

Knowledge, attitudes, and beliefs of newly enrolled undergraduate students towards refractive corrections-A questionnaire-based study.

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ABSTRACT:

Background:-Refractive error is still the silent killer of sight & relatively more common in India. The commonest and cheapest treatment modality for correcting refractive errors in India is spectacles or eyeglasses. Among the patients who wore spectacles, their understanding and beliefs would be expected to influence the chances of compliance.

Objective:-To study the knowledge, attitudes, and beliefs of newly enrolled undergraduate students towards refractive corrections.

Methods:- A descriptive cross-sectional, retrospective, and non-interventional study on newly enrolled undergraduate students of various stream at Era University, Lucknow.

The participants age was between 17–32 years with the mean \pm SD of the participants was 20.24 ± 2.58 years. A Questionnaire was distributed to the participants through Google Forms.

Result:- Among 259 respondents, 182 males and 77 females. About 82.2% were aware of the refractive error. 43.24% of participants were in favor of wearing contact lens, while 23.55% were in favor of spectacles. Around 84.14% found inconvenient while wearing spectacles while 55.2% respondents agrees that spectacle style affects decision of wearing it. Among them, 61% agrees to wear spectacles if prescribed by the professional and 83.4% believe that spectacle can relieve various discomfort like headache, tearing, and burning sensation.

Conclusion:- Knowledge of refractive errors and acceptance of glasses for the correction of refractive errors among undergraduates is not that encouraging. Eye care practitioners should educate patients about the choices they have to correct refractive error and lay to rest the misconceptions.

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INTRODUCTION

Refractive error is still the silent killer of sight & relatively more common in India. The prevalence of half a diopter or more of myopia or hyperopia in adults is 53.1% ^[1], and of uncorrected refractive error is 10.2%.

^[1] Among various treatment modalities for the correction of refractive error, spectacles have maintained their first position. The commonest and cheapest treatment modality for correcting refractive errors in India is spectacles or eyeglasses. The zeal with which patients comply with the wearing of the spectacle will be triggered by the level of their understanding of refractive errors and their attitudes towards eyeglasses. ^[2] Patient's understanding and belief among the wearers would be expected to influence the chances of compliance. Stigmas among students of rural India were also connected with a lack of health education. ^[3] Barriers to spectacle use in children are likely to exist in all populations but may vary in their nature, therefore should be investigated in existing and new screening programs. This study was conducted to investigate the belief in spectacle wear among undergraduates' students. There were not similar kinds of studies done in North India. So, this study will help understand the attitude and belief of undergraduate students about spectacle wear and it will provide baseline data for the further population-based study.

METHOD

This study is a descriptive cross-sectional, retrospective, and non-interventional study over the newly admitted undergraduate

students of various stream and is conducted in the Era University Lucknow Uttar Pradesh in the month of September 2020.

The total sample size is standardized by 259 participants with ages ranging between 17-32 years, the mean \pm SD age of the participants was 20.24 ± 2.58 years. Confidentiality and anonymity were ensured with records and the information collected from participants, and they were used solely for the study. After obtaining informed written consent from all the respondents, the participants were asked to fill the structured questionnaires which was written in Hindi and English language according to the convenience. The questionnaires were given to the participants in Google forms, an online link was sent to participants and he/she was instructed to make sure their attitudes and beliefs toward spectacle wear were best presented honestly by ticking the right answers among the alternatives. The components of the questionnaire were the perceptions about refractive errors with their treatment options and the Psychosocial aspects around the participant. (Annexure-1) The data collected in the MS Excel sheet and is analyzed using SPSS version 21.0. The outcome measures are represented in number and percentage.

RESULT

A questionnaire was responded satisfactorily by 259 participants, which include 182 (70.28%) males and 77 (29.72%) females, with the male-female ratio of 1:0.42, (Table and Graph-1). The study is carried among three age groups, the first age group is

between 17-20 years having 165 participants, among them 105 (63.63%) were male and 60 (36.37%) were female. The second age group were 21- 24 years concludes 70 participants, among them 57 (81.42%) were male and 13 (18.58%) were

female. The last group was an open group for 24 years and above, which includes 24 participants, a further 20 (83.33%) were males and 4 (16.67%) were females, (Table and Graph- 2).

