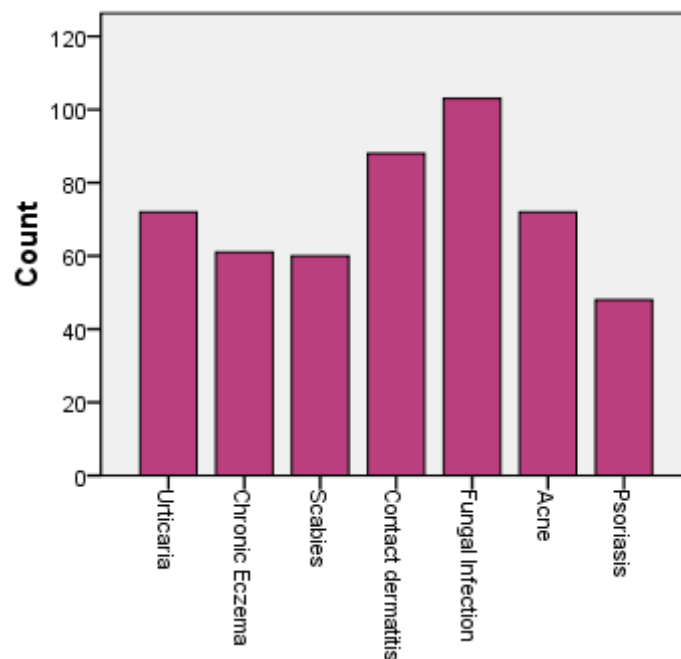
A standardized interview tool was developed to use in this study for identification of factors affecting the occurrence of skin diseases in Rajshahi, Bangladesh. The outdoor patients of dermatological department of Barind medical college and hospital, Rajshahi, Bangladesh were selected for data collection upon their verbal approval. The information of patients was collected by interview using interview tool. Information of the healthy people (used as control) was collected randomly from the healthy attendants of the patients. Total 504 dermatological patients and 35 healthy individuals were interviewed for data collection from 14 June to 19 December, 2016.

## Data analysis

Data entry was made from the interview tool into the SPSS program. Descriptive statistics were used to present role of different factors on occurrence of skin diseases in Rajshahi, Bangladesh.

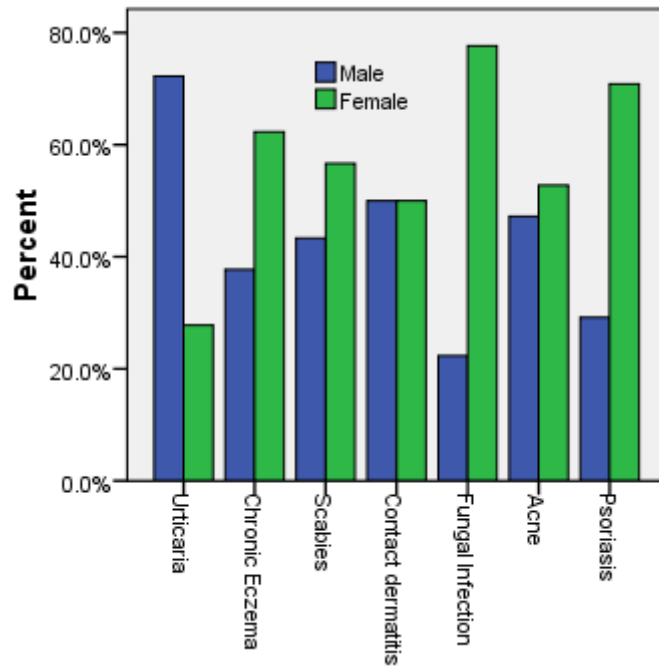
## RESULT

In this study, total 504 patients with different types of skin disease were surveyed. The result revealed that patients with fungal infection were the highest in number followed by contact dermatitis (Fig 1). On the contrary, the patients with psoriasis were the lowest in number followed by scabies and chronic eczema (Fig 1).



