

Knowledge and Practice of the Use of Eye Make-Up and Its Possible Effect on Ocular Dryness among Females in Saudi University

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Abstract:

Introduction:

Several studies report that use of eye cosmetics can lead to multiple complication such as tarsal conjunctival pigmentation and posterior blepharitis by initial migration of cosmetics product material from the external environment to the lash line. Some of these can be controlled and prevented by increasing level of awareness about safe use of cosmetics.

Objective:

To assess the level of awareness about using of eye make-up and to identify the possible relationships between ocular dryness and make-up misuse among female medical students in Saudi university.

Methods:

The results were collected from a questionnaire distributed among females in the medical campus, which includes 23 questions. These questions targeted the demographic data, ocular surface disease index (OSDI) score and their eye cosmetics use practices. Each answer was giving certain points after establishing the recommended practices and calculate the score to determine how well they use eye cosmetics. Less than 12 points defined as good practice. Consequently, we examined each participant by a portable slit lamp to detect the presence of anterior or posterior blepharitis. 178 females that met our study criteria were included in the study (median age 21, interquartile range 18-24 years). Subjects with a medical history of any factor known to cause dry eye symptoms were excluded.

Results:

88% of participants have used eye make-up, mascara showed to be the most common product used. Only 20% showed proper use of eye make-up and those got normal OSDI score (<15) compared to those who use it improperly ($p=0.022$). OSDI scores of eye make-up user were similar to non-user ($p=0.948$). 19%, 3% and 1% of make-up users were found to have mild meibomian gland dysfunction (MGD), anterior blepharitis and chalazion respectively.

Conclusion:

The level of awareness in regards to the proper use of eye make-up were found to be fairly low among subjects and that may play a role in the dry eye symptomatology. These results could indicate the need to undergo a larger study that includes the whole nation of Saudi Arabia with other environmental and social factors.

Keywords: make-up, Dry eye, ocular dryness, cosmetics

Introduction

The Ocular Surface System is defined as "the ocular surface, which includes the surface and glandular epithelia of the cornea, conjunctiva, lacrimal gland, accessory lacrimal glands, and meibomian gland, and their apical tears and basal connective tissue matrices, the eyelashes with their associated glands of Moll and Zeis, those components of the eyelids responsible for the blink, and the nasolacrimal duct.

All components of the system are linked functionally by continuity of the epithelia, by innervation, and by the endocrine, vascular and immune systems".[1] This system can interact with toxins produced by some bacteria or that toxins in eye cosmetics, this may lead to one of group of disorders characterized by an inadequate quantity of tears, an unstable tear film secondary to poor quality of tears,

ocular surface breakdown. That what we called ocular surface disease. [2]

Nowadays, Use of cosmetics become more popular in the middle east, the Euro-monitor international reports that sales of cosmetics in United Arab Emirates reach 428 million AED in 2010 and eyeliners alone represent 8% of total sales.[3] Since the eye cosmetics considered as one of facial attractiveness factors for both males and females,[4] this may explain the recent increase in eye cosmetics usage. A study of Health Canada shows 100% of all cosmetics product tested contained nickel and over 90% is contained both beryllium and lead. However, in average all cosmetics tested contained at least 4 of 8 different metals which toxic to the skin and ocular surface. [5] these complications can affect the quality of human life as study mention that patient with dry eye has higher depression and anxiety scores than others. However, these complications can be controlled by correct using of eye cosmetics and eye hygiene[6]-[7]. In this study, we aim to assess the level of awareness about using eye make-up and to discovered the relation between eye make-up miss use and having ocular dryness symptoms among Saudi females.

Methods

We designed this study to be cross-sectional. The ethical approval was obtained from King Abdul-Aziz university ethical committee. The results were collected from a questionnaire distributed among females by Convenience sampling technique in the medical campus of king Abdulaziz University in a period between September and December 2015 among 250 participants.