Table 1:-Gender Distribution of Participants

| GENDER | FREQUENCY |
|--------|--------------|
| MALE | 182 (70.28%) |
| FEMALE | 77 (29.72%) |
| TOTAL | 259 (100%) |

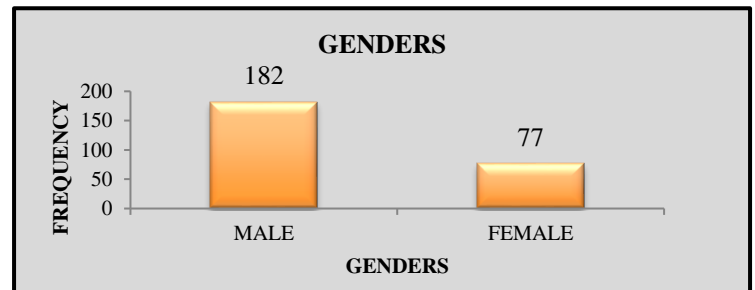
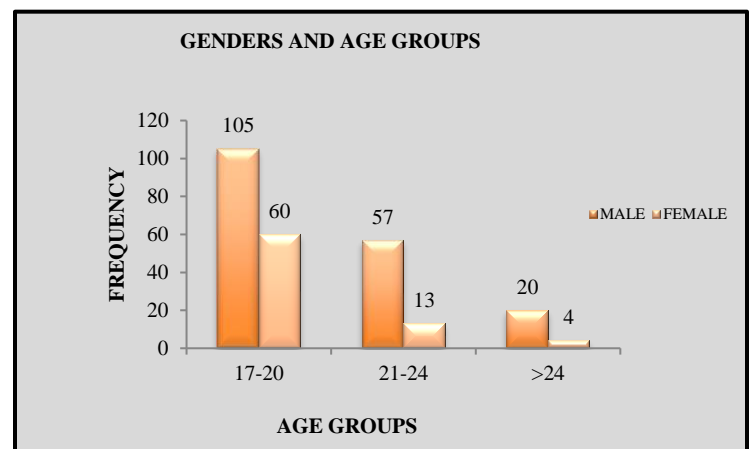


Table 2:-Age Distribution of Participants

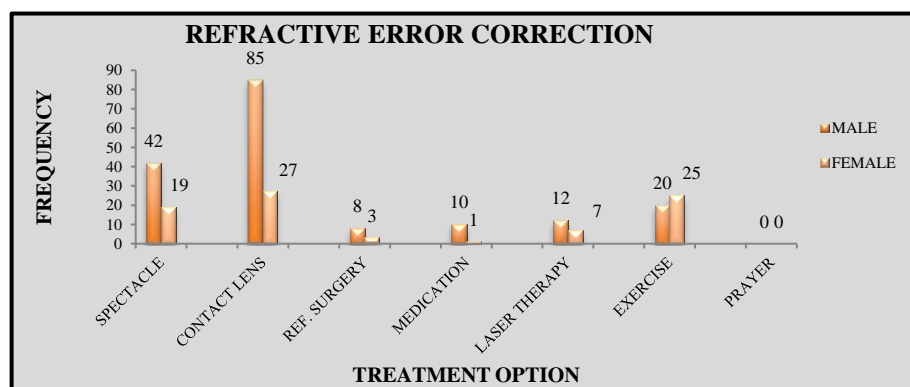
| AGE GROUP | GENDERS | | TOTAL |
|-----------|--------------|-------------|------------|
| | MALE | FEMALE | |
| 17-20 | 105 (63.63%) | 60 (36.37%) | 165 (100%) |
| 21-24 | 57 (81.42%) | 13 (18.58%) | 70 (100%) |
| >24 | 20 (83.33%) | 4 (16.67%) | 24 (100%) |
| TOTAL | 182 (70.28%) | 77 (29.72%) | 259 (100%) |



