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Research Article

THE ASSOCIATION OF EYE MAKEUP WITH OCULAR PROBLEMS IN FEMALE MEDICAL STUDENTS OF AIMC.

¹Syeda Filzah Bukhari, ²Sitara Anwar, ³Saad Butt, ⁴Shumaila Khalil

¹Allama Iqbal medical college/Jinnah hospital Lahore, ²Allama Iqbal medical college/Jinnah hospital Lahore, ³Allama Iqbal medical college/Jinnah hospital Lahore, ⁴Allama Iqbal medical college/Jinnah hospital Lahore.

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Abstract:

Background: *There is a growing concern among makeup users regarding possible ocular problems associated with its use. Several studies have been conducted to investigate such concerns especially as safe practice of makeup usage is not followed by the majority of population.*

Objective: *To find frequency of eye cosmetic usage among AIMC medical students and its relation with ocular diseases as there is a significant number of makeups using females in AIMC.*

Material and Methods: *This is a cross sectional study. This study was conducted among students of Allama Iqbal medical college/Jinnah hospital Lahore, within a duration of 6 weeks. This study included female medical students of AIMC from 1st year to final year MBBS, MLT and DPT. The data was collected – after an informed consent – through a questionnaire which was distributed among female medical students of Allama Iqbal Medical college, Lahore. The questionnaire included questions divided into four sections which include demographic profile, questions related to makeup use followed by OSDI and ocular disease symptoms. Data analysis performed using SPSS version 17 using chi-square analysis as the data was qualitative.*

Results: *Of the total students 72% use makeup more than 3 times a week and 28% use makeup less than three times a week. The most popular product used was mascara (64%) and liner (64%), Kajal (35.3%) and eyelashes (6.3%) being the least used. The OSDI score in relation to makeup use shows no difference ($p=0.620$). There was also no association between the severity of symptoms and frequency of makeup use ($p=0.818$).*

Conclusions: *The use of eye makeup is not adversely linked with ocular problems in medical students, this reflects a positive aspect of the awareness of eye makeup safety and hygiene among medical students when compared to the general population, as clinical eye infection due to the transmission and persistence of microorganisms in eye cosmetics has been demonstrated.⁴ So G.P and Eye specialists should emphasize this aspect of eye cosmetics and hygiene in OPD.*

Key words: *makeup use, ocular problems, eye makeup safety*

Corresponding author:**Dr. Syeda Filzah Bukhari,**

Allama Iqbal medical college/Jinnah hospital Lahore.

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INTRODUCTION:

Cosmetics is used for those products which are applied externally to enhance eyes, hair or skin. [1] Cosmetics have become a part of routine body care. There has been an increased demand of cosmetics worldwide due to a growing concern among people to look good [2] and advertisement in media has played a vital role in this regard. [3]

Eyes are considered as windows to one's soul therefore products for their embellishment are in high demand and are used excessively. It has become a formulation challenge for a cosmetic chemist to come up with safe products for use on the delicate skin of the eye. [4]

The modern-day eye cosmetics can be put into two categories, the products applied to; skin around the eye and lid margin (eye shadow, eyeliner, eye cream) and to the eyelashes(mascara). [5]

Many ocular surface problems are associated with their use involving damage to cornea, conjunctiva and tear film. Most common problems are:1) infection caused by contact lenses 2) side effects along with toxic effects of the eye product. 3)physical injury due to improper application.4) injury to normal eyelid.5) decreased tear production and physiological and morphological injury of Meibomian gland. [6]

The injudicious use of expired make up whether used carelessly or unknowingly has also contributed significantly to damage to ocular surface. This is also owing to heavy microbial contamination of expired makeup, as well as biochemical changes in the composition of makeup resulting in the production of substances harmful to the eye. [7]

Mascara and Kohl are the leading products that are often used when expired. [8]

Objectives:

The objective of our study is to find frequency of eye cosmetic usage among AIMC medical students and its relationship with ocular diseases as there is a significant number of makeup using females in AIMC.

Operational definition:

- OSDI score: The OSDI© is assessed on a scale of 0 to 100, with higher scores representing greater disability. The index demonstrates sensitivity and specificity in distinguishing between normal subjects and patients with dry eye disease. The OSDI© is a valid and reliable instrument for measuring dry eye disease (normal, mild to moderate, and severe) and effect on vision-related function.

Dependent Variables

- OSDI score
- Symptoms of ocular problems

Independent Variables

- Type of makeup use.
- Frequency of makeup use.
- Makeup safety.