The questionnaire includes 23 questions classified into 3 sections which record the demographic data and past medical history followed by ocular surface disease index (OSDI) score which scores the ocular dryness symptoms from 0 to 100. The highest score reflecting the most severe symptoms.[8] The cut point between normal and abnormal was obtained from another study to be 15.[9] The last section of the questionnaire related to make-up use practices. Each answer in the last section was giving certain points after establishing the recommended practices and calculate the score to determine how well they use eye make-up. Less than 12 points defined as good practice while more than 24 defined as poor practice. Each participant interviewed had been undergoing ocular examination by portable slit lamp to detect the presence of anterior or posterior blepharitis. Females with a history of any factor known to cause dry eye symptoms such as rosacea acne were excluded. Data analysis performed by SPSS version 22 using T-test for continuous data as the data considered normally distributed. The p-value of 0.05 considered statically significant.

Results

We distributed 250 surveys among participants in the medical campus at King Abdulaziz University. Only 178 female met our criteria. The majority of responders were aged between 18-24 years old and the median age was 21. The OSDI score IQ range (0-65) with a mean of 13. 88% of all participants (N:157) are using eye make-up OSDI scores of eye make-up user were similar to non-user ($p=0.948$). Make-up users were classified into regular users (≥ 3 times/week) which represent 66% of total users (n:103) and light user (< 3 times/week) was the rest. The OSDI score in relation to the frequency of eye make-up use shows no difference ($p=0.944$). The most popular product used by the participants is mascara. Only 20% showed proper use of eye make-up and those got better OSDI score compared to those who use it improperly ($p=0.022$). Fig1.

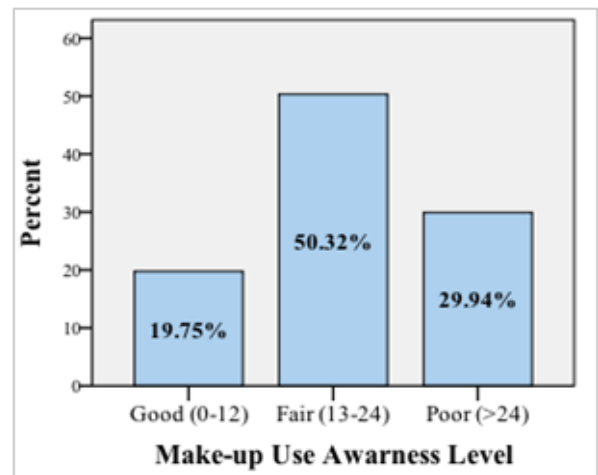


Figure 1: Bar chart shows the frequency of make-up use awareness level depend on proper use score

Among eye make-up users, 66% of them share or borrow their eye make-up with others which make infections easily spread. The OSDI score of those who use high-quality brands was lower than the score of who use low-quality brands but it that difference was statically not significant ($p=0.122$)

On examination, 17%, 3% and 1% of make-up users were found to have mild meibomian gland dysfunction (MGD), anterior blepharitis and chalazion respectively. Although the OSDI score was higher in abnormal clinical findings group, it showed no significant difference in data analysis ($p=0.119$)

Discussion

In this study, no significant differences in OSDI scores were established between eye make-up users and non-users, although the higher scores were evident for eye make-up users. The sample size of non-users (12%) may have been small and not significant to detect the differences. The most

of the participants got OSDI score less than 15 (68.5%) and this ensure that make-up factor playing partial role in developing dry eye symptoms as it is a multifactorial disease. There is no significant different in OSDI score between light and regular users. However, heavy use of cosmetic products should be avoided as long as it contains chemicals which easy to migrate inside the eyes manually by rubbing the eye or by mechanical injury.[10]-[11] In determination of proper use of eye make-up, many of the responses depend on participants honest. However, the proper use of eye make-up shows the lowest percentage and this is reflecting a decrease in awareness level of eye make-up use among females. the increase in cosmetics sale could be due to huge trends in cosmetics marketing through social media and this could be utilizing to spared awareness as well.

Almost half of the subjects have abnormality in ocular examination by the portable slit lamp but no significant different in OSDI scores and that maybe due possible technical or mechanical bias.

Conclusion

The level of awareness in regards to the proper use of eye make-up were found to be fairly low and that may play a role in the dry eye symptomatology. These results could indicate the need to undergo a larger study that includes the whole nation of Saudi Arabia with other environmental and social factors.

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