

## Original Research Article

### **AWARENESS AND EFFECTS OF OCULAR COSMETICS AMONG FEMALES IN ABADAWA COMMUNITY, SAMINAKA, LERE LOCAL GOVERNMENT AREA, KADUNA STATE, NIGERIA.**

#### **ABSTRACT**

**Title:** A study on, Awareness and Effects of Ocular Cosmetic among females in Abadawa Community Saminaka, Lere Local Government, Kaduna State, Nigeria. **Objective:** The main objective was to identify the; level of awareness of the common ocular cosmetics used, the effects experienced, and possible ways of overcoming the effects. **Methods:** The study utilized a descriptive design out of the 502 targeted populations, 100 respondents were sampled using Nwana's decision rule and a Simple random sampling technique was used in data collection from the respondents. **Results:** Findings revealed that; the majority; 82 (91.1%) of the respondents were aware of the effects of ocular cosmetics, the majority; 46 (46.0%) of the respondents use 3-4 different types of ocular cosmetics at a time also, the common ocular cosmetic being used among others were; majority 59 (65.5%) eye shadow. While, Majority 82 (82.0%) have experienced the ocular effect, Among the effects experienced; were: majorities; 31 (31.0%) eye tearing and 13 (13.0%) eye itching. Among the way forward are; the majority 29 (29.0%) health education against the use of and the majority 38 (38.0%) think to go natural without makeup. **Conclusion:** In conclusion, there is a good awareness of the effects of ocular cosmetics among the respondents but still lack in-depth knowledge of the latent effects which normally arouse later in life. It was recommended that; Government, NGOs, and health workers in generals specifically Nurses should increase an awareness campaign on the effects of ocular cosmetics among the female gender. Also, Government should make policies that will guide the manufacturing industries in making ocular cosmetics to meet the best world standards.

**Keywords:** Cosmetics, Ocular, Target population, Abadawa, Saminaka, Lere, Kaduna, Nigeria.

#### **Introduction**

According to; (Robert and Supper, 2011). The eye is the window to the soul because they reflect our state of mind, this certainly can be true if our eyes are red, swollen, watery, and itching from allergic reactions due to cosmetics, hay, dust, smoke, chemical fumes, etc.

Allergies cause symptoms that can discomfort the eye and are common reasons for visiting eye clinics/hospitals severe allergies cause serious damages that can threaten eyesight. The use of

Ocular Cosmetics dates back to the time of the ancient Egyptians when coloring from plants and animals was used to emphasize and enhance the appearance of the eye. Lin (2010).

Cosmetics are products used to enhance or change the appearance of the face fragrance or the texture of the body: Many Cosmetics are designed for use of applying to the face and body. They are generally mixtures of Chemical Compounds derived from Natural Sources (such as Coconut oil) or maybe synthetic artificial. U.S Food and Drugs Administration (FDA) (2019).

Today cosmetics that are applied to the face to enhance one's appearance are also known as makeup which includes lipstick, mascara, eye shadow, foundation, blush, highlighters, bronzers, artificial eyelashes, eyeliner, concealer, contact lenses remain a major popular trend because of their ability to highlight the eyes and increase facial attractiveness, after application of ocular cosmetics, they migrate unto the ocular surface and into the tear film to cause ocular discomfort. Permanent makeup FAQ (2018).

According to American Optometrist Association (AOA) (2018) says that according to the United States Census Bureau, that ten billion dollars are spent yearly on beauty products, eighty percent of women have used face and eye Cosmetic in the last years and 78% of women use cosmetics to improve their confidence with all of this cosmetics use, over 50% of makeup users report not checking instructions on how long makeup should be left on, 90% of women uses cosmetics beyond the expiration date and 20% do not know that makes ups expires at all. 7% are not knowledgeable of the effect of ocular cosmetics on visual and ocular health.

;(Evans, *et.al.*, 2016) reported that changes to the film and its stability may occur shortly after the application of eye cosmetics, and contact lens wearers can also be affected by lens spoliation from cosmetic products. Furthermore, additional creams used in the prevention of skin aging are

often applied around the eyes, and retinoids present in these formulations can have negative effects on meibomian gland function and may be a contributing factor to dry eye disease.

