



PREVALENCE AND DETERMINANTS OF HAND ECZEMA AMONG FEMALE HAIRDRESSERS IN MAKKAH AND JEDDAH CITIES, SAUDI ARABIA

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ABSTRACT

Contact with skin irritants is very frequent in the hairdressing trade. Hairdressers are not only exposed to irritants in shampoos and conditioners, but they are also intensively exposed to wet work from washing and handling damp hair. To determine the prevalence and determinants of hand eczema among hairdressers in two large cities in the Western Region of Saudi Arabia. A cross-sectional study was carried out including a representative sample of female hairdressers currently working in Makkah and Jeddah cities, Saudi Arabia. They were asked to fill a self-administered questionnaire including age, duration of work as hairdresser, personal and family history of allergy, and if they had an allergy to chemicals or Nickel, contact to hair dyes. Three hundred female hairdressers were involved in this cross sectional study. Their age ranged between 16 and 32 years. The duration of working as a hairdresser ranged from less than year up to more than 9 years. About two-thirds (188; 62.6%) had hand dermatitis or eczema after working as a hair dresser. Personal history of allergy, allergy to Nickel, family history of allergy, history of food allergy, allergy since birth and history of contact with hair dyes everyday among hairdressers were significantly associated with eczema. Hairdresser hand dermatitis or eczema is a common problem for this occupation, personal history of allergy, family history of allergy, allergy to Nickel, history of allergy since birth, and longer work duration as hairdresser are risk factors for the hairdresser to develop hand dermatitis or eczema during their working period.

INTRODUCTION

Contact dermatitis is a skin reaction caused by contact with an allergen or an irritant [1]. Like contact allergy, hand eczema is one of the most frequent dermatological disorders [2-4].

Occupational hand eczema (OHE) is the most frequently recognized work-related disease in Denmark [5]. Hand eczema has a multifactorial etiology with irritant, allergic and endogenous components. Irritant OHE is a common problem in occupations that involve skin contact with water, soap, cleaning agents, food, metal working fluids, organic solvents, etc [6].

Contact with skin irritants is very frequent in the hairdressing trade. Hairdressers are not only exposed to irritants in shampoos and conditioners, but they are also intensively exposed to wet work from washing and handling damp hair. Furthermore, hairdressers are exposed to several chemical substances in hair dyes, permanent wave solutions, and bleaching products – all of which are well-known causes of allergic OHE [7, 8].

There are several publications on hand eczema in the general population and the occurrence of occupational hand eczema in hairdressers and other occupational groups



[6, 9-12]. Leaving a profession is a recognized phenomenon in jobs such as hairdressing [13], but little is known about the reasons for this decision. Only a few studies have been published on hand eczema as the possible reason for leaving the trade [6, 12-15].

In this cross sectional study, the purpose is to determine the prevalence of hand eczema among hairdressers in two large cities in the Western Region of Saudi Arabia.

MATERIAL AND METHODS

A cross-sectional study was carried out including a representative sample of female hairdressers currently working in Makkah and Jeddah cities, Saudi Arabia. Stratified random sampling technique was adopted according to geographical locations in both cities. They were Saudis and non-Saudis. They were asked to fill a self-administered questionnaire including age, duration of work as hairdresser, personal and family history of allergy, and if they had an allergy to chemicals or Nickel, contact to hair dyes. In addition, they were asked about the current state of their hands, whether they had developed hand dermatitis or eczema, or not, the severity of this hand eczema which was indicated in the questionnaires by asking if needed for vacation and history of having medical treatment for their hands' dermatitis or eczema.

SPSS version 20.0 was used for data analysis. Chi-square test was applied to test for the association between categorical variables and p-value at or less than 0.05 was considered statistically significant.

RESULTS

Three hundred female hairdressers were involved in this cross sectional study. Their age ranged between 16 and 32 years. The duration of working as a hairdresser ranged from less than year up to more than 9 years. Out of these 300 hairdressers: 106 (35.3%) were Saudi hairdressers and 194 (64.6%) were non Saudis.

Almost one-third (122; 37.3%) of hairdressers had heard before about the hairdressers' hand dermatitis or eczema while 178 (59.3%) hairdressers had never heard about hairdressers' hand dermatitis or eczema. Sixty one of the participants (20.3%) had taken before an educational course for the hairdressers' hand dermatitis or eczema, while 239 (79.6%) had ever attend any course for the hairdressers' hand dermatitis or eczema.