| TREATMENT OPTION | GENDERS | | TOTAL |
|------------------|-------------|-------------|-------|
| | MALE | FEMALE | |
| SPECTACLE | 42 (68.86%) | 19 (31.14%) | 61 |
| CONTACT LENS | 85 (75.90%) | 27 (24.10%) | 112 |
| REF. SURGERY | 8 (72.72%) | 3 (27.28%) | 11 |

| | | | |
|---------------|----------------|----------------|-----|
| MEDICATION | 10 (90.90%) | 1 (9.10%) | 11 |
| LASER THERAPY | 12 (63.16%) | 7 (36.84%) | 19 |
| EXERCISE | 20 (44.44%) | 25 (55.56%) | 45 |
| PRAYER | 0 | 0 | 0 |
| TOTAL | 177 | 82 | 259 |

Table 3:- Knowledge of Refractive error correction



The general criteria for the knowledge

of refractive corrections on behalf of different ways of treatment, 61 participants responded that spectacles are one of the treatment plan to correct the refractive error, among them 42 (68.86%) were male and 19 (31.14%) were female. 112 felt that contact lens could be used to correct the refractive errors, among them 85 (75.90%) were male and 27 (24.10%) were female. 11 considered that refractive surgery to be appropriate to correct refractive errors, it concludes 8 (72.72%) male and 3 (27.28%) female, again 11 felt drugs could be used to correct refractive errors, among them 10 (90.90%) male and 1 (9.10%) female. A group of 19 participants also have the concept that the laser therapy used for the retinal disorder may relieve the refractive error, among them were 12 (63.16%) males and 7 (36.84%)

females. The remaining 45

participants conclude 20 (44.44%) male, and 25 (55.56%) females rely upon the exercise to overcome the issue. At last, no one was in the account of prayer. (Table and Graph-3). Table and Graph-4 comprises the Psychosocial questions and their answers given adjacent to the questions and answer under three heads- 1. Yes, 2. No and 3. Do not know. The first questionnaire is, Style of spectacle affects your decision to wear it or not ?, the maximum male input was with 91 (35.13%) for response "No" and for an affirmative response it was for female counting of 77 (29.72%) and in the same response, the male was 66 (25.48%), although some of male 25 (9.66%) were neutral by clicking "DON'T KNOW" option ().

| 1. Style of spectacle affects your the decision to wear it or not? | | | | | | |
|--|----------------|----------------|--------|---------------|--------|---------------|
| YES | | NO | | DON'T KNOW | | TOTAL |
| MALE | FEMALE | MALE | FEMALE | MALE | FEMALE | |
| 66 (25.48%) | 77 (29.72%) | 91 (35.13%) | 0 | 25 (9.66%) | 0 | 259 (100%) |

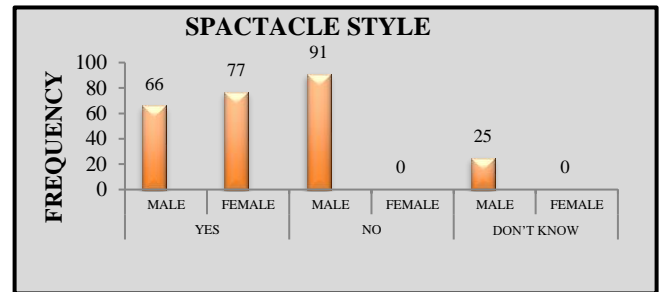


Table & Graph 4:-Style of spectacle

The second question is spectacle will worsen your eyes? The answer is with high-frequency responses towards “No” by the male 177 (68.33%) while a short of 39 (15.06%) female told “Yes, although for

same question 38 (14.68%) female was in favor of option “NO”. Only 5 (1.93%) males were non-reactive as “DON’T KNOW” (Table and Graph-5).

| 2. Spectacles will worsen your Vision? | | | | | | |
|--|----------------|-----------------|----------------|--------------|--------|---------------|
| YES | | NO | | DON'T KNOW | | TOTAL |
| MALE | FEMALE | MALE | FEMALE | MALE | FEMALE | |
| 0 | 39 (15.06%) | 177 (68.33%) | 38 (14.68%) | 5 (1.93%) | 0 | 259 (100%) |

