

Occupational Hand Dermatitis among Hair Dressers in a Semi-urban Community in Rivers State, South-South Nigeria

Type of Article: Original

Kingsley Enyinnah Douglas, Joseph Ofure Agbi, Orevaoghene Akpovienehe, Aniebiet Joe Etukudo

Department of Preventive and Social Medicine, University of Port Harcourt, Port Harcourt, Nigeria.

ABSTRACT

BACKGROUND

Hair dressers are exposed to diverse potential irritation-causing hair beauty products and therefore, at a high risk of occupational hand dermatitis. This category of workers especially in the developing world like Nigeria, may not be applying requisite safety practices for the prevention and control of possible hazardous effects of chemicals contained in these beauty products.

AIM

This study aimed to determine the prevalence of occupational hand dermatitis among hair dressers in Choba, a semi-urban community in Rivers State, Nigeria. It also assessed respondents' knowledge and behavior towards the causes (or risk factors) and control of occupational hand dermatitis.

METHODS

Following ethical approval, this descriptive cross sectional study recruited 108 consenting hair dressers by multistage sampling. Pre-tested, semi-structured, close-ended interviewer-administered questionnaires probed socio-demographics, past medical/occupational history, knowledge and behaviour of respondents towards occupational hand dermatitis. Data collected were later analyzed using descriptive statistical tools.

RESULTS

With a predominantly young (18-25 years modal age range) female (84.7%)

population, this study had a prevalence of 34.3% occupational hand dermatitis. This low prevalence was complemented by a high (55.2%) level of knowledge even when there were risk factors (viz: alcohol (41.9%), smoking (2.9%), allergy (9.5%), and chronic exposure).

CONCLUSION

The study showed that there was a low prevalence of occupational hand dermatitis among hair dressers in Choba community due to a high knowledge of the causes of the disease and good safety practices towards prevention and control. It is recommended that health education be sustained and extended to other communities.

Keywords: *occupational hand dermatitis; hair dressers; Nigeria.*

Correspondence to: *Dr. K.E. Douglas*
E-mail: *drohambele1@yahoo.com*

INTRODUCTION

Occupational hand dermatitis may be defined as the inflammation of the skin of the hands from work related hazards. It is a common and often chronic condition affecting 1 in 10 persons in the United States. It may interfere with work and everyday activities with a range of symptoms (from mild to severe). This condition accounts for up to 80% of all job related skin disorders [1]. Dermatitis can be broadly classified into pathological groups namely, endogenous and exogenous. Endogenous dermatitis includes atopic dermatitis, discoid dermatitis, seborrhoeic dermatitis, stasis dermatitis, and asteatotic dermatitis while the exogenous type includes

contact dermatitis (irritant and allergic dermatitis), photosensitive dermatitis, neurodermatitis (Lichen simplex/nodular prurigo). Hair dressers are mostly predisposed to contact dermatitis [2,3].

Hand dermatitis is particularly common among caterers, dry cleaners, metal workers, auto mechanics, nurses, cleaners, painters and hair dressers. These groups of people frequently come in direct contact with chemicals contained in substances they use in their workplace, some of which include soaps, detergents, shampoos, hair relaxers, dyes, industrial chemicals, solvents and paints[1,2]. Exposure to these chemicals damage the skin's protective barrier function resulting in hand dermatitis.

The risk factors for hand dermatitis include gender (more in women as they form the bulk of hair dressers), race (more in blacks and Asians), life style (more in smokers and alcoholics) and personal history of allergy have also been implicated. Apart from occupational hand dermatitis, hair dressers are predisposed to transmission of infections such as human immunodeficiency virus and hepatitis B (from use of sharps) and electrical shocks from use of electrical appliances[3,4].

The prevalence of hand dermatitis worldwide ranges from 25 to 66 cases per 1000 patient years. Point prevalence varies between 5 and 10% and incidence rates are between 4 and 7%. Self-reported life time prevalence comes to more than 30% of the respondents. It accounts for 90% of the occupational skin disorders and is in the top three registered work related disorders [5].

One of the main drawbacks of the hair dressing profession is occupational hand dermatitis. In Denmark were hairdressers work an average of 8.4 years, their training period inclusive. It has been found that hand dermatitis is one of the main reasons for leaving the profession [6]. In a prospective follow-up study among German hairdressing apprentices, it was found that hand dermatitis

was the reason for quitting the training in 30.1% of dropouts. Change of job due to hand dermatitis has also been reported to be almost three times more often by hairdressers compared with a matched control group [7]. Studies in Burnley (United Kingdom) and Australia on knowledge and behaviour of occupational hand dermatitis among hair dressers showed that an average of 17% suffered from the ailment.