## **Background**

Cosmetics are products applied to the body or face to improve appearance. They cleanse, beautify, promote attractiveness, and alter the appearance of the body. The concept of beauty and cosmetics is as old as mankind and civilization. Civilizations have used cosmetics though not always recognizable compared to today's advanced products for centuries in religious visuals, to enhance the beauty and to promote good health, cosmetics usage throughout history can be indicative of a civilization's practical concern, such as protection from the sun, an indication of class or convention of beauty. (Okerete, *et.al.*, 2015). Most people who used cosmetics are unaware of the potential danger that can threaten their health while using them (Nnorom, *et. al.*, 2015).

Cosmetics like facial and eye makeup can encourage microbial growth and possibly cause infections. Eye makeup can get contaminated by poor handling procedures, using manufactured leaflets wrongly, and defect in the preservative capacity of makeup. Many women do not know that makeup can harbor bacteria and spread infections, because some cannot be able to smell and see them with their eyes. Also, some women even share makeup and applicators with friends and family, hence increasing their chances of getting infections if they are contaminated, poor storage of eye makeup can determine whether it is more likely to encourage bacterial growth or not, for example within one month of purchase, Mascara can begin to harbor bacterial (If exposed) and the bacterial will begin to grow while the product that comes from local manufacturers which are presumed to be less effective can be more prone to microbial contamination e.g. E.coli which is indicated that there may have been facially contaminated

before use. Some ocular cosmetic products are toxic Kohl products derived from the lead compound which are used in Asia, Africa, and the Middle East. It is applied to the eye of infants according to their culture to prevent evil spirits from entering the child and is also used to prevent glare effects by applying it to the inner rim of the eyelid behind the lash line. Gullion and Massa, (2012).

The risk of mechanical trauma is more common with mascara application which causes corneal trauma. Corneal trauma encourages microbial growth and spread. Allergic reactions occur with cosmetics applied to eyelids; some eyelash cosmetics tend to cause dermatitis along the eyelash line. Also, frequent, and long-term use of Mascara and eye Kohl can obstruct the lacrimal system due to the accumulation of eye cosmetics. Some cosmetics hurt the tear lipid layer and the presence of foam at the inner canthus, hence destabilizing the layer. The eyelid skin is very thin and allows for easy penetration or absorption of chemicals which lowers the hemoglobin level of infants when in blood. If consumers are aware of the general effects of eye cosmetics, then there should be a low incidence of eye infections and their associated complications. Wilson and Ahearn (2010).

Eye cosmetics have been used since prehistoric times to emphasize and highlight the eyes. To this day they remain widely used worldwide among females population of all age groups. In addition to religious, cultural, and medical purpose market research from the United State and the United Kingdom suggest that a large proportion of women uses facial and eye cosmetics, with Mascara eyeliner, and eye shadows being among the most commonly applied products. Wand and Craig (2018). Common uses of ocular cosmetics are; mascara, eye shadow, eyeliner, false eyelashes, highlight, and contact lenses. Gullion and Massa, (2012).

## Effects of Ocular Cosmetic

Wang (2018) reported that there is the migration of externally applied eye cosmetics into the ocular surface has been consistently reported. There has been a report of tears film contamination with eye cosmetics products. Prospective studies have confirmed that tears film contamination can result from passive to inadvertent migration of peri-ocular cosmetics across the eyelid margin in addition to poor application techniques.

; Mintel, (2012), reported that 70% of women use ocular cosmetics and there was a 38% increase in ocular cosmetic sales in the year 2014. He also had the view that the highest users of cosmetics are women with full-time employment at retirement age and teenagers. The eye effect associated with eye cosmetics usage is more among this group with an increased risk of bacterial or fungal infections.

