

Awareness on cosmetic-related health hazards and measures to address them among service providers of beauty salons

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ABSTRACT

Background: Cosmetic products may contain ingredients whose safety is not certain with several instances of death and anaphylaxis due to service/cosmetic usage in beauty salons. With the mushrooming of beauty salons and with a large consumer base, there is a dearth in the literature to assess the awareness of the health hazards among the employees. This study aims to measure the awareness levels on health hazards and their emergency management among employees working in beauty salons in Coimbatore. **Materials and Methods:** A cross-sectional study using a semi-structured questionnaire, after Institutional Human Ethics Committee (IHEC) approval, was conducted*** to assess the awareness of the health hazards including emergency management among employees of beauty salons. The sample size was estimated to be 160. All the workers working in unisex beauty salons, selected by convenience sampling within 5 km radius of PSG IMS and R, were assessed based on their awareness toward cosmetics and the data were analyzed using SPSS software version 24 (IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY). **Results:** Around 160 service providers of beauty salons participated in the study, among which 84% use several cosmetic products. Only 40% are aware of the health impacts and 21.3% are aware about the side effects which included rashes and itching associated with the products used for bleaching. Only 36.9% knew about the regulations for usage of cosmetic products and 30% knew that there is a governing body for the same. **Conclusion:** Awareness of health hazards and its emergency management is less among the workers; the literacy programs to improve the awareness on use of cosmetics is the need of the hour.

Keywords: Beauty salon, cosmetic, hairdressing industry, health hazards, toxins

Introduction

Since the dawn of civilization, cosmetics are considered as a part of routine body care not only by the upper strata of society but also by the middle and lower class people. Since few decades, there is a big boom in cosmetic industries due to the production of the various types of cosmetics that are needed for the care and beautification.

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According to the Association of Southeast Asian Nations (ASEAN), cosmetics are defined as any substance or preparation intended to be placed in contact with the external parts of the human body or with the teeth and the mucous membranes of the oral cavity with a view exclusively or mainly for cleaning them, perfuming them, changing their appearance, and/or correcting body odors and/or protecting or keeping them in good condition.^[1] The intentions of using cosmetic products are to maintain good body condition, change the appearance, protect it from the effects of the environment and aging processes. and make the body smell nicer.

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Cosmetics industry has grown by an average 4.5% per year in the past 20 years. This industry was able to be one of the most stable industries despite the economic downturn because of the demand that keeps increasing all over the world.^[2]

In the past three years, the Indian wellness industry which includes slimming products and services, fitness services and equipment, and cosmetic treatments has witnessed the highest growth of around 490 billion. The beauty care market consisting of salons, cosmetic treatment centres, and cosmetic products which is currently estimated to be around 190-200 billion is expected to reach over 400 million by 2015 and hence likely to become the main contributor to the growth of Indian cosmetic industry. The Indian cosmetic industry is estimated at Rs. 15,000 crore and is expected to grow at over 10% annually. It was assumed that cosmetics were supposed to help women look beautiful, but recent changes in the fast-growing industry and advertising have smartly lured even men into buying “men” cosmetics thus expanding the industry further.

With the economic benefit, it is a challenge to the manufacturer to provide a good quality product with low cost and at the same time being environmentally friendly. Despite the positive news related with cosmetics and beauty industry, one cannot run from the fact that the safety of the cosmetics used is always at top priority. Safety of the cosmetics has become the major concern.^[3] Group of fragrances, preservatives, antioxidants, ultraviolet absorbers, humectants, emollients, emulsifiers, acrylates, hair dyes, and nail polish components are the most common ingredients in cosmetics.^[4] These additive chemicals are sometimes hazardous and prohibited due to the health risk it possess. Most chemicals are added to cosmetic product in the form of preservatives and fragrances. Some of the preservatives and fragrances are toxic and prohibited from the usage as ingredients because it can cause cancer, mutation, reproductive toxicity, and endocrine disruption.^[2] Heavy metals are also incorporated in beauty products for many purposes. The toxicity of heavy metals is well documented. At low concentration, some of these elements can cause damage to the internal body organ of animals and humans. Metal poisoning was reported to cause various mammalian cancers, respiratory diseases, failures in organ function, and intellectual retardation.^[5] Cosmetics also cause allergies and acute toxicities. Endocrine disruptor chemicals (EDC) such as phthalates in cosmetics and increased use of cosmetics have led to developmental and reproductive diseases. EDCs are chemicals that may interfere with the body's endocrine system and produce adverse developmental, reproductive, neurological, and immune effects in humans.^[6,7] The bioaccumulation of these chemicals over time has been associated with various health hazards.