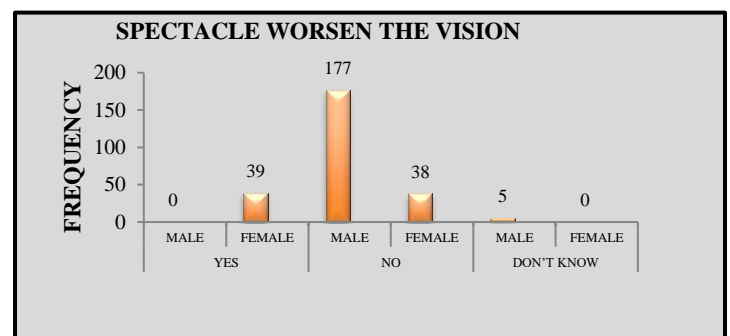


Table & Graph 5:-Spectacle worsen the eyes.

| 3. Spectacle pushes the eye in? | | | | | | |
|---------------------------------|----------------|-----------------|----------------|---------------|---------------|---------------|
| YES | | NO | | DON'T KNOW | | TOTAL |
| MALE | FEMALE | MALE | FEMALE | MALE | FEMALE | |
| 42 (16.21%) | 29 (11.19%) | 119 (45.94%) | 38 (14.68%) | 21 (8.10%) | 10 (3.87%) | 259 (100%) |

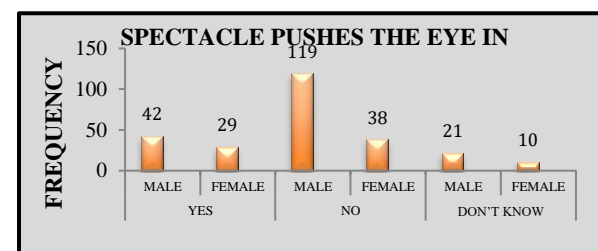


Table & Graph 6:-Spectacle pushes the eye in

The third question is spectacle pushes the eye in? The answer is with high-frequency responses towards “No” by the male 119 (45.94%) while a short of 38 (14.68%)

female said “NO”. The some of male 42 (16.21%) and 29 (11.19%) were in favor of “YES” while 21 (8.10%) males and 10 (3.87%) females were in favor of “DON’T KNOW”. (Table and Graph-6).

| 4. spectacles are inconvenient ? | | | | | | |
|----------------------------------|--------------|-----------------|----------------|--------------|--------------|---------------|
| YES | | NO | | DON'T KNOW | | TOTAL |
| MALE | FEMALE | MALE | FEMALE | MALE | FEMALE | |
| 26 (10.03%) | 8 (3.09%) | 153 (59.08%) | 65 (25.10%) | 3 (1.16%) | 4 (1.54%) | 259 (100%) |

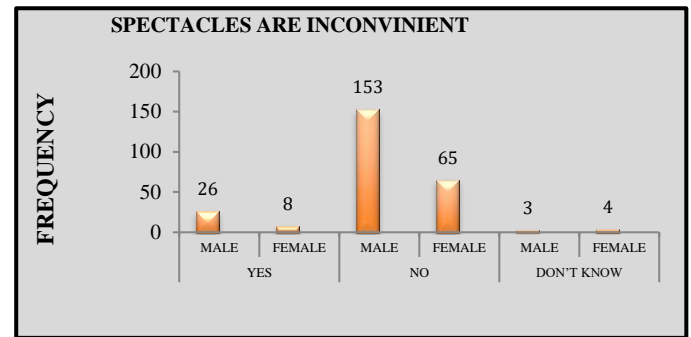


Table & Graph 7:-Spectacles are inconvenient.