According to (Hugbo, *et. al.*, 2012) Stated normal commensals of ocular floras include *Haemophilus* species, and *Pneumococcal* species are normally found around the skin of the eyelid. They are not harmful but can spread within cosmetics products and eye infections. Corneal trauma with mascara applications has been reported.

Some users use a straight pin to apply and separate damp eyelashes which can lead to corneal trauma thereby giving microbial agents an easy entry route to cause minor to severe sight-threatening infections in several patients who have mascara injuries. (Guillian and Massa,2012)

(Fatah and Ibrahim, 2010), estimated that 12% of cosmetic reactions occur in the eyelids, 4% of which is due to eye cosmetics use. Eye Can thus cosmetics tend to cause a band of dermatitis along the lash line. Another Ocular cosmetics effect is dry eye syndrome which is a multi-factorial disease of the tears and ocular surface that result in the syndrome of discomfort, visual

disturbance, and tear film instability with potential damage to the ocular surface. It is accompanied with increase osmolarity of the tear film and inflammation of the ocular surface. The prevalence of symptoms related to dryness is greater in contact lens wearers and it has been implicated that the use of eye cosmetics can also increase dryness symptoms. Hypoxia is another common side effect of wearing contact lenses for an extended period, it occurs when there is a limited supply of oxygen to the eye; the cornea relies on tears for oxygen supply. Moreover, microbial keratitis which is due to contact lens wearing that is taken care of them properly can lead to damaged vision. (Brannan and Dille 2015)

### **Constituent/Composition of Ocular Cosmetics**

Mercury is a common ingredient found in skin-lightening soaps and creams, (United Nations Environmental Program) (UNEP, 2010). It is also found in cosmetics such as eye makeup cleansing products and mascara. This makes makeup commonly used in certain African and Asia nations. Organic mercury is used as cosmetics preservation in eye makeup cleaning products and mascara. Although, the concentration of this organic element makeup is low but long-term use can affect the vision by accumulating in the retina photoreceptors thereby resulting in a constricted field of vision or abnormal color vision. (UNEP 2010).

According to (Nnorom, *et. al.*, 2010) posted that after an analysis of several facial makeups available in Nigeria, lead, Cadmium, Chromium, Nickel, zinc, and iron were seen in most of the products. The geometric mean obtained from chromium and cadmium were generally low (14%) and these cosmetics were generally safer for use when compared to the lead base which is 60% commonly used in Nigeria. The continuous use of these cosmetics could result in an increased trace element level in the ocular surface and human body beyond the acceptable limit.

Kohl is a popular eye care product for the pediatric age. (Hardy, *et. al.*, 2013). It has been defined to be an eye preparatory alternative form of especially possessed “Kohl” stone. Most commercially produced Kohl contains a high level of lead galena, amorphous carbon, magnetite, and time. Prolonged application may cause excessive lead storage in the body affecting the brain and bone marrow causing convulsion and anemia. (Hardy, *et. al.*,2013).

### **Ways of Overcoming the Effects Associated with the use of Ocular Cosmetics**

As good as makeup add beauty, certain measures have to be put in place to avoid the effects that come with this makeup. According to Dan Gudge (2019), makeup can be safety tips such as:

- i. Only use cosmetics that are designed for use around the eyes, and avoid products that contain untested harsh chemicals.
- ii. Throw away eye makeup after three months and get new products.
- iii. If you developed an eye infection like pink eye, immediately stop all of your eye makeup, even with family or close friends.
- iv. Before applying makeup, make sure your face and eyelids are very clean.
- v. Remove all eye makeup at night before sleeping especially mascara that can stick to the lashes.
- vi. If you notice an allergic reaction to makeup, find out what the ingredients are so you can watch out for them in other products.

Avoid harmful and dangerous makeup procedures such as the proximity of sharp objects to the eye, also glue chemicals e. t. c. Read labels for expiry dates and avoid makeup with harmful ingredients e.g., Lead, Urea, Sulphate, and phthalates (Nnorom, *et. al.*, 2012).

### **Research Design**

The research design used for this study was non-experimental specifically the cross-sectional descriptive survey, in which the researcher collects data from a large sample drawn from a given population and describes certain features of the sample as they are without manipulating any independent variables of the study.