The beauty industry has a large consumer base and it also spreads the infections. The safety of these chemicals or procedures, which are being used by the service providers, are not regulated and monitored properly. There is a dearth in literature regarding this topic and not much data are available on the level of awareness of

the health implications among people working in beauty parlors who use cosmetics. Therefore, understanding the awareness of health hazards and measures needed to address them becomes the mainstay in this world for those who are after cosmetics.

Hence this study aims at:

- To measure the awareness levels of health hazards related to the usage of chemicals and common procedures among service providers in beauty salon
- To measure the knowledge regarding identification and management of any adverse events during a procedure
- To assess the practices followed to minimize infection and promote safe practices.

Methodology

Study design: Cross-sectional study.

Study setting: Beauty parlors within 5 km radius of PSG IMS and R, Coimbatore.

Study participants: Workers working in unisex beauty parlors within 5 km radius of PSGIMS and R, Coimbatore.

Inclusion criteria: Service providers above 18 years working in beauty salons.

Exclusion criteria: Those who were not willing to participate in the study and those who were not present on the day of survey.

Sampling method: Convenience sampling.

Around 20 parlors were chosen within 5 km radius based on convenience sampling, and all the service providers present at the time of survey were surveyed.

Sample size: As per studies conducted by Savla Swati Jayesh *et al.*,^[8] the utilization of services in the beauty parlors once a month by the people was 40%, so $P = 40$, the estimated sample size with 80% power and relative precision of 20% is 144. With nonresponses of 10%, the total sample size comes to 160.

A validated semi-structured questionnaire was used to collect data after obtaining informed consent from study participants. Data regarding the use of cosmetics, the factors influencing the use of cosmetics and their awareness on the health implications and their practices while choosing beauty products and doing cosmetic procedures were collected. Questions pertaining to testing, safety, vaccination and response to side effects after product usage were used to assess the knowledge and practice. Scores were given for the questions, and adequate knowledge and practice were derived from the participants who scored more than 50%.

The data were analyzed using SPSS version 24. Descriptive statistics was expressed in percentage. Chi square was used to test

significance and odds ratio and *P* value was estimated. A *P* value of <0.05 was considered statistically significant.

The study was approved by the IHEC.

Results with Analysis

Totally, 160 participants completed the study who were employed in various beauty salons within 5 km radius of PSG IMS and R. The study participants were in the age group of 18-48 years. The demographic details of the participants are shown in Table 1.

Out of the 160 study participants, 52.5% of them had undergone training for less than three months and 83.8% of them told that they use cosmetics.

Our study showed that 92.5% read about the safety warnings of the cosmetic product before they use and only 39.5% of them were aware of the organization responsible for the cosmetic industry [Figure 1].

Our study revealed that majority of them have told that they sterilize the instruments after each procedure and also wash linen after each procedure. Around 21.3% of them had reported that they had encountered blood splash during the procedures. Only 21.9% of the study participants had been vaccinated with hepatitis B vaccine [Table 2].

Table 1: Demographic details of participants (n=160)

Sex distribution	n	%
Male	61	38.1%
Female	99	61.9%
Place of residence	n	%
Urban	100	62.5%
Rural	60	37.5%
Education status	n	%
Graduate	66	41.25%
Non graduate	94	58.75%

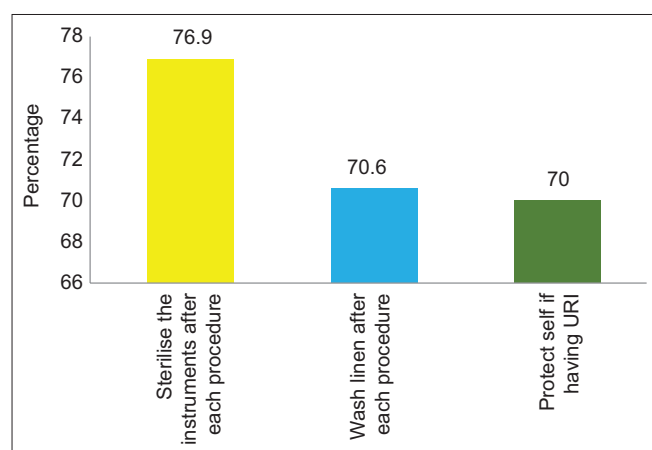


Figure 1: Practices related to cosmetic usage during service

The methods of addressing the physical complaints of the consumers during a service was also elicited and depicted in Figure 2. Almost half of them (49.4%) have told that they use soothing lotions in case of allergic reactions; 6.3% told that they will ignore the complaints and will carry on with their work; and 6.3% told that they do not know how to handle the complications.

There was a statistically significant association between male gender and animal testing with an odds ratio of 2.58 (2.12–2.94) [Table 3]. And also a significant association between gender and sterilizing instruments after each procedure with an odds ratio of 0.36 (0.176–0.773) [Table 4].