Table 1 presents personal and family allergic history of the participated hairdressers. Almost two-thirds (62.3%) reported personal history of allergy, 26.3% were sensitive to chemicals and 34% were allergic to Nickel. Food allergy was mentioned by 19.3% of the respondents. About two-thirds (188; 62.6%) had noticed hand itching, erythema and scaling after working as a hairdressers and dealing with shampoos and when contact the customers hair. Out of the 188 who had hand dermatitis or eczema after working as a hair dresser: 124 (65.9%) hairdressers sought medical treatment for their hand dermatitis or

eczema. Twelve hairdressers (6.3%) asked for vacations or quit their jobs as hairdressers because their hand dermatitis or eczema. History of allergy since birth was reported by 18 (6%) hairdressers; 13 (72.2%) had asthma and 5 (27.7%) had peanut allergy). More than half of the participants (169; 56.3%) had family history of allergy.

Among 300 hairdressers: 46 (15.3%) hairdressers had been worked as a hairdresser less than 1 year, 54 (18%) hairdressers had been working for 1 to 3 years, 112 (37.3%) hairdressers had been working as a hairdresser for 4 to 6 years, 73 (24.3%) hairdressers had been working for 7 to 9 years as a hairdresser, 15 (5.0%) hairdressers had been working as a hairdresser for more than 9 years.

Table 2 shows that increasing the duration of work as hair dressers till 9 years increased the development of hairdresser hand dermatitis or eczema, $p=0.021$.

Most of hairdressers (82.4%) who had hand dermatitis or eczema were in contact to hair dyes every day, $p=0.0002$.

Most of hairdressers who had dermatitis (148; 78.7%) experienced exacerbations after contacting shampoos or direct contact to the customer hair.

All of hairdressers who have personal history of allergy ($n=171$) compared to 43% of those who didn't have personal history of any type of allergy had complained of hand dermatitis or eczema after been working as a hairdresser, $p=0.0003$). Similarly, all hairdressers (102) who had allergy to Nickel compared to 66% of those who were not allergic to Nickel had complained of hand dermatitis or eczema after working as hairdressers, $p=0.0006$.

All hairdressers who had family history of any allergy ($n=169$) compared to 43.6% of those with no family history had complained of hand dermatitis or eczema, $p=0.0006$.

Histories of food allergy, allergy since birth and contact with hair dyes everyday among hairdressers were significantly associated with eczema (P values were 0.033, 0.002 and 0.0002, respectively).

DISCUSSION

Several studies have investigated the incidence of hand eczema in the general population [16]. General population studies have repeatedly found that atopic dermatitis is the most important risk factor for hand eczema [17-23]. A Norwegian study found that 90% of school children with hand eczema also reported atopic dermatitis, [18] which suggested that hand eczema in children is closely associated with hand eczema.

A possible association between hand eczema and nickel contact allergy has been repeatedly debated [16]. Hand eczema was frequently reported by skilled hairdressers as well as apprentices, confirming that hand eczema is also a significant problem in Danish hairdressers [24].

The hairdressing profession is characterized by a high turnover of workers. The high dropout rate may be



due to hairdressers' personal circumstances, career changes, and health problems.

Hand dermatitis may result in significant morbidity and not infrequently may necessitate a change of career. Epidemiological data of hairdressers' hand dermatitis is difficult to collate due to high turnover, low response rate, incomplete data, and selection bias [25].

In our cross sectional study, 300 female hairdressers were involved, Saudi and non-Saudis worked in beauty salons in Makkah and Jeddah cities. Out of them, 62.6% hairdressers had complained of hand dermatitis or eczema. It was diagnosed by a dermatologist.

Hairdressers' hand dermatitis or eczema was increasing significantly with personal history of allergy, history of Nickal allergy, family history of allergy, food allergy and allergy since birth. The same findings have been reported by others [20-23].

CONCLUSION

Conclusively, hairdresser hand dermatitis or eczema is a common problem for this occupation, personal history of allergy, family history of allergy, allergy to Nickal, history of allergy since birth, and longer work duration as hairdresser are risk factors for the hairdresser to develop hand dermatitis or eczema during their working period especially when contact the chemicals like shampoos and direct contact with costumer's hair. In addition, hairdressers hand eczema increasing in those who are in contact to hair dyes every day. Accordingly, we recommended that hairdressers who have personal or family history of allergy, or allergic to Nickal, preferred for them to wear gloves during working especially when contact shampoos and costumers hair.

Table 1. Personal and family history of hair dressers (n=300)

Personal and Family History	N	%
Personal history of allergy	187	62.3
Sensitivity to chemicals	79	26.3
Allergy to Nickle	102	34.0
Food allergy	58	19.3
Contact dermatitis as hairdressers	188	62.6
Since birth allergy	18	6.0
Family history of allergy	169	56.3

Table 2. Association between duration of work as hairdressers and eczema (n=300)

Duration of work in years	Frequency (%)	Eczema Frequency (%)
<1	46 (15.3)	0 (0.0)
1-3	54 (18.0)	3 (5.6)
4-6	112 (37.3)	112 (100)
7-9	73 (24.3)	73 (100)
>9	15 (5.0)	0 (0.0)

p=0.021

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