The fourth question is spectacles are inconvenient? The answer is with high-frequency responses towards “No” by the male 153 (59.08%) while in same 65 (25.01%) female also favored, rest 26

(10.03%) male and 8 (3.09%) female said yes for same. The 3 (1.16%) male and 4 (1.54%) female respond for the “DON’T KNOW” option. (Table and Graph-7).

| 5. Teased for wearing spectacle by others? | | | | | | |
|--|--------------|-----------------|----------------|----------------|---------------|---------------|
| YES | | NO | | DON'T KNOW | | TOTAL |
| MALE | FEMALE | MALE | FEMALE | MALE | FEMALE | |
| 30 (11.59%) | 6 (2.31%) | 111 (42.86%) | 54 (20.84%) | 41 (15.83%) | 17 (6.57%) | 259 (100%) |

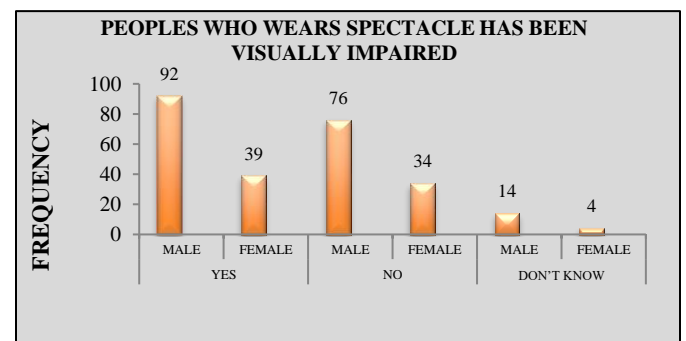


Table & Graph 8:-Teased for wearing spectacle by others.

The fifth question is teased for wearing spectacle by others? 111 (42.86%) male click for “NO” and in same opinion 54 (20.84%) female also respond same, but 30

(11.59%) male and 6 (2.31%) female respond “YES” and unfortunately 41 (15.83%) male and 17 (6.57%) female said, “DON’T KNOW”, (Table and Graph-8).

| 6. Peoples who wear spectacles has been visually impaired? | | | | | | |
|--|--------|------|--------|------------|--------|-------|
| YES | | NO | | DON'T KNOW | | TOTAL |
| MALE | FEMALE | MALE | FEMALE | MALE | FEMALE | |
| 92 | 39 | 76 | 34 | 14 | 4 | |



| | | | | | | |
|----------------|----------------|----------------|----------------|---------------|--------------|---------------|
| 92 (35.53%) | 39 (15.06%) | 76 (29.35%) | 34 (13.12%) | 14 (5.40%) | 4 (1.54%) | 259 (100%) |
|----------------|----------------|----------------|----------------|---------------|--------------|---------------|

Table & Graph 9:-peoples who wear spectacles have been visually impaired.

The sixth question is peoples who wear spectacles has been visually impaired is responded “YES” by 92 (35.53%) male and 39 (15.06%) female and click for “NO” was

responded by 76 (29.35%) male and 34 (13.12%) female and “DON’T KNOW” option was clicked by 14 (5.40%) male and 4 (1.54%) female. (Table and Graph-9

| 7. People who wear spectacles appear intelligent/smart? | | | | | | |
|---|----------------|----------------|---------------|---------------|---------------|---------------|
| YES | | NO | | DON'T KNOW | | TOTAL |
| MALE | FEMALE | MALE | FEMALE | MALE | FEMALE | |
| 90 (34.74%) | 40 (15.44%) | 67 (25.87%) | 20 (7.72%) | 25 (9.66%) | 17 (6.57%) | 259 (100%) |

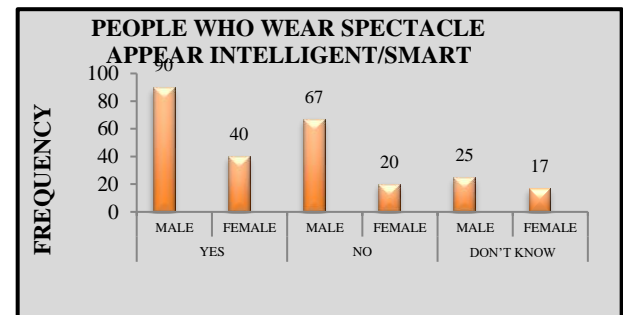


Table & Graph 10:-peoples who wears spectacles appear intelligent/smart.