### **Research Setting/Area of Study**

The Abadawa is in the main town of Saminaka. The town Saminaka lies within latitude 11.4 North and Longitude 8.68 East. Located at a distance of about 137km from the main Kaduna Metropolis and situated in the Lere Local Government Area which is in the Northern part of Kaduna State and a boundary between Kaduna, Kano, Bauchi, and Plateau State respectively. The target population of people in the community is Three Thousand (3,000) as stated by the village head. Their main activities are farming and social lives like; (Organizing parties, dancing, and dressing competitions). They have three main Private Secondary Schools and one government Primary Health Care Clinic with a market situated in the main town of the community which is normally observed once a week every Wednesday. More so, they have four (4) major tribes in the community which are: Kurama, Gure, Amo, and Hausa with their different cultural practices which are normally observed once a year.

### **Target Population**

The target population for this study was females in Abadawa Community which was discovered to be 502 population.

### **Sample and Sampling Techniques**

A probability sampling technique was employed to select a sample for the study. Using Nwana's decision rule formula which stated that if you are dealing with less than 999 population use 20% to find the sample size; That is as follows  $20\% \text{ of } 502, = 100.4$  which is approximately 100.

### **An instrument for Data Collection**

The self-structure questionnaire was used and retrieved, within 2 weeks from females in the Abadawa community. The questionnaire was structured based on the objectives of the study and was divided into five sections.

Section A: Social demographic data

Section B: Awareness of the effects of Ocular Cosmetic

Section C: Common Ocular Cosmetics used

Section D: Effects of ocular cosmetic

Section E: Ways of overcoming the effect

### **Validity of the Instruments**

The instrument for data collection was given to two experts in measurement and evaluation for both face and content validity. They examined the items in line with the objectives and their observations, modifications, and suggestions were affected the final copy was then used for pilot testing and subsequently data collection.

### **Reliability of the instrument**

In testing the reliability of the instrument, a pilot study was done in the Ungwan Makama community, 10 copies of the questionnaire were administered to females residing in the area, which represent 10% of the sample sizes administered the completed questionnaire was retrieved, sorted, and analyze. The reliability co-efficient was certain at 0.7

### **Method of Data Collection**

A structured questionnaire for data collection was used. An introductory letter from the management of Post Basic Ophthalmic Nursing National Eye Center Kaduna was presented to the village head of the Abadawa Community. This was possible with the help of two (2) research

assistants, that assisted in the data collection. The whole exercise lasted for one (1) week 20 copies were distributed and retrieved immediately

### **Method of Data Analysis**

The data collected were analyzed using a frequency table and percentage.

### **Ethical consideration**

The ethical consideration was duly considered following the principles of morality, the right and wrong of action before an activity such as A letter of introduction from the management of post-Basic Ophthalmic Nursing, National Eye Centre Kaduna State was attached to each questionnaire. That was read to the participants showing the research was purely voluntary; no names were collected and the data obtained was treated with a high level of confidentiality.

### **Results**

#### **Section A.**

**Table 1: Socio-Demographic Data of Respondents**

<b>S/N</b>	<b>VARIABLES AGE</b>	<b>FREQUENCY</b>	<b>PERCENTAGE (%)</b>
1	15 – 20	20	20.0
	21 – 25	58	58.0
	26 – 30	16	16.0
	31 – 35	6	6.0

2	<b>OCCUPATION</b>		
	Student	51	51.0
	Employed	30	30.0
	Unemployed	19	19.0
3	<b>MARITAL STATUS</b>		
	Single	75	75.0
	Married	23	23.0
	Divorced	2	2.0
	Widow	Nil	0
4	<b>RELIGION</b>		
	Christianity	90	90.0
	Islam	10	10.0
	Pagan	Nil	-
	Others	Nil	-

Table 1 (1) revealed that the majority are within the age of 21-25 years 58 (58.0%), 20(20.0%) of the respondents were within the age range of 15 – 20 years, and 26 – 30yrs are 16 (16.0%). 31 – 35 years of age range are 5(5.0%)

Table 1 (2) revealed that the majority 51 (51.0%) of the respondents are students, 30 (30%) are employed, and 19 (19.0%) are unemployed.