There was a statistically significant association between inadequate training and side effects encountered during procedure with an odds ratio of 3.2 (1.6–5.3). There was a statistically significant association between adequate training and overall knowledge with an odds ratio of 4.41 (2.3–8.9) and also overall practice on these cosmetic products usage and handling complications with an odds ratio of 3.41 (1.2–6.1).

There was a significant association between education and hepatitis B vaccination with persons belonging to higher educational status getting vaccinated with hepatitis B (*P* value = 0.041).

Discussion and Conclusion

Only few studies have been published journals regarding the awareness of cosmetic usage among the service providers.

Similar study conducted by Getachew and Tewelde^[9] showed that only 39% belonged to the age group of 25–29 years with a mean age of 27.5 ± 1.55 years whereas in our study, all the study participants belonged to the age group of 18–48 years with a mean age of 35.14 ± 2.487 years. Regarding the educational status, 63.5% of them had an education of secondary school and above, whereas in our study 41.25% of them were graduates.

Out of the 160 study participants, 83.8% had the habit of using some of the cosmetic products which is similar to the study done

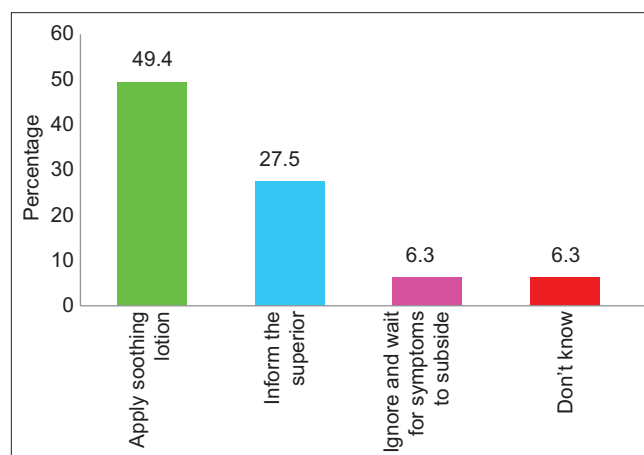


Figure 2: Service providers response to complaints

Table 2: Factors influencing the use of cosmetics (n=160)

Factors	%
Look for brand name before any procedure	93.1%
Good brands are safe and are of good quality	87.5%
Check whether the product is tested on animals	40%
Read safety warnings on cosmetic products	92.5%
Whether allergic testing is important to do on customers	75.6%

Table 3: Association of gender with knowledge

Factors	Male (%) (n=61)	Female (%) (n=99)	P
Feeling of looking better influenced to use cosmetics	55 (90.16)	95 (95.95)	0.141
Brand names influences to use cosmetics	57 (93.44)	92 (92.92)	0.901
Cosmetic products tested on animals	33 (54.09)	31 (31.31)	0.004
Read safety measures before the procedure	55 (90.16)	93 (93.93)	0.379
Encountered side effects during procedure	13 (21.31)	21 (21.21)	0.988
Organization name responsible for approval of cosmetic products	24 (39.34)	35 (35.35)	0.611

Table 4: Association of gender with practice

Practices	Male	Female	P
Follow cough etiquette	40 (65.57)	72 (72.72)	0.338
Blood contact during procedure	15 (24.59)	19 (19.19)	0.418
Hepatitis B vaccination	9 (14.75)	26 (26.26)	0.087
Sterilizing instruments	32 (52.45)	75 (75.75)	0.007
Linen wash	28 (32.2)	59 (67.8)	0.194

by Getachew and Tewelde^[9] that showed 80.1% using cosmetics. Only 46.8% read about the safety measures in the Getachew study whereas our study showed better results with 92.5% reading about the safety warnings. Also only 34.2% of the employees did allergic testing before they used it on the consumers in Ethiopian study whereas in our study 75.6% of the service providers did allergic testing before they used it. Concerning the adverse events following procedure, 19% reported adverse events in the Ethiopian study which is similar to our study that had 22% adverse events.

In our study, awareness regarding allergic testing and sterilizing instruments was found to be statistically significant among males. Practice like sterilizing instruments was found to be statistically significant among females. There is a statistically significant association between prior training and good practice. Hepatitis B vaccination coverage was high in persons who had a graduate degree. More than 30% of the service providers in the beauty parlors have poor knowledge in handling the complications arising out of cosmetic procedure which is similar to the study done by Tahaney Mohammed Fathey Khafagey *et al.*^[10] which showed that two-fifths of the population had poor knowledge about handling complications.

Limitation

The sample size was small and convenience sampling technique was used.

Conclusion

Majority of the population are hitting the beauty salons as they want to improve their personality. Various literacy programs to address these issues among the service providers is needed along with monitoring and regulation of hygiene and health practices. So, as the industry keeps expanding, the service providers should also play their role by keeping themselves updated with the knowledge of the cosmetic products, and periodic training should be given to them to handle the complications.

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Conflicts of interest

There are no conflicts of interest.

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