

EFFECT OF EYE COSMETICS ON THE OCULAR HEALTH

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ABSTRACT

Purpose: Eye cosmetics have been in use for the enhancement of the eye by many people. It has been used commonly in liquid and dry form that contains many chemicals. These cosmetics come into direct contact with the eyes and the surfaces. This study aimed at investigating the long or short term effects of usage of eye cosmetics on ocular health among the people of North-East, India.

Materials & Methods: A survey done with Google form containing questionnaire about the usage of these cosmetics are done among 300 women of age ranging from 17-43 years of age (since statistics show cosmetic usage is much more in women). The questionnaire includes the frequency of use, the type (dry or liquid) used, the duration of use and the type of discomfort that were experienced during or after using it.

Results: The 300 female respondents took the survey and completed it. Out of all the cosmetics the most widely used is mascara. 38% user have an experience of irritation while using the cosmetics, and experience of burning sensation. Redness of eye is present in as many as 6% with watering of eyes as many as 8%.

Conclusion: This research highlights the significant impact that eye cosmetics can have on ocular health. Cosmetics such as mascara, eyeliner, and eyeshadow, kohl are commonly used for aesthetic purposes and poses risk on eye health. Out of all the eye problem faced it shows that irritation is the most common which may lead to people (especially women) being predisposed to conjunctival problem.

Keywords: Cosmetics, Online Questionnaire, Discomfort, Mascara, Aesthetic purposes, North-East.

Introduction

Eye cosmetics have become a ubiquitous part of modern beauty routines, distinguished for their ability to improve facial aesthetics [1], [2]. It has been used commonly in liquid and dry form that contains many chemicals [3]. Products such as mascara, eyeliner, eye shadow, and eyebrow pencils have long been preferred tools for crucial and accentuating the eyes, which are often considered the most expressive feature of the face [4]. This widespread usage is reflected in the lasty growth of the eye cosmetics market, which continues to expand as new formulations and trends emerge. Despite their popularity, there is an increasing need to examine the impact of these products on ocular health. The delicate anatomy of the eye, including the conjunctiva, cornea, sclera and surrounding skin, is particularly prone to irritation and damage from external substances [5]. Eye cosmetics, being in direct contact with these sensitive areas, poses potential risks such as allergic reactions, infections, inflammation and

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chronic conditions [6]. Reports of adverse effects, ranging from mild irritations to severe complications, have encouraged concerns about the safety and long-term impact of these products.

Many studies have highlighted individual cases of irritation and infection, but there is a lack of extensive, systematic research that captures a broad spectrum of eye-related issues associated with eye cosmetics. This study aims to address this gap by employing a questionnaire-based approach to collect empirical data on the prevalence and nature of eye problems among users of eye cosmetics. By surveying among the cosmetic users of North-East, (India), the research try to finds to identify common symptoms, evaluate the association between different types of eye cosmetics and specific eye health issues, and explore user behaviors and practices that may contribute to or alleviate these effects.

Through a detailed analysis of the collected data, this study will provide valuable insights into the safety profile of eye cosmetics and recognize patterns or correlations that could inform both consumers and manufacturers. The findings are intended to enhance public awareness regarding the potential risks associated with eye cosmetics and present practical recommendations for safer usage. Ultimately, this research aims to contribute to the ongoing discussion on cosmetic safety and help set up guidelines that protect eye health while accommodating the aesthetic desires of users. By providing a comprehensive overview of the impact of eye cosmetics on eye health, this study aspires to foster a more informed approach to cosmetic use, benefiting both individual consumers and the broader industry.