The seventh question is peoples who wear spectacles appear intelligent/smart is responded “YES” by 90 (34.74%) male and 40 (15.44%) female and click for “NO” was responded by 67 (25.87%) male and 20 (7.72%) female and “DON’T KNOW” option was clicked by 25 (9.66%) male and 17 (6.57%) female. (Table and Graph-9).

The eighth question is People who wear spectacles appear to you as innocent and gentle is responded “YES” by 50 (19.30%) male and 34 (13.12%) female and click for “NO” was responded by 109 (42.09%) male and 34 (13.12%) female and “DON’T KNOW” option was clicked by 23 (8.89%) male and 9 (3.48%) female. (Table and Graph-10).

| 8. People who wear spectacles appear to you as innocent and gentle? | | | | | | |
|---|----------------|-----------------|----------------|---------------|--------------|---------------|
| YES | | NO | | DON'T KNOW | | TOTAL |
| MALE | FEMALE | MALE | FEMALE | MALE | FEMALE | |
| 50 (19.30%) | 34 (13.12%) | 109 (42.09%) | 34 (13.12%) | 23 (8.89%) | 9 (3.48%) | 259 (100%) |



Table & Graph 11:-peoples who wears spectacles appear to you as intelligent and gentle.

The ninth question is Consider wear spectacles if they are prescribed for you by a professional? The answer is amazingly responded “YES” by the male 106 (40.92%) and 52 (20.08%) female, 53 (20.46%) male and 17 (6.57%) female

were in favor of option “NO” and the 23 (8.89%) male with 8 (3.08%) female were in favor of option “DON’T KNOW” (Table and graph-12).

| 9. Consider wear spectacles, if they are prescribed for you by a professional? | | | | | | |
|--|----------------|----------------|---------------|---------------|--------------|---------------|
| YES | | NO | | DON'T KNOW | | TOTAL |
| MALE | FEMALE | MALE | FEMALE | MALE | FEMALE | |
| 106 (40.92%) | 52 (20.08%) | 53 (20.46%) | 17 (6.57%) | 23 (8.89%) | 8 (3.08%) | 259 (100%) |

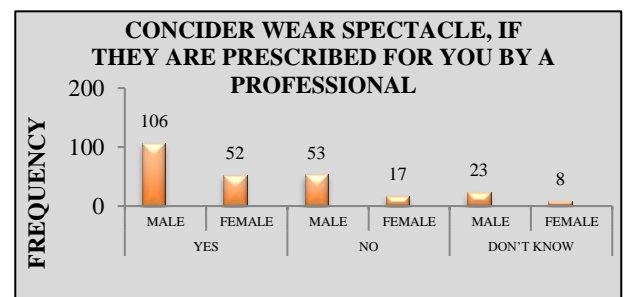


Table & Graph 12:-Consider wear spectacles if they are prescribed for you by a professional

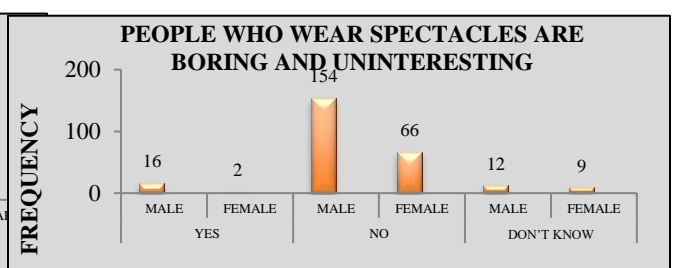
The tenth question is Spectacles are meant for only old peoples? The answer is responded, “YES” only by the 2 (0.77%) female, in favor of option “NO” there were 182 (70.28%) male and 73 (28.18%) female and only 2 (0.77%) female were in favor of option “DON’T KNOW” (Table and Graph-13).

they are prescribed for you by a professional? The answer for “YES” by the male 16 (6.18 %) and 2 (0.77%) female, 154 (59.45%) male and 66 (25.49%) female were in favor of option “NO” and the 12 (4.63%) male with 9 (3.48%) female were in favor of option “DON’T KNOW” (Table and Graph-14).