Table 1 (3) revealed that the majority 76 (76.0%) are single, 23 (23.0%) are married, 1 (1.0%) is divorced while widow nil (0%)

Table 1 (4) revealed that the majority of the respondents are Christianity 90 (90%) and Islam 10 (10%) while pagan and others nil (0%).

### Section B

**Table 2 what are the levels of Awareness in the Abadawa Community on the Effect of Ocular Cosmetics?**

S/N	ITEMS	FREQUENCY	PERCENTAGE %
1	<b>Are you aware it has any effect on the ocular structure</b>		
	YES	82	91.1
	NO	8	8.9
2	<b>If yes, how did you know about it?</b>		
	Television	20	22.2
	Radio	16	17.8
	Self-experience	11	12.2

	School	28	31.1
	Hospital	7	7.8
	Nil	8	8.9
3	<b>For how long are you aware of it?</b>		
	1 year	15	16.7
	2 years	20	22.2
	3 years	22	24.4
	4 years	14	15.6
	5 years	11	12.2
	Nil	8	8.9
4	<b>For how long have you been using ocular cosmetics?</b>		
	1 – 5 years	51	56.7
	6 – 10 years	23	25.6
	11 – 15 years	12	13.3
	16 – 20 years	2	2.2
	Nil	2	2.2

Table 2 (1) reveals that the majority 91 (91.0%) are aware of the effect while 9 (9.0%) are not aware of the effect on ocular structure.

Table 2 (2) reveals that the majority are aware through school 31(31.0%), Television 22 (22.0%), radio 18 (18.0%), self-experience 12(12.0%), through the hospital 8 (8.0%) and nil 9 (9.0%).

Table 2 (3) reveals how long they were aware which majority of 3 years 24 (24.0%), 1 year 17 (17.0%), 2 years 22 (22.0%), 4 years 16 (16.0%), 5years 12 (12.0%) and nil 9 (9.0%).

Table 2 (4) reveals for how long they have been using ocular cosmetics which are majority 1 – 5 years 57 (57.0%), 6 – 10 years 26 (26.0%) while 11 – 15 years 13 (13.0%), and 16 – 20 years 2 (2.0%) while nil was 2 (2.0%).

### Section C

**Table 3 what is the Common Regular Ocular Cosmetic used among females?**

S/N	ITEMS	FREQUENCY	PERCENTAGE %
1	<b>Do you use Ocular Cosmetics?</b>		
	YES	98	98.0
	NO	2	2.2

2	<p><b>How many ocular cosmetics do you use?</b></p> <p>1 – 2</p> <p>3 – 4</p> <p>5 – 6</p> <p>7 – 8</p> <p>Nil</p>	<p>32</p> <p>46</p> <p>14</p> <p>6</p> <p>2</p>	<p>32.0</p> <p>46.0</p> <p>14.0</p> <p>6.0</p> <p>2.0</p>
3	<p><b>Which among the below do you usually use?</b></p> <p>-Eye shadow</p> <p>-Eyeliner</p> <p>-Eye mascara</p> <p>-Eyelashes</p> <p>-Nil</p>	<p>67</p> <p>18</p> <p>13</p> <p>1</p> <p>2</p>	<p>67.0</p> <p>18.0</p> <p>13.0</p> <p>1.0</p> <p>2.0</p>

4	<b>Tick as many from the list below of those you used.</b>		
		13	13.0
	A	9	9.0
	B	12	12.0
	C	6	6.0
	D	1	1.0
	E	18	18.0
	AB	36	36.0
	ABC	3	3.0
	ACE	2	2.0
	NIL		

Table 3 (1) reveals that those who used ocular cosmetics are the majority 98 (98.0% and those that do not are 2 (2.0%)