MATERIAL AND METHOD:

A cross-sectional study was conducted among female medical students of AIMC from 1st year to final year MBBS, MLT and DPT. Candidates who used contact lens were excluded from the analysis. The data was collected – after an informed consent – through a questionnaire which was distributed among 300 female medical students of Allama Iqbal Medical College, Lahore by Purposive sampling technique during a period of 6 week. Data analysis performed using SPSS version 17. To compare the OSDI score with the frequency of makeup use chi-square test was used, p value of less than 0.05 was be taken as statistically significant.

Figure 1: Frequency of makeup use

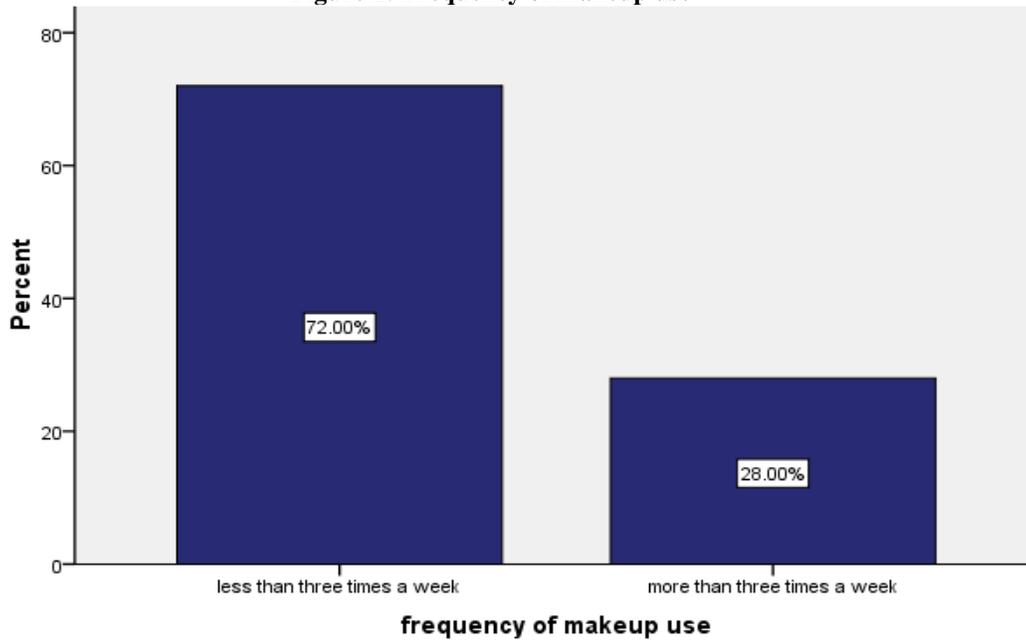


Figure 2: Type of eye makeup used

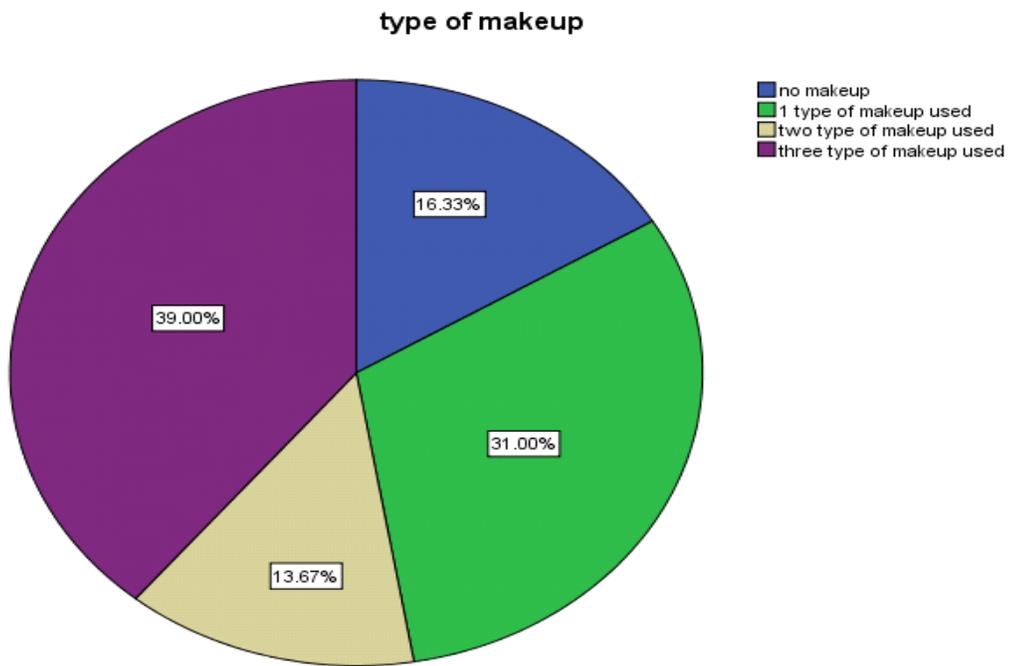


Table 1: Frequency of OSDI score

OSDI	Percentage
Normal	70.0%
Mild	21.3%
Moderate	8.0%
Severe	0.7%

Table 2: Frequency of severity of symptoms

Severity of symptoms	Percentage
Normal	71.3%
Mild	22.3%
Moderate	5.3%
Severe	1.0%

RESULTS:

This study included 300 participants from first to final year M.B.B.S. The age ranged between 18 to 24 years; mean age was 21.13 SD 1.34. More participants used makeup less than three times a week 72%. (Figure:1)

The most popular product used was mascara (64%) then liner (64%) and Kajal (35.3%), eyelashes (6.3%) being the least used. Many students use several different combinations of makeup with most using at least three types 39% (Figure 2),

OSDI score revealed that 70% of females had a normal score and thus did not have dry eyes (Table:1), similarly 71.3% of participants did not experience any other symptoms of common ocular problems (Table:2).

The OSDI score in relation to makeup use shows no difference ($p=0.620$). There was also no association between the severity of symptoms and frequency of makeup use ($p=0.818$).

DISCUSSION:

This study revealed that there is no significant difference in OSDI scores between participants who use makeup more than 3 times a week and those who use makeup less than thrice a week. Participants who got normal OSDI score (0-12) were 70%. This shows that makeup has only partial role in ocular dryness as there are multiple factors contributing to ocular dryness. Contact lens use being one of the main factors causing dry eyes as users experience more dryness than non-contact lens wearers. Therefore, contact lens wearers were excluded from the above analysis. [10] A similar study conducted on females in Saudi university showed no significant difference in OSDI scores between makeup users and

non-users. However heavy makeup use was reported to have higher scores therefore heavy makeup use should be limited¹¹. In our study it has been observed that there is no significant difference between severity of symptoms experienced by light and regular users of eye makeup. The number of students who reported mild and moderate symptoms was more in light users than regular users as the number of regular users was markedly less (22.88%) as compared to light users (77.12%).