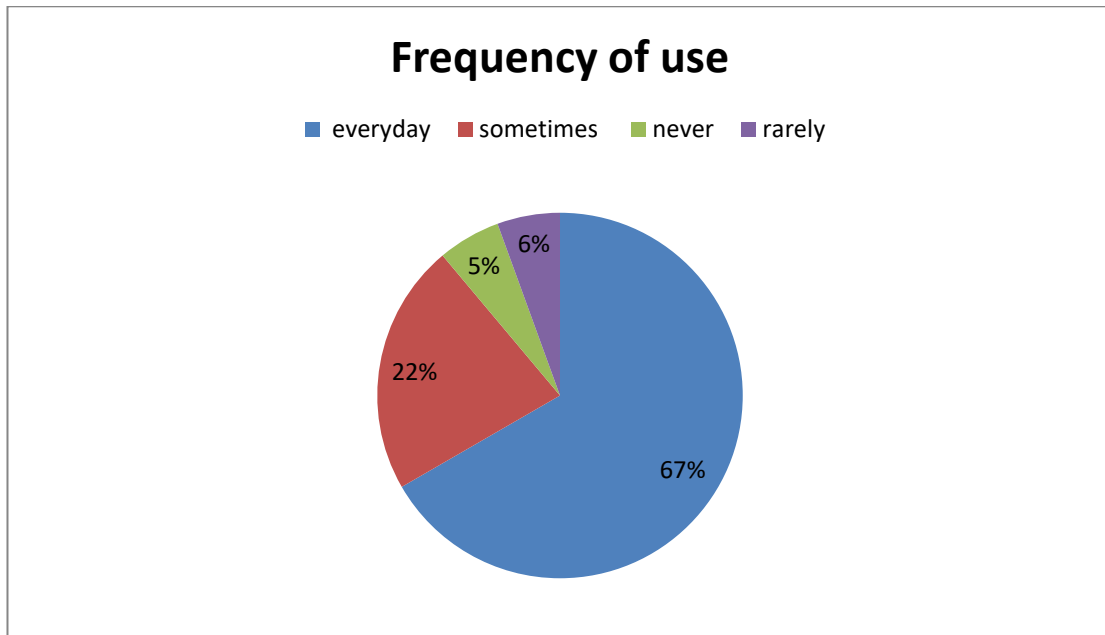
Materials & Methods

- **Study Design:** This research aims to assess the effect of eye cosmetics on ocular health among the people of North-East India using an online questionnaire. Data from the target population was collected using a cross-sectional survey design. The study population comprised the people of North-East India.
- **Data Collection Instrument:** An online questionnaire was distributed through goggle form. The questionnaire consisted of questions related to demographic information, the frequency of use, the type (dry or liquid) used, the duration of use and the type of discomfort that were experienced during or after using it.
- **Data Collection Procedure:** The online questionnaire was distributed among the peoples using the Google form. Participants received a link to access the questionnaire, accompanied by guidelines for its completion.
- **Data Analysis:** The demographic characteristics of the participants the frequency of use, the type (dry or liquid) used, the duration of use and the type of discomfort that were experienced during or after using it were analyzed using descriptive statistics.
- **Limitations:** The study constraints encompassed dependence on self-reported data, potential recall bias, and the cross-sectional study design, which limited the establishment of causal relationships.