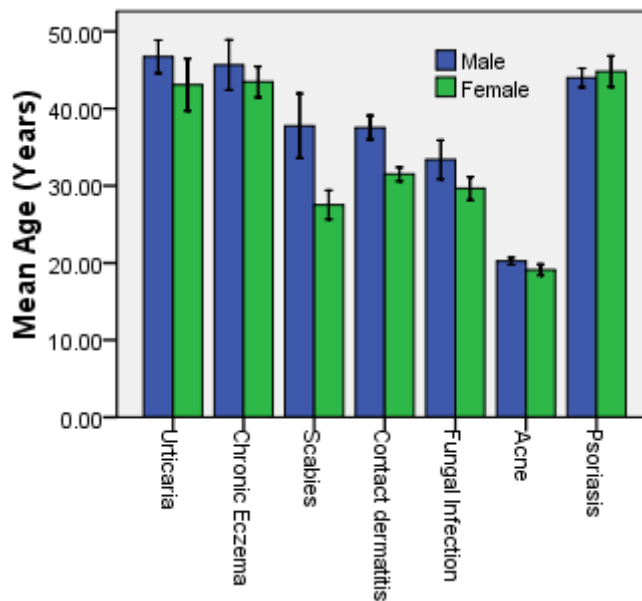
**Figure 1. Occurrence of skin diseases in surveyed people.**

As shown in figure 2, there was variation in occurrence of different types of skin disease for male and female patients. The result showed that the occurrence of chronic eczema, scabies, fungal infection, acne and psoriasis was higher in female than in male. Conversely, most of the patient was male for urticaria while male and female patient was equal in number for contact dermatitis (Fig. 2). However, this gender dependent variation was remarkable for only urticaria, fungal infection and psoriasis (Fig. 2). Thus, the results revealed that female was more prone to all types of skin disease than male except urticaria and contact dermatitis.



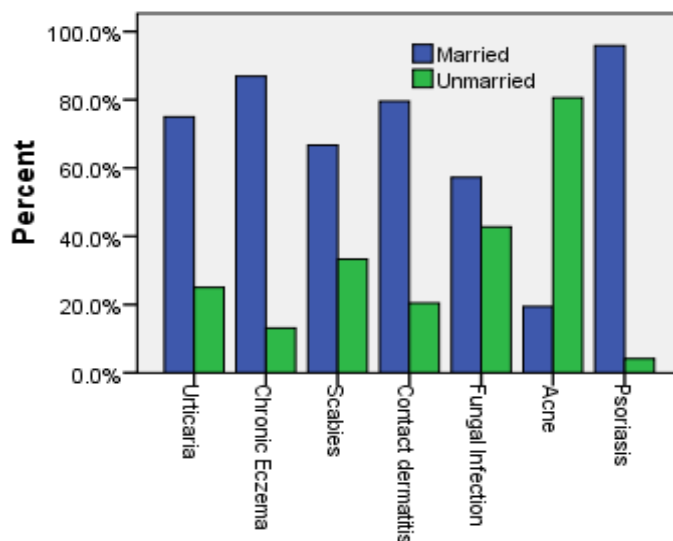
**Figure 2. Role of sex on occurrence of skin diseases.**

The results of this study indicate that there was variation in the mean age of the patients for different types of skin diseases (Fig. 3). Mean age of the patients was around 45 years for urticarial, chronic eczema and psoriasis while that was around 35 years for scabies, contact dermatitis and fungal infection (Fig. 3). Interestingly, mean age of acne was around 20 years indicating that young people were more vulnerable to acne than to the other diseases (Fig. 3).



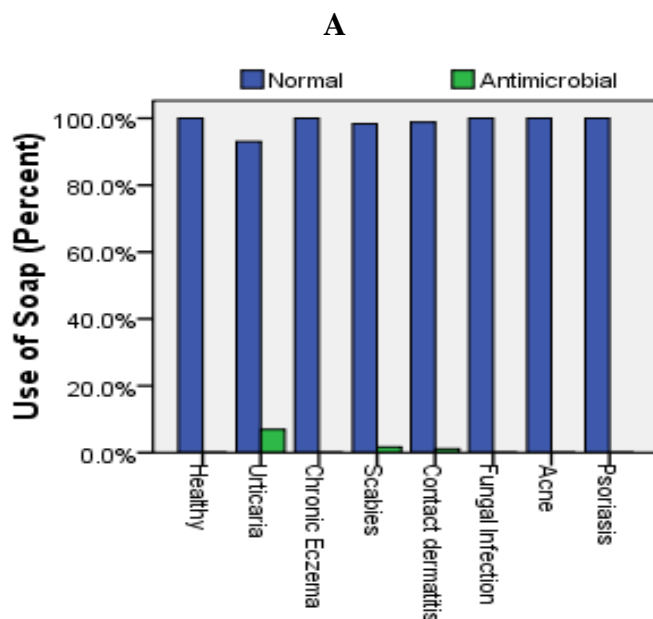
**Figure 3. Role of aging on occurrence of skin diseases. Data are Mean ± SEM.**