In a study done in Japan young people who presented with dry eye symptoms had obstructed meibomian glands caused by faulty eye makeup application in which eyeliner was applied to the eyelid margin over the meibomian glands¹². Eye makeup may also migrate to the ocular surface through blinking or using eyedrops, eye pencil migrates more easily when applied posterior to lash line and along the periocular surface [13,14]. This concludes that proper eye makeup application is essential and knowledge of such application is probably higher among undergraduate students when compared to the general population.

Lack of concern towards eye makeup safety, makeup sharing, and the use of expired products is a problem among regular users. This causes significant ocular problems; bacterial contamination is inevitable as application of mascara tends to introduce bacteria into the mascara tube. One study found that 30% of mascara contained bacteria after three months of use. Number of bacteria being directly influenced by age and number of users of the product [15]. Apart from bacteria, constituents such as coal tar dyes, of makeup may also elicit adverse effects in skin and eyes [16]. Heavy metals such as lead are often used in manufacturing of eye cosmetics such as surma and is often associated with threats of lead poisoning [17]. In a study for health risk assessment of some heavy metals in cosmetics it was noted that lead was present in brands of facial cosmetics including eye products at concentrations above the specified limits by Canadian authority FDA, Italy and Germany [18]. Thus, selection of product and practicing safe and hygienic eye makeup practices can ensure that such problems never arise. It is generally observed that females especially medical students are aware of such practices and refrain from them thus leading to less problems.

Another study showed that application of eye makeup may show immediate eye discomfort in some people due to allergies [19,20]. This study did not explore allergy as a cause of ocular discomfort and future research should be done to address this. Moreover, a

comparison with general population will further reinforce the fact that safe and hygienic practices are beneficial and knowledge of such practices is required.

CONCLUSION:

The use of eye makeup is not adversely linked with ocular problems in medical students, this reflects a positive aspect of the awareness of eye makeup safety and hygiene among medical students when compared to the general population. As clinical eye infection due to the transmission and persistence of microorganisms in eye cosmetics have been demonstrated. So, G.P and Eye specialists should emphasize this aspect of eye cosmetics and hygiene in OPD.

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