



## KNOWLEDGE AND ATTITUDES REGARDING NON-INTERVENTIONAL COSMETICS AMONG FEMALE COLLEGE STUDENTS IN UNIVERSITY OF DAMMAM

### Community Medicine

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### ABSTRACT

**Background:** The aim of this study was to investigate female college students' experience, knowledge and attitudes about non-interventional cosmetics and the factors affecting them.

**Methodology:** Self-administered questionnaires were distributed amongst 20% of total university female students (n=522) in November 2013, selected by a multi-stage stratified random sampling with proportionate allocation.

**Results:** Three hundred and twenty-four (62%) of the 522 female students were found to have fair knowledge about non-interventional cosmetics. One hundred and eighteen (22.6%) had poor knowledge and only eighty respondents (15.3%) had good knowledge.

**Conclusion:** Students in health colleges have better knowledge about non-interventional cosmetics and their side effects compared to students who are not, while marital status has no effect on it.

### KEYWORDS

Cosmetics, Female students, Knowledge, Attitude

### INTRODUCTION

Cosmetics are defined as "operations and procedures that revise or change the appearance, color, texture, structure or position of normal bodily features with the sole intention of achieving what the patient perceives to be a more desirable appearance, or boosting the patient's self-esteem" (6). Cosmetics include both surgical and non-surgical procedures such as laser hair removal, tattooing, body piercing, microdermabrasion, tanning, and skin peels (6-8). Such non-surgical procedures are performed in a range of settings including clinics, salons, and homes, thus making them subject to variable quality insurances (6-8). Moreover, it is a rapidly growing and changing industry (6-8). Despite the growing popularity of cosmetics, little is known regarding the factors that influence this growth and the attitudes toward these procedures particularly in the Arab world (3). The current study aim was to explore the experience, knowledge, and attitudes of female college students about non-surgical cosmetics procedures.

### METHODOLOGY

#### Study Design and Participants

This was a cross-sectional study that was conducted at University of Dammam and included students from eight colleges; medicine, dentistry, applied medical sciences, nursing, pharmacy, business, computer science, and preparatory year students. We used a multistage, stratified sampling method with proportionate allocation to select a representative sample of college female students. A total of 522 female students were selected to participate in the study, which comprised about 20% of the total university female cohort. The overall response rate was 100%. All subjects' data were included in the final analysis.

The ethics committee represented by the president of female

department college of medicine approved the study protocol. Written informed consent was obtained from each participant before data collection. Confidentiality procedures were explained to the subjects and subjects were informed that specifying their names was optional.

#### Data Collection

A standard self-administered questionnaire was used and members from the research group supervised its completion by the subjects. The questionnaire was of two parts. The first part included questions related to demographic characteristics, admission college, academic year, socioeconomic status, monthly income, parents' educational level, type of accommodation, numbers of rooms in the house, number of family members, number of female family members older than 12 years old. In addition, they were asked about their experience of non-interventional cosmetics either by the student herself or one of her female family members aged above twelve years old, and if any side-effects was ever experienced from any non-interventional cosmetics. The second part consisted of twenty-six multiple-choice questions that assessed the general knowledge of non-interventional cosmetics. In both parts, the subjects were asked specifically about the following: keratin products, tanning products, contact lenses, laser hair removal, manicure, pedicure, and tattooing.

#### Knowledge questionnaire

The general knowledge of non-interventional cosmetics was assessed using 26 multiple-choice questions, which were equally weighed. The language used was Arabic. Knowledge was assessed as 'good' by a score of 19 and above, 'fair' by a score of 13-18, and 'poor' by a score of less than 13. This was the first study this questionnaire was used in

#### Statistical Analysis

The study was designed to estimate the prevalence of non-interventional cosmetics use according to age, academic background, marital status, and income. Moreover, the study assessed the subjects' knowledge of the topic and association with prior self or female family member use of non-interventional cosmetics. T-test was used to estimate the relationship between marital statuses, and specialty with the total knowledge score. Chi-square test was used to assess the relationship between academic specialty and level of knowledge. Values were presented as means ± standard deviation (SD). All P values are two-tailed, and values less than 0.05 were considered significant. All statistical analyses were conducted with the use of SPSS software, version 20.