These studies also identified high knowledge (which did not translate into practice) and poor training as contributory to the observed prevalence [8].

A study in Ibadan [9] among 355 hair dressers showed that 255 (72%) reported that their jobs exposed them to health risks. Illnesses associated with the work were burns from hot water 66(19%) and hair relaxing creams 58 (16%), generalized aches and pain 62 (18%), cuts and bruises 51 (14%), skin rashes 45 (13%), back pain 41 (12%) and leg pain 25 (7%). Hand dermatitis was reported by 5% of these hair dressers [9]. Respondents who had been on the job for a longer period with history of allergies and low use of protective clothing and gloves were found to be more predisposed [9]. In this study, it appeared that poor work conditions, ignorance on the part of hair dressers and exposure to chemicals may have been responsible for these findings.

This study was therefore, aimed to determine the prevalence of occupational hand dermatitis among hair dressers in this semi-urban community. In addition the study sought to assess the knowledge and behaviour of respondents towards the causes and control of occupational hand dermatitis.

MATERIALS AND METHODS

Study area and population: The study was conducted in Choba community (one of the major communities) of Obio-Akpor Local Government Area of Rivers State Nigeria. It hosts the University of Port Harcourt in the outskirts of the rather busy Port-Harcourt city and could essentially be classified as a semi-

urban locality. Choba is a community of diverse ethno-cultural background with students, lecturers, natives and other groups of professionals co-existing side-by-side. The population is basically agrarian and petty trading with the civil service well represented by the university. The Choba Hair dressers and Beauticians Association claims to have about 460 members - experts and apprentices.

Study design and tools: This was a descriptive cross sectional study conducted among registered hair dressers in Choba using semi-structured, close-ended, interviewer administered questionnaires. The questionnaires were administered by 3 members of the research team and probed socio-demographics, past medical / occupational history, knowledge and behaviour of respondents towards occupational hand dermatitis. Pre-testing of the questionnaires had earlier been carried out among laundry workers with similar socio-demographic characteristics and necessary amendments made subsequently.

Inclusion criteria: These included all male and female hair dressers (apprentices and experts), at least 18 years old, had worked for at least 1 year and were registered members of the Hair Dressers and Beauticians Association of Choba community in Rivers State Nigeria.

Data collection: A sample size of 108 respondents (including allowance for attrition) was derived by applying the formula for proportion. Using a multistage sampling that comprised initial delineation of the area into 4 major large family clusters (as the area was yet to be outlined properly in streets) and balloting for proportionate representation of 27 respondents from each cluster. Researchers attended the respondents in their shops, daily and through five working days between 10am and 12noon (when business was slow and they were less busy). The weekend was intentionally avoided as this was when business boomed as most customers had time to visit the salons and respondents may not

have enough time to participate. Data collected were later analyzed using descriptive statistical tools.

Ethical considerations: The study was cleared by the Department of Preventive and Social Medicine, University of Port Harcourt and the Choba Hair Dressers and Beauticians Association. Responding hair dressers signed informed consent prior to commencement of the study and confidentiality was maintained as no respondent was identified by name. Respondents were later educated on universal precaution and best practices in the prevention and control of occupational hand dermatitis.

Limitations: Respondents were initially apprehensive and suspicious of the research team thinking they were council officials on revenue drive and illegal structures demolition. Most beauty parlours here are small scale businesses operating in 'illegal' shanties and hardly paid the 'exorbitant' council levies. They were re-assured that this was purely an academic exercise and findings could assist them in the control of occupational hand dermatitis.

RESULTS

During the study, a total of 108 questionnaires were administered to the respondents. However, 105 persons responded, giving a response rate of 98.0%. Three persons (2.0%) opted out.

Table 1: Demographic data of respondents

Variable		Freq. (n)	Perc. (%)
Age (years)	18–25	59.0	56.2
	26–35	42.0	40.0
	36–45	4.0	1.9
	45 and above	0.0	0.0
	Total	105.0	100.0
Sex	Male	16.0	15.3
	Female	89.0	84.7
	Total	105.0	100.0
Marital status	Single	79.0	75.2
	Married	25.0	23.8
	Divorced	1.0	1.0
	Total	105.0	100.0
Number of children.	None	78.0	71.4
	1–3	25.0	23.1
	4–7	2.0	1.9
	8 and above	0.0	0.0
	Total	105.0	100.0
Religion	Christianity	98.0	93.3
	Islam	4.0	3.8
	Others	3.0	2.9
	Total	105.0	100.0
Level of education	None	2.0	2.0
	Primary	7.0	6.5
	Secondary	72.0	68.5
	Tertiary	24.0	23.0
	Total	105.0	100.0