The eleventh question is People who wear spectacles are boring and uninteresting if

| 10. Spectacles are meant for only old peoples? | | | | | | |
|--|--------------|-----------------|----------------|------------|--------------|---------------|
| YES | | NO | | DON'T KNOW | | TOTAL |
| MALE | FEMALE | MALE | FEMALE | MALE | FEMALE | |
| 0 | 2 (0.77%) | 182 (70.28%) | 73 (28.18%) | 0 | 2 (0.77%) | 259 (100%) |

Table & Graph 13:- Spectacles are meant for only old peoples.



| 11. People who wear spectacles are boring and uninteresting? | | | | | | |
|--|--------------|-----------------|----------------|---------------|--------------|---------------|
| YES | | NO | | DON'T KNOW | | TOTAL |
| MALE | FEMALE | MALE | FEMALE | MALE | FEMALE | |
| 16 (6.18%) | 2 (0.77%) | 154 (59.45%) | 66 (25.49%) | 12 (4.63%) | 9 (3.48%) | 259 (100%) |

Table & Graph 14:- People who wear spectacles are boring and uninteresting.

The twelfth question is Spectacles can relieve different forms of discomfort like headache, tearing, and burning sensation? The answer is responded, "YES" by the 157 (60.62%) male and 59 (22.78%) female, in favor of option "NO" there were 19 (7.33%) male and 9 (3.48%) female and only 6 (2.31%) male and 9 (3.48%) female were in favor of option "DON'T KNOW" (Table

and graph-15). Further, the thirteenth question is People who wear spectacles look professional, the response for "YES" opted by the 98 (37.83%) male and 48 (18.53%) female, in favor of option "NO" there were 59 (22.78%) male and 23 (8.89%) female, and 25 (9.66%) male and 6 (2.31%) female were in favor of option "DON'T KNOW" (Table and Graph-16).

| 12. Spectacles can relieve different forms of discomfort like headache, tearing, and burning sensation? | | | | | | |
|---|----------------|---------------|--------------|--------------|--------------|---------------|
| YES | | NO | | DON'T KNOW | | TOTAL |
| MALE | FEMALE | MALE | FEMALE | MALE | FEMALE | |
| 157 (60.62%) | 59 (22.78%) | 19 (7.33%) | 9 (3.48%) | 6 (2.31%) | 9 (3.48%) | 259 (100%) |

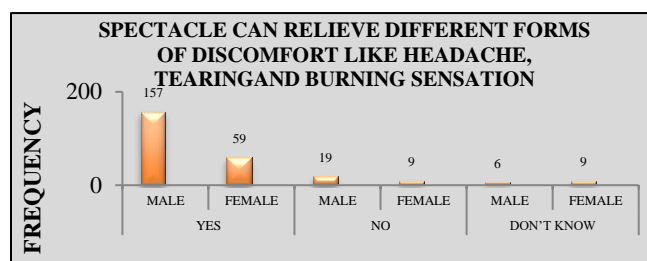


Table & Graph 15:- Spectacles can relieve different forms of discomfort like headache, tearing, and burning sensation.

| 13. People who wear spectacles look professional? | | | | | | |
|---|----------------|----------------|---------------|---------------|--------------|---------------|
| YES | | NO | | DON'T KNOW | | TOTAL |
| MALE | FEMALE | MALE | FEMALE | MALE | FEMALE | |
| 98 (37.83%) | 48 (18.53%) | 59 (22.78%) | 23 (8.89%) | 25 (9.66%) | 6 (2.31%) | 259 (100%) |



Table & Graph 16:- People who wear spectacles look professional.