**Ethical Considerations**

This research was officially approved by Dr. Dalal AlTamimi, the president of female department of college of medicine. Participants' permission was taken before giving the questionnaires and the consent was written on the top of it. Participants were provided an explanation of the study and confidentiality procedures. Writing the name was optional. The questions were appropriate for the customs, religion, and for the level of university students'.

**RESULTS**

The sample size was five hundred and twenty-two female students from different colleges. The age range of participants was 17-25 years old. Regarding marital status, 14% of participants were married. The estimated family monthly income was more than 15 thousand Saudi Riyals, 5-15 thousand riyals, less than 5 thousand riyals for 56.9%, 40.7%, and 2.4% of participants, respectively (Table 1).

**Non-interventional Cosmetics Types**

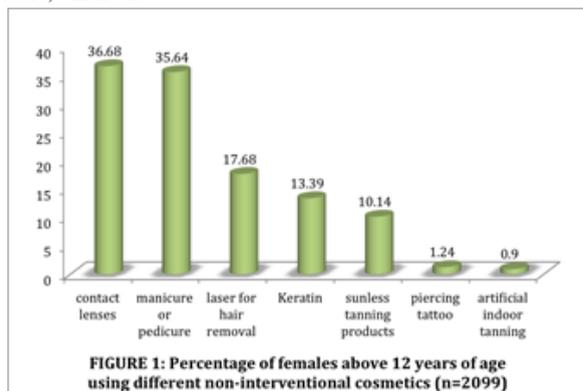
Figure one summarizes the percentage of females using different non-interventional cosmetics. This includes female students and relevant family members (n=2099). Eye contact lenses were the most commonly used cosmetics (36.6%, n=770) followed by manicure and pedicure (35.7%, n= 748), and laser hair removal (17.7%, n=370). Two hundred seventy-nine females (13.4%) reported undergoing keratin hair treatment and two hundred and thirteen females (10%.) reported applying sunless tanning products.

**Level of Knowledge**

Table 2 shows the percentage of correct answers to each question of the questionnaire. Although contact lenses were the most commonly used, less than half answered the question regarding caring for contact lenses correctly. Only 21% of the students knew that formaldehyde cause pharyngeal carcinoma. Less than a quarter knew the side effects of eye cosmetics products. Only sixteen percent of the students knew the correct precautions that should be taken during prolonged sun exposure. Majority of students knew the side effects of hair straightening by heat as well as the unsafe timing for sun exposure (Table 2).

As shown in Table 3, knowledge scores showed that the majority of participants had fair knowledge (62%) (scored 13-18 out of 26), while 15.3% had good knowledge (scored 19 and above), and 22.6% had poor knowledge (scored less than 13 out of 26 i.e. less than 50%) (Table 3).

Students from health specialties had a higher total knowledge mean score, which was



statistically significant compared to students from non-health care specialties (P=0.002) (Table 5). Married students had a higher mean

score, which was not statistically significant from non-married student's (P>0.05) (Table 5).

**COMMENTS**

This study was done to investigate the experience, knowledge and attitudes about non-interventional cosmetics and the factors affecting them among female college students. Our results indicate the popularity of non-interventional cosmetics with most commonly used being contact lenses, followed by the use of manicure or pedicure.

The overall level of knowledge about the safety of using the non-interventional cosmetics was variable even for widely used types. Our study showed an association between course education and knowledge of cosmetics studied. Students in health colleges had better overall knowledge and in particular the possible side effects. A higher knowledge score among health specialty students may reflect more critical questioning, or background teaching.

Our study has some limitations. First, because of the of time limit, method of data collecting and the small number of data collectors compared to the total number of female college students, this study was conducted only on a small size of population which represents only 20% of the total female college students. Therefore, to generalize the results for larger sample, the study should involve more participants. In addition, this was the first time, the study questionnaire was used in research, thus need for repeat studies are needed for validation.

**CONCLUSION**

In summary, non-interventional cosmetics are widely used. The knowledge about them is variable. Background education in health care specialties seem to be associated with better knowledge in particular of the side effects profiles of such products.