Table 2: Medical and occupational history of respondents

Variable		Freq. (n)	Perc. (%)
Alcohol intake	Yes	44.0	41.9
	No	61.0	58.1
	Total	105.0	100.0
Smoking	Yes	3.0	2.9
	No	102.0	97.1
	Total	105.0	100.0
On medication	Yes	3.0	2.9
	No	102.0	97.1
	Total	105.0	100.0
Any Allergy	Yes	10.0	9.5
	No	95.0	90.5
	Total	105.0	100.0
Work period	12 months	27.0	25.7
	13–18 months	1.0	1.0
	19–24 months	8.0	7.6
	More than 24 months	69.0	65.7
	Total	105.0	100.0
Number of days of work per week	5 days	5.0	4.8
	6 days	52.0	49.5
	7 days	48.0	45.7
	Total	105.0	100.0

Table 3: Respondents knowledge of occupational hand dermatitis

Variable		Freq. (n)	Perc. (%)
Knowledge of hand dermatitis	Yes	58.0	55.2
	No	47.0	44.8
	Total	105.0	100.0
History of hand dermatitis	Yes	36.0	34.3
	No	69.0	65.7
	Total	105.0	100.0
Causes of hand dermatitis	Chemicals	54.0	51.4
	Water	8.0	7.6
	Heat	4.0	3.8
	No idea	49.0	48.0
	Total	105.0	100.0
Signs and symptoms	Pain	39.0	37.1
	Swelling	14.0	13.3
	Redness	23.0	21.9
	Scaly hands	61.0	58.1
	No idea	40.0	38.1
	Total	105.0	100.0
Does hair dressing products Contain chemicals	Yes	94.0	89.5
	No	11.0	10.5
	Total	105.0	100.0
Those aware that these chemicals Can cause hand dermatitis	Yes	71.0	67.6
	No	34.0	32.4
	Total	105.0	100.0

Table 4: Behaviour of respondents towards occupational hand dermatitis

Variable		Freq. (n)	Perc. (%)
Number of times chemicals are used per day	1–3	32.0	30.5
	4–6	36.0	34.3
	7–9	9.0	6.7
	> 9	30.0	28.5
	Total	105.0	100.0
Hand washing after chemical use	Yes	105.0	100.0
	No	0.0	0.0
	Total	105.0	100.0
Substance used for washing hand	Water alone	10.0	9.5
	Water and soap	66.0	62.9
	Water and shampoo	27.0	25.7
	Others	2.0	1.9
	Total	105.0	100.0
Hand drying after washing	Yes	91.0	86.7
	No	14.0	13.3
	Total	105.0	100.0
Application of moisturizers after hand washing	Yes	39.0	37.1
	No	66.0	62.9
	Total	105.0	100.0
Do you use any form of protection while working?	Yes	94.0	89.5
	No	11.0	10.5
	Total	105.0	100.0
Personal protective equipment (PPE) used	Hand gloves	94.0	89.5
	Nothing	11.0	10.5
	Total	105.0	100.0
*Frequency of use of gloves	Always	50.0	47.6
	Sometimes	42.0	40.0
	Rarely	2.0	1.9
	Never	11.0	10.5
	Total	105.0	100.0
Will having hand dermatitis bother you?	Yes	82.0	78.1
	No	23.0	21.9
	Total	105.0	100.0
Is it necessary to use protective Clothing always when working?	Yes	85.0	81.0
	No	20.0	19.0
	Total	105.0	100.0

***Respondents were allowed to make more than one choice and so total was higher**

DISCUSSION

Hair dressers (especially in developing climates like Nigeria) are often unaware of the risks associated with the chemicals contained in lotions, creams and relaxers they use daily at work. As a result, many may come down with the problem of hand dermatitis and its resultant complications i.e. blisters, scarring, deformed nails, pustular lesions (when infected) and even depression from the resulting stigma!

The modal age was between 18-25 years (56.2%) just as majority of the respondents (84.8%) were females with secondary education (68.6%) buttressing the fact that hair dressing may not necessarily require

formal education and practitioners are mainly young persons. From Table 2, respondents who consumed alcohol (41.9%), smoked cigarettes (2.9%), had allergies (9.5%) and worked for more than 5 days (95.2%) were more at risk for developing occupational hand dermatitis.

More than half of the respondents (55.2%) had knowledge of hand dermatitis and could also recognize some of the symptoms of occupational hand dermatitis (Table 3). The study had a prevalence (i.e. history of occupational hand dermatitis) of 32.4% which was about same with the prevalence of 38.6% in the United Kingdom [8]. This study's finding was not surprising as respondents had good knowledge and practice of glove use among them. Even if the Nigerian study in Ibadan showed a lower prevalence when compared to the United Kingdom study, this hardly gives a true picture of the real problem in Nigeria considering the smaller sample size of the Ibadan study and the sparseness of related studies on this subject in Nigeria [9]. Furthermore, adherence to best practices and safety in Nigeria may not be as obtained in the United Kingdom.