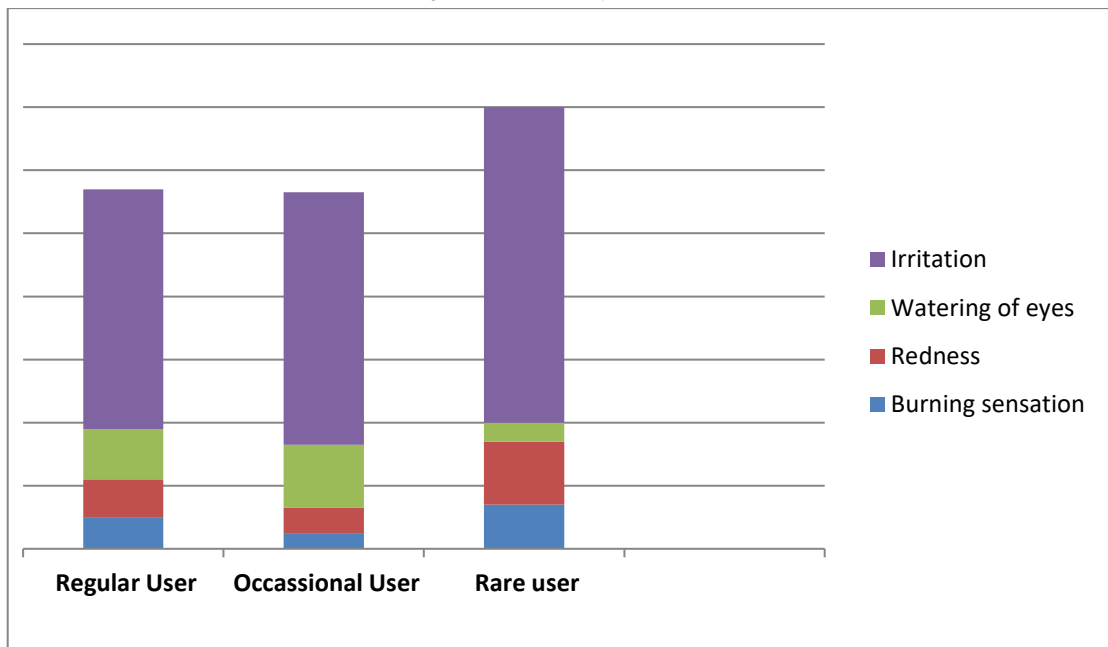
Results

The Goggle form was distributed among the people of North-East India which include 8 states (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim & Tripura). The 300 female respondents took the survey and completed it .90% of the respondent indeed uses eye cosmetics ,out of these 60% uses it on a regular basis(>3 time per week).44% uses a combination of both the liquid and dry type and 64% uses liquid type of eye cosmetic .Out of all the cosmetics the most widely used are mascara.38% user have an experience of irritation while using the cosmetics ,and experience of burning sensation happens rarely .Redness of eye is present in as many as 6% with watering of eyes as many as 8% .In occasional user, the amount of watering is slightly more. Of all the people who took the survey ,4% have an experience of using fake lashes. Out of these 4% ,all of them have endured irritation and comfort were altered. Most of the users (89%) are aware of the effects the chemicals in the cosmetics could cause to the eye 79% of the regular users follow the basic removal guideline as provided by the cosmetic product company.

The pie chart below show frequency of use of cosmetics out of the 300 people who took the survey:



The bar graph below shows the type of discomfort experienced in the 90% who uses eye cosmetics based on their amount of usage and frequency



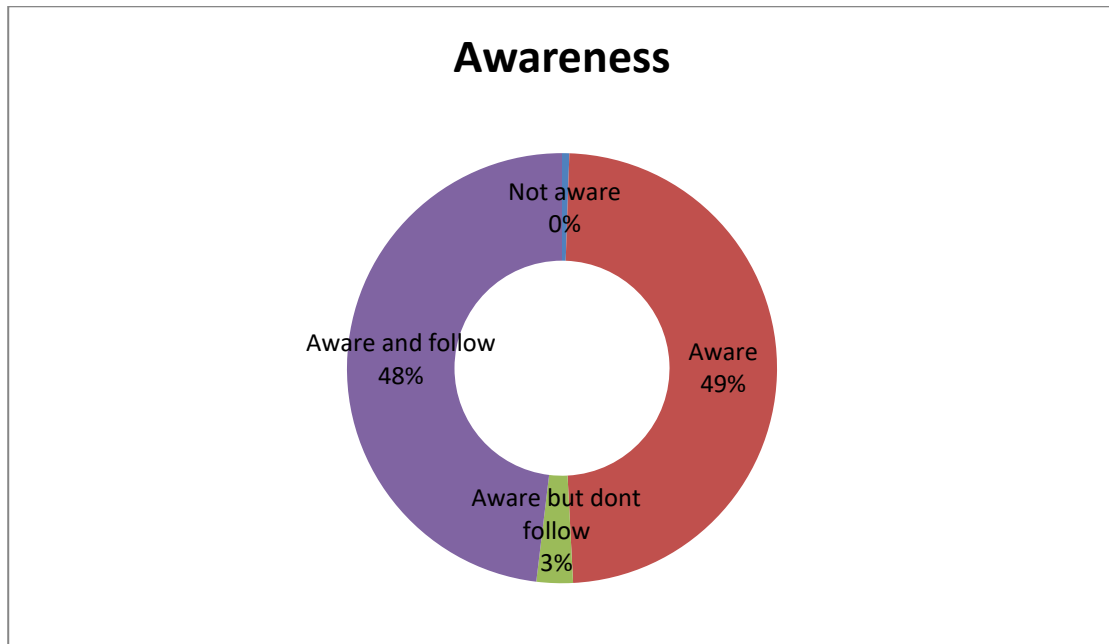
The data shows that the amount of discomfort is lesser in frequent user. This may be due to the exposure on the chemicals being more and thus resulting the eye being immune to such chemicals.