Table 3 (2) reveals that those who use 3-4 are the majority 46 (46.0%), those that use 1 – 2 cosmetics are 32 (32.0%), those that use 5 – 6 are 14 (14.0%) and those who use 7 – 8 are 6 (6.0%) while those that do not use it are 2 (2.0%)

**Note:** we have two people who do not use ocular cosmetics

Table 3 (3) reveals that most used ocular cosmetics which majority use eye shadow 66 (60.0%), Eyeliner 18 (18.0%) Eye Mascara 13 (13.0%), and eye lashes 1 (1.0%) while 2 (2.0%) do not use ocular cosmetics

Table 3 (4) reveals several ocular cosmetics used by individuals which are eye shadow only 13 (13.0%) eyeliner only 9 (9.0%), eye mascara only 12 (12.0%), eyelashes only 6 (6.0%), contact lens only 1 (1.0%) eye shadow and eyeliner only 18 (18.0%), eye shadow, eye mascara and contact lens 3 (3.0%) while 2 (2.0%) do not use ocular cosmetics.

#### Section D

**Table 4 what are the effects of Ocular cosmetics?**

S/N	ITEMS	FREQUENCY	PERCENTAGE %
1	<b>Have you experienced any ocular effects from the use of cosmetics?</b>		
	Yes	82	82.0
	No	17	17.0
	Nil	2	2.0

2	<b>Which Ocular cosmetics did you experience the effect with?</b>		
	Eye shadow	52	52.0
	Eyeliner	9	9.0
	Eye mascara	14	14.0
	Eyelashes	7	7.0
	Nil	18	18.0

UNDER PEER REVIEW

3	<p><b>Which of these common effects did you experience with the ocular cosmetics you used?</b></p> <p>Eye tearing</p> <p>Itching</p> <p>Redness of the eye</p> <p>Eye rashes</p> <p>Eye swollen</p> <p>Dry eye</p> <p>Sandy's sensation in the eye</p> <p>Nil</p>	<p>31</p> <p>13</p> <p>8</p> <p>7</p> <p>7</p> <p>2</p> <p>14</p> <p>18</p>	<p>31.0</p> <p>13.3</p> <p>8.0</p> <p>7.0</p> <p>7.0</p> <p>2.0</p> <p>14.0</p> <p>18.0</p>
4	<p><b>For how long did the effect persist?</b></p> <p>1 – 7 days</p> <p>Two weeks</p> <p>Three weeks</p> <p>Four weeks</p> <p>Nil</p>	<p>63</p> <p>11</p> <p>6</p> <p>2</p> <p>18</p>	<p>63.0</p> <p>11.0</p> <p>6.0</p> <p>2.0</p> <p>18.0</p>

5	<b>Was there any treatment taken?</b>		
	YES	12	12.0
	NO	61	61.0
	Nil	18	18.0
6	<b>Did it resolve by itself?</b>		
	YES	61	61.0
	NO	21	21.0
	NIL	18	18.0

Table 4 (1) reveals that the majority 82 (82.0%) experienced ocular effects while 16 (16.0%) have never experienced any ocular effect and nil 2 (2.0%) shows those that don't use ocular cosmetics

Table 4 (2) reveals the ocular cosmetics they experienced the effect with which shows that the majority 52 (52.0%) eyeliner 9 (9.0%) while eyeing mascara 18 (18.0%) did not experience any effect from the use of ocular cosmetics.

Table 4 (3) reveals the common effect experienced with the majority of eye tearing 31 (31.0%), eye itching 13 (13.0%), while redness of the eyes 8 (8.0%) eye rashes 7 (7.0%), swollen eyes 7 (7.0%), dry eye 2 (2.0%), sandy sensation in the eye 14 (14.0%) and nil 18 (18.0%) those that have not experienced any effect

Table 4 (4) reveals how long the effect lasted which the majority 1 – 7 days 63 (63.0%) two weeks 11 (11.0%), three weeks 6 (6.0%) four weeks 2 (2.0%) and nil 18 (18.0%) for those that have never experience.