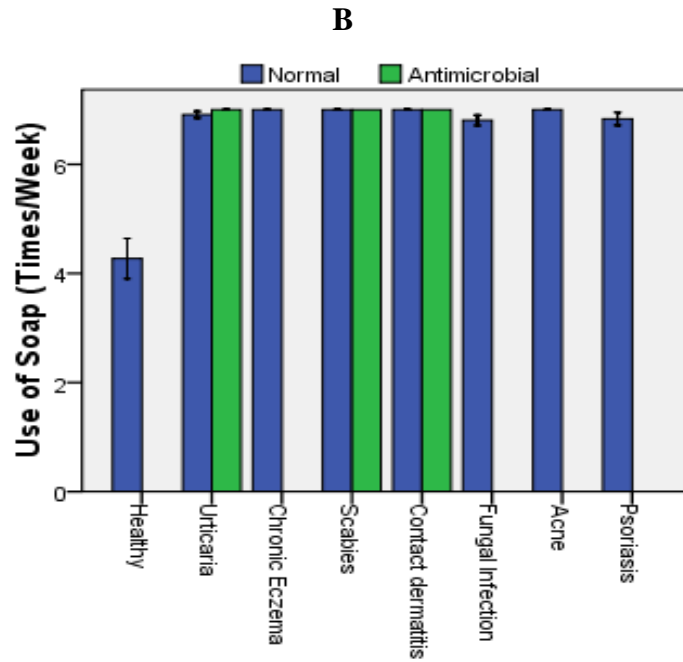
As shown in Figure 4, there was variation in manifestation of different types of skin diseases for married and unmarried patients. The results revealed that married were more susceptible to all surveyed skin diseases than to unmarried patients except acne (Fig. 4). In case of acne, around 80% of the surveyed patient was unmarried (Fig. 4).



**Figure 4. Role of marital status on occurrence of skin diseases.**

The results revealed that the most of patients and healthy people were habituated to normal soap while only few of them were used to antimicrobial soap for their body wash (Fig. 5A). However, there was remarkable difference between healthy people and patients in term of frequency of soap usage for their body wash. As shown in figure 5B, soap was used for body wash around 4 times per week by healthy people while that was used around 7 times per week by patients with skin diseases.