DISCUSSION

In the present study, majority of the students (82.2%) were aware of the refractive error

an observation similar to that of Felix et al where a proportion of 76 % who participated was aware or had heard of refractive error [4]. The university setting of this research may have accounted for the high number of participants who knew about refractive errors. As part of the treatment modalities which were asked to the subjects in this study, 43.24% of the total participants (n=259) opted for contact lens for the correction of refractive error followed by spectacles (23.54 %). Previous studies showed the use of CL for refractive error correction to be higher and more common among the younger strata of the population [5, 6, 7]. One of the studies reported a significant statistical correlation between the individual's educational level and their knowledge about contact lens usage instead of glasses ($P=0.01$) [8]. Thus, the knowledge regarding contact lenses is much related to the educational status of participants. Sheetal et.al confirmed that 31.0% of the participants in their study felt that diet, yoga, and traditional medicine could cure refractive errors [9]. Unlike the previous study done by shetal et al in the present study, merely 4.24 % and 17.34% of people believed that medicine & exercise could correct refractive error. The difference in findings could be since the present study was conducted in an urban area where the level of education and awareness is higher. In this study, all the females, 29.72% of the total sample chooses that the style of the spectacle will affect their decision to wear. This also relates to the fact that those females are more concerned about their appearance with spectacles. Even though spectacles are the most cost-effective

method for correction of refractive error, these spectacles must be fashionable especially in the university setting. 27 % of the total participants (16.21% males & 11.19% females) believed that spectacles would push their eyes in, which is relatively lower than the study done in which 53.4% of the respondents opted for the same [4]. The fear of spectacles damaging the eyes was a significant hindrance to spectacle use in a Nigerian study [10]. Almost two-thirds of the participants (60.7%) in the study, in which 40.92% were male & 20.08% female, would opt for spectacles if advised by an eye professional. This is in agreement with previous studies conducted by Felix et al, Castanon et al., and Liping et al. [4, 11,12] where 61%, 38.4%, and 45.0% respectively also confirmed to wear prescribed eyeglasses. Patients tend to agree to what the doctor thinks is best for them even though, in some sense, patients have autonomy. 60.62% male & 22.78% female were of the view that spectacles could relieve different forms of discomfort like headache, tearing, and burning sensation. Thus, we can say that people are aware of the symptoms that are caused by refractive error nevertheless; eye care professionals should also ensure that patient understands that, although symptoms may be relieved by spectacles, this is a result of reducing the underlying eye strain.

Only a smaller percentage, 15.05 %, particularly female, agreed that spectacles can worsen your vision which is very small as compared to the study conducted in Karnataka in which 23.3 % and 30.1 % of the respondents believed that spectacle usage harmed eyes and would also lead to increase in power of the glasses at a later

stage ^[9]. In studies on Chinese children, a common reason for not wearing spectacles was the belief that spectacles weakened the eyes ^[13, 14].

Studies show that most of the time children discontinued the usage of prescribed spectacles as they got bullied by others ^[15, 16]. A study conducted in Madhya Pradesh by Gogate et al found that (36%) of the respondents would refuse spectacles at all if needed because of likely teasing from colleagues ^[3]. In one of the studies on spectacle non-compliance amongst school children, 31.14% of the subjects who got prescribed spectacles stopped using them as they were concerned or teased about their appearance with spectacles ^[16]. Children who had the refractive error and wore glasses were generally ill-treated by their peers who had a negative attitude towards wearing glasses themselves. In our study, this percentage came up small, 13.7 % (male 11.58% and female 2.31%). This indicates since undergraduates are within the literate bracket of the general population, this could be a reason for this positive eye care seeking attitude. Ebeigbe et.al and Felix et. al respectively confirmed that 57 % and 54.2 % of the participants considered other people who wore glasses as visually impaired ^[17, 4]. Whereas, in the present study, 35.55% of males & 15.06% of females, also regarded people with glasses as visually impaired.

CONCLUSION

The present study concluded that contact lenses & spectacles are at the top of all the various methods to correct the refractive error. Acceptance of spectacles for refractive

error correction among undergraduates is not that encouraging. There is still lingering in the smaller percentage of the population, a certain misconception regarding the refractive error and various methods in correcting them, thus optometrist/ophthalmologist needs to educate patients about the choices they have to correct refractive error and lay to rest the misconceptions.

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