Table 4 (5) reveals majority do not undergo any treatment 61 (61.0%), while those that undergo treatment are 21 (21.0%) and nil 18 (18.0) have not participated in any of the two options.

Table 4 (6) reveals those that the effect resolves on its own which are the majority 61 (61.0%) and 21.0% are those that the effect persists while 18 (18.0%) have not participated in any of the two options.

### Section E

**Table 5 what are the ways of overcoming these effects associated with the use of Ocular Cosmetics?**

S/N	ITEMS	FREQUENCY	PERCENTAGE %
1	<b>Do you Check the Content of your ocular cosmetics?</b>		
	Yes	29	29.0
	No	69	69.0
	Nil	2	2.0

2	<b>Do you check the expiry date of your ocular cosmetics?</b>  Yes  No  Nil	46  52  2	46.0  52.0  2.0
3	<b>Do you use the right method of application of your ocular cosmetics?</b>  Yes  No  Nil	76  22  2	76.0  22.0  2.0
4	<b>Do you share your ocular cosmetics with someone?</b>  Yes  No  Nil	42  56  2	42.0  56.0  2.0

5	<b>Do you wash your face after daily activities?</b>		
	YES	78	78.0
	NO	20	20.0
	Nil	2	2.0
6	<b>What other ways can the effect be overcome?</b>		
	Face washing	20	20.0
	Health education	29	29.0
	Go natural	38	38.0
	Always check the content and expiring date	13	13.0

Table 5 (1) reveals that the majority 69 (69.0%) do not check the content of ocular cosmetics while 29 (29.0%) check the content of their ocular cosmetics and nil 2 (2.0%) do not use ocular cosmetics.

Table 5 (2) reveals that the majority 52 (52.0%) do not check the expiring date while 46(46.0%) check the expiring date and nil 2 (2.0%) do not use ocular cosmetics.

Table 5 (3) reveals that the majority 76 (76.0%) use the right method of application while 22 (22.0%) do not use the right method and nil 2 (2.0%) do not use ocular cosmetics.

Table 5 (4) reveals that the majority 56 (56.0%) do not share cosmetics while 42 (42.0%) share their cosmetics and 2 (2.0%) do not use ocular cosmetics

Table 5 (5) reveals that the majority 78 (78.0%) wash their face after daily activities while 20 (20.0%) do not wash their face and nil 2 (2.0%) do not use ocular cosmetics.

Table 5 (6) reveals that the majority 38 (38.0%) think to go natural 20 (20.0%) think to wash their faces, 29 (29.0%) go for health education while 13 (13.0%) suggested checking the content, and expiring date.

## Discussion

The study revealed that the majority of the females in Abadawa 91 (91.0) are aware of the effects of ocular cosmetics which is not in line with (Nnorom *et. al.*, 2010) which state that most people who used cosmetics are unaware of the potential danger that can threaten their health while using them.

The finding also revealed that the majority of the respondents were within the age of 21-25years (58.0%), which is not in line with an online survey by Renfrew center foundation for eating disorder (2012) that says 27% of women reported wearing makeup at the age of 13years.

The study reveals that the majority of the females in Abadawa 67 (67.0) use eye shadow as the common ocular cosmetics which is in line with (T. M. *et. al.*, 2018) which state that eye shadow is among the most commonly applied products.

The study reveals that the majority of the females in Abadawa 82 (82.0) do experience various effects such as redness of the eyes, sandy sensation tearing, and itching which is in line with (Wang 2018) report that there is the migration of externally applied eye cosmetics into the ocular surface has been consistently reported. (Guillian, *et. al.*, 2012) also state that some users use a

straight pin to apply and separate damp eyelashes which can lead to corneal trauma thereby giving microbial agents an easy entry route to cause minor to severe sight-threatening infections in several patients who have mascara injury.

The study revealed that the majority of the respondents 38 (38.0%) suggested going natural and stated that hand and face washing should be done before the application of makeup because bacteria from the hand can be transferred to the eye and vice versa. Also, (Oji. *et. al.*, 2012) state that read labels for expiry dates and avoid makeup with the harmful ingredient.