Redness is more prominent in case of rare user which may be due to allergic reaction [7].

There is spike in burning sensation when it comes to rare user which could be due the chemical exposure being low in such cases [8].

The user awareness for the removal procedure also plays an important role as the accumulation of the chemicals could also result in the discomfort that may be caused [9].

The chart 3.below shows the statistics for the people who are aware of the removal process



The above statistics thus shows that most user are aware and follow the removal procedure but some percentage shows that people who are aware may not oblige to it regardless.

Discussion

This study investigated the impact of eye cosmetics on ocular health among individuals in North-East India. The findings reveal a complex interaction between cosmetic use and eye health, predisposed by regional practices, product formulations, and individual usage patterns. Our results indicate a high prevalence of eye cosmetic use among the study population, with eyeliner, mascara, and kohl being the most commonly applied products. This aligns with previous studies indicating the cultural significance of eye cosmetics in various parts of India, including North-East India.

The study highlighted the different range of eye cosmetics used, from commercially produced products to traditional formulations. Notably, many participants used products containing lead and other heavy metals, which have been associated with adverse health effects [10]. These findings are reliable with reports from other regions where traditional and locally sourced cosmetics have raised health concerns due to the presence of harmful ingredients [11].

The data collected suggests a significant association between the use of eye cosmetics and the occurrence of ocular symptoms such as irritation, redness, and dryness [6]. The higher incidence of these symptoms in individuals using traditional kohl compared to commercial products may be attributed to the presence of toxic substances and potential contaminants in the former. This is particularly concerning given that eye cosmetics in North-East India often lack consistency and quality control.

Hygiene practices associated with eye cosmetics, including application techniques and removal procedures, were found to significantly impact on ocular health [12]. Many participants reported insufficient cleansing routines, which could exacerbate issues like conjunctivitis and blepharitis [13]. This finding emphasizes the need for enhanced education on hygiene practices related to eye cosmetic use. The cultural attachment to eye cosmetics, combined with limited access to regulated products and health education, plays a vital role in influencing the cosmetic practices observed in this study. The socioeconomic factors, including the economic constraints and availability of safer alternatives, contribute to the determination of potentially harmful cosmetic use patterns.

Future research should focus on longitudinal studies to evaluate the long-term effects of eye cosmetic use on eye. Additionally, exploring the impact of specific ingredients and their concentrations on eye health would provide deeper insights. Implementing and assessing educational interventions about safe cosmetic practices and healthier hygiene could also be beneficial. This study acknowledges several limitations, including the reliance on self-reported data, which may be subject to recall bias. The cross-sectional nature of the study also limits the ability to ascertain causation.

Conclusion

This research explored the impact of eye cosmetics on eye health among individuals in North-East India, a region known for its rich cultural diversity and unique beauty practices. The findings underscore a complex interplay between cosmetic use and ocular health, enlightening both benefits and risks. This survey shows that the use of eye cosmetics in regular and excessive use alter the eye health and salvage the comfort, with the trend in use of eye cosmetics, it is required that the ocular health are kept under check. The amount of use increases day by day, which will inevitably result in flowing cases of eye discomfort if awareness are not made. Out of all the eye problem faced it shows that irritation is the most common which may lead to people (especially women) being predisposed to conjunctival problem. Extensive research must be done in different places so as to rule out and prevent eye cosmetic related problems. With the rise in different eye enhancement procedure, it is evident that fake lashes indeed causes discomfort in most people and are more prone to having dry eyes.

In conclusion, while eye cosmetics hold significant cultural and aesthetic value in North-East India, it is crucial to address the associated health risks through education, regulation, and further research. Balancing the beauty benefits with the potential for adverse effects will give to better ocular health outcomes in the region.

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Disclosure

The authors affirm that there are no conflicts of interest.

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