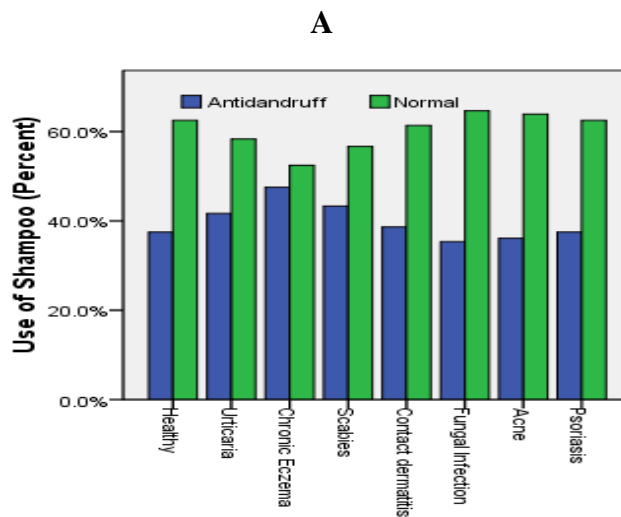


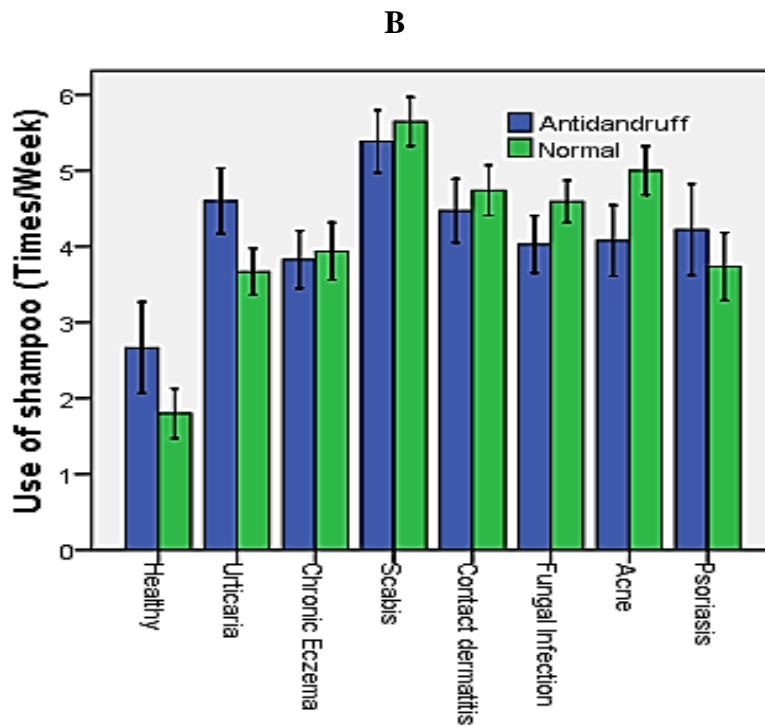


**Figure 5. Role of usage of body soap on occurrence of skin diseases.**

**Data are Mean ± SEM.**

It was found that around 60% of patients and healthy people were habituated to antidandruff shampoo while around 40% of them were used to normal shampoo (Fig. 6A). No notable difference between healthy people and patients was observed for type of shampoo used by them (Fig. 6A). However, rate of use of shampoo was remarkably more for patients with skin diseases than for healthy people ((Fig. 6B) indicating a role shampoo on occurrence of skin diseases.

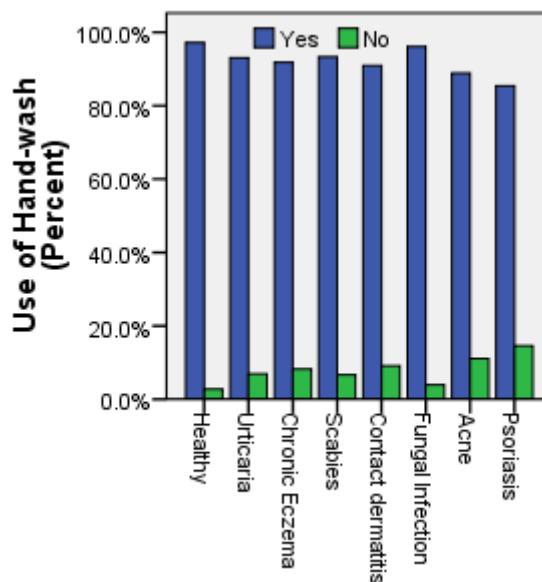




**Figure 6. Role of usage of shampoo on occurrence of skin diseases.**

**Data are Mean± SEM.**

As shown in figure 7, the most (around 95%) of the surveyed people either healthy or patient was habituated to use hand-wash indicating that there was no remarkable effect of use of hand-wash on occurrence of skin diseases in the surveyed people.



**Figure 7. Role of usage of hand-wash on occurrence of skin diseases.**

## **DISCUSSION**

It was observed in this study that patients with fungal infection were the highest in number while patients with psoriasis were the lowest in number in Rajshahi, Bangladesh. Likewise, high prevalence of fungal infection of skin in temperate climate as well as in HIV-AIDS and diabetic patients has been reported by other studies (10-13). Similar to the observation of this study, low prevalence of psoriasis has been found in Spain and USA (14, 15). It was found that female were more susceptible to fungal infection and psoriasis while males are more prone to urticaria. Similarly, role of sex on prevalence of autoimmune diseases like psoriasis has been reported (15, 16). Several studies showed that variation in frequency of skin diseases was dependent on age, gender and marital status of the patients (16-18). Similarly, it was found in this study that the occurrence of skin diseases varied with sex, age and marital status of the surveyed patients. Most of the skin diseases were prevalent in married and elderly patient while only acne was prevalent in younger patients. It was also supported by a study showed that the people aged 20 to 29 were more susceptible to acne than others(19). Interestingly, it was observed that patients with skin diseases were habituated to use soap and shampoo more frequently than the healthy people indicating the impact of cleansers usage on skin diseases. Likewise, it was shown that soap can cause tearing, irritation and dryness of skin which in turn can lead to skin diseases (4, 7, 20). However, impact of soap and shampoo on skin is also reliant on skin characters of consumer and ingredients of cleansers (3, 6, 7).

## **CONCLUSION**

Occurrence of skin diseases in Rajshahi, Bangladesh was varied with age, sex, marital status and frequency of cleansers usage. Elderly and married people were more susceptible to skin diseases except acne. Similarly, female were more prone to skin diseases except urticaria. People who were habituated to use soap and shampoo more frequently were more susceptible to skin diseases irrespective of their age, sex and marital status. Altogether, it can be concluded that frequent use of soap and shampoo was an important factor for affecting the occurrence of skin diseases in Rajshahi, Bangladesh.

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