The findings also revealed that the majority 91 (91.0) are aware of the effect which is in line with (American. *et. al.*, 2018) that only 7% are not knowledgeable about the effect.

Base on the finding shows that the majority of the respondents 67 (67.0) use eye shadow which is not in line with (Purslow. *et. al.*, 2013) which stated that mascara was the most frequent eye product with 70% of individuals using this form of makeup.

The majority of the respondents 31 (31.0%) experienced eye tearing from the use of ocular cosmetics which is in line with (North and Katherine (2013) who stated that 70% perceived ocular discomforts such as eye tearing, sandy sensation, and itching.

The study reveals that the majority of respondents 38(38.0%) suggested going natural as the best option to overcome the effect which is not in line with (A.O.A 2018) stated that 65% of women suggested face and hand hygiene should be employed the first line of defense against eye infection and women should not fall asleep with contact lens on because it dries out the eye thereby reducing oxygen supply to the eye.

### **The implication of the Study to Nursing**

Nurses being the backbone of the healthcare system have a great role to play by being proactive in serving as an agent of change by creating awareness of the effects of ocular cosmetics and safe methods of application which will help to abate ocular structure thereby preventing the laden effect which arose later in life and may lead to blindness.

### **Limitations of the Study**

The study was limited to the Abadawa community which was not up to the local government as a whole hence COVID-19 lockdown causes delays in the research work, financial constraints, and the researcher's knowledge which would have been generalized beyond the Abadawa community.

### **Summary**

The study was carried out to determine the awareness and effect of ocular cosmetics among females in the Abadawa community, Saminaka Lere local government Kaduna state. The main objective was to identify the level of awareness of the effect, the effect experience, and possible ways of overcoming the effect. Various literature was reviewed under conceptual, empirical, and theoretical respectively. The study design used was non-experimental descriptive. Out of the 502-target population, the study sample was 100 females for the study. The instrument used was a self-structured questionnaire, while a Simple random sampling technique was used in data collection of all distributed data which were all retrieved after due completion and were analyzed using the structural method. The findings show that the majority of the females are aware of the effect of ocular cosmetics, use ocular cosmetics, and usually experience its effect after application.

### **Conclusion**

The finding shows that many females are aware of the effect of ocular cosmetics in the Abadawa community through television. Eyes shadow as commonly used have a side effect of eye tearing and itching which normally lasted for 7 days and resolve without any treatment taken.

The importance of awareness and the effect of ocular cosmetics cannot be over-emphasized because many females are using cosmetics to boost their confidence and highlight their beauty at the age of waiting to settle down and have relationships with other opposite sex but not having the knowledge of the latent effect which normally arose later in life therefore as good as its, there is need for adequate knowledge/awareness on the content of ocular cosmetics, mixing effect, proper storage, sharing, usage and application in order to abate to ocular structures

### **Recommendations**

Government should enact a policy that will govern the manufacturing company producing ocular cosmetics to produce cosmetics that will be safe for the eyes.

Cosmetics should be tested to be of world standard before allowing it to enter the market for consumption.

Nurses should encourage to induce medical demonstrations on safe use and application of ocular cosmetics

Massive awareness of effect of ocular cosmetics should be propagated by the government and NGOS through the mass media for effective information dissemination and going natural as the best option.

Organizers of mandatory continuing profession development programmer (M.C.P.D.P) with the support of the nursing council association should ensure continuous awareness on effect of ocular cosmetics during workshop.

School eye health and outreach programmers should be encouraged in order to create awareness on effect of ocular cosmetics

### **Suggestions for Further Studies**

Similar study should be carryout on composition and proper method of application of ocular cosmetics in the entire Kaduna State

Similar study on the effect of ocular cosmetics should be carry out among women of different age groups and social demographic status in the rural communities in Lere local government.

### **Ethical Approval**

Ethical approval was obtained from the Research Ethics Committee of National Eye Centre Kaduna.

### **Competing Interests**

Authors have declared that no competing interests exist.

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