A good number of the respondents (67.6%) were aware that chemicals in the products they used daily could cause hand dermatitis. This correlates the Australian study in which 70% of participants were exposed to chemicals capable of causing hand dermatitis [10]. Furthermore, the attitude of the respondents towards preventing hand dermatitis (by the use of gloves) was good as 81.0% opined that it was necessary. Although 100% of respondents agreed that they washed their hands after application of chemicals, their method of hand washing was inappropriate as 9.3% used water alone, 27.7% used water and shampoo, while 2.0% used other materials like soap and salt. The standard is water and soap. However, improper hand washing after hair dressing may predispose persons to hand dermatitis. A report by Health and Safety Executive, United Kingdom, states that hand dermatitis can develop gradually even with frequent work with milder chemicals like shampoo [11].

Majority (89.5%) of the hair dressers used gloves as personal protective equipment. This was higher than the Burnley study where only 58.0% of hairdressers wore gloves while perming[10]. Ironically, although the use of gloves was high, the frequency of use was mostly poor as only 47.6% of the hairdressers in this study who said they used gloves used it always. This was also seen in the population based study in Australia in which it was noted that the use of gloves by hair dressers was inappropriate [10] and could lead to hand dermatitis in people who use gloves.

The above findings indicate that the availability and knowledge of the use of particular protective equipment at work is not sufficient. In line with this a number of basic elements of a multidimensional approach to prevention have also been identified viz: hazard recognition, hazard control, personal protection, personal and workplace hygiene, enforced regulation and intensive health education [12]. The enforced regulation and intensive health education are some of the measures which are rarely implemented in the study area.

CONCLUSION

The study showed that there was a relatively low prevalence of occupational hand dermatitis among hair dressers in Choba community. This low prevalence was due to respondents' high knowledge of the cause of the disease, good attitude towards prevention and good practice of the use of hand gloves. It is recommended that health education for hair dressers on basic personal protection, proper use of hand gloves and appropriate hand washing techniques be intensified and sustained.

REFERENCES

1. Kumar P, Clark M. Kumar & Clark's Clinical Medicine. 7th Edition. US. Saunders Elsevier. 2009. 1236-1240.
2. Van Gils R.F, Van der Valk P., Bruynzeel D, Coenraads PJ, Boot C., Van Mechelen W, A n e m a J R . I n t e g r a t e d , Multidisciplinary care for hand eczema.

- <http://www.biomedcentral.com/1471-2458/9/438>
3. Paul KB. ABC of Dermatology. Fourth edition. London; BMJ Publishing Group Ltd; 2003:17-18
 4. Jurado-Palomo J., Moreno-Ancillo A., Diana I., Panizo C., Cervigon I. Epidemiology of contact dermatitis. <http://www.intechopen.com/download/pdf/25241>. Accessed November, 2012.
 5. Lerbaek A. Epidemiology and clinical studies on hand eczema in a population-based twin sample, 2007. <http://www.videncenterforallergi.dk>. Accessed November, 2012.
 6. Bregnhøj A. Prevention of occupational hand eczema among Danish hair dressing apprentices. <http://www.videncenterforallergi.dk>. Accessed 10th November, 2012.
 7. Ling TC, Coulson IH. What do trainee hairdressers know about hand dermatitis. *Contact dermatitis* 2002;47(4):227-31. <http://www.ncbi.nlm.nih.gov/m/pubmed/12492522/>. Accessed 10th November, 2012
 8. Perkins JB, Farrow A. Prevalence of occupational hand dermatitis in UK hairdressers. *Int J Occup Environ Health* 2005;11(3):289-93
 9. Omokhodion FO, Balogun MO, Olorunn FM. Reported occupational hazards and illnesses among hairdressers in Ibadan, Southwest, Nigeria. *West Afr J med* 2009;28(1):20-3.
 10. Nixon R, Roberts H, Frowen K, Sim M. Knowledge of skin Hazards and the use of gloves by Australian hairdressing students and practicing hairdressers. *Contact dermatitis*. 2006;54(2):112-6.
 11. <http://www.jennstaz.com/2011/11/cocomide-in-shampoo-causes-eczema-and-dermatitis/> <http://www.ncbi.nlm.nih.gov/pubmed/16487284/> Accessed 10th November, 2012.
 12. St. Michael's Hospital Occupational Health Clinic. Primary Prevention Strategies Occupational Contact Dermatitis, 2004. <http://creod.on.ca> Accessed 13th November, 2012.