**RECOMMENDATIONS**

- 1- Educational campaigns about non-interventional cosmetics should be conducted to educate college students (particularly those in non-health specialties) about cosmetics' complications and side effects.
- 2- Consumers should be advised to read the labels on cosmetics products before buying them. Those provide services such as in salons should educate their customers about the content, side effect and long-term complications of their products.
- 3- Providers of Non-interventional cosmetics work should be regulated and monitored for safety and quality, particularly when providing products associated with possible complications such as cancer.

**TABLE 1- Socio-Demographic Characteristics of Study Population.**

Characteristics	Count=N	Frequency (%)
<b>College</b>		
Medicine	40	7.7
Nursing	22	4.2
Dentistry	14	2.7
Applied medical sciences	90	17.2
Pharmacy	6	1.1
Business administration	70	13.4
Computer science	90	17.2
Preparatory year	190	36.4
<b>Social Status</b>		
Married	73	14.0
Non-married	447	86.0
<b>Monthly Income (Saudi Riyals SAR)</b>		
Less than 5000 SAR	12	2.4
5000 – 15000 SAR	206	40.7
More than 15000 SAR	288	56.9

**TABLE 2- Questionnaire Questions and Frequency of Correct Answers.**

Questionnaire Question	Count of Correct answers (Frequency%)
<b>Hair Treatments and Dyes</b>	

1-Safety of keratin use	326 (62.6)
2-Health hazards of keratin compared to other hair straightening methods	260 (49.8)
3-Best method for straightening of colored hair	285 (54.7)
4-Health hazards of keratin fumes	412 (78.9)
5-Carcinogenic effect of formaldehyde	109 (21.0)
6-Effect of keratin fumes on respiratory system	371 (71.2)
7-Effect of heat straightening on hair	475 (91.0)
8-Composition of commercial hair colors	275 (52.8)
9-Side effects of henna tattoo	309 (59.3)
10-Benefits of henna hair coloring	359 (68.8)
11-Side effects of commercial hair colors	273 (52.3)
<b>Tanning</b>	
12-Precautions during prolonged sun exposure	83 (16.0)
13-Unsafe timing for sun exposure	460 (88.1)
14-Safety of artificial indoor tanning	419 (80.3)
15-Health hazards of artificial indoor tanning	311 (59.6)
16-Safety of sunless tanning products	185 (35.5)
<b>Eye Cosmetic Products</b>	
17-Safety of eye cosmetic products	372 (71.4)
18-Side effects of eye cosmetics	130 (24.9)
19-Caring for contact lenses	243 (46.6)
20-Caring for contact lenses 2	220 (42.3)
21-Side effects of contact lenses	315 (60.6)
<b>Laser Hair Removal</b>	
22-Safety of laser hair removal procedure	323 (61.9)
23-Effects of laser on skin	281 (53.8)
24-Precautions after exposure to laser for hair removal	309 (59.2)
<b>Manicure, Pedicure, and Piercing Tattoos</b>	
25-Preventive measure against infectious diseases during manicure or pedicure	333 (64.2)
26-Safety of piercing tattoo	373 (71.5)

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**TABLE 3- Level of Knowledge of Non-Interventional Cosmetics Among Female College Students.**

Level of Knowledge	Frequency (%)
Poor knowledge (less than 13)	22.6
Fare knowledge (13-18)	62.1
Good knowledge (19 and above)	15.3

**TABLE 4- Relationship Between Students' Specialty and their Level of Knowledge**

Students' specialty	Percentage of Students with Level of Knowledge (Count)			Chi Square test (p-value)
	Poor	Fair	Good	
Health college	16.9% (29)	62.2% (107)	20.9% (36)	9.004 (P-value =0.011*)
Non-Health care college	25.4% (89)	62.0% (217)	12.6% (44)	

**TABLE 5- Relationship between student' marital status and students' specialty and their total knowledge score**

Characteristic		Mean Total knowledge score (±SD)	P-value
Marital Status	Married (n=73)	15.03 (±3.041)	0.841
	Non-married (n=447)	14.94 (±3.522)	
Student specialty	Health specialties (n=172)	15.62 (±3.230)	0.002*
	Non-health specialties (n=350)	14.61 (±3.511)	

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