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*RESEARCH ARTICLE*

# AWARENESS AND ATTITUDE TOWARD REFRACTIVE ERROR CORRECTION MODALITIES IN PARAMEDICAL STUDENTS.

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## *Abstract*

**Objectives:** This study was designed to determine the level of awareness and attitude toward refractive correction methods in a randomly selected population of Paramedical students in Era University, Lucknow, India. **Materials and Methods:** A random sampling method was applied to choose 500 subjects aged 17 years-28 years, from various paramedical courses. A structured questionnaire with open-ended and closed ended questions was designed to gather the participants' demographic data as well as their awareness and attitude toward refractive correction methods (Spectacles, Contact lenses and Refractive surgery). **Results:** Overall, 26.2% of the participants had a clear idea of term 'ophthalmologist' and 'optometrist'. 71.4%, 58.8% and 71% of respondents had no information about contact lens application, cosmetic contact lenses and contact lenses side effects, respectively. 68.6% of participants were not aware of the possibility of refractive surgery for improving the sight. Amongest those aware of refractive suregry; was only 14.2%. **Conclusion:** Developing country like India with a huge population also has large population with refractive errors putting a burden on overall health care. Awareness and attitude towards refractive correction methods was moderately low among the participants of this study. Although, ophthalmologists were the first source of consultation on sight impairments among respondents, one third percentage of subjects were not even aware of obvious differences between an ophthalmologist and an optometrist.



## Introduction:-

The ultimate goal of World Health Organization (WHO) has made refractive error correction a priority in the global initiative to eliminate avoidable blindness: Vision 2020 (The Right to Sight). Sight is significant indicator of health and quality of life & no person is going to be comfortable in his day to day activities without the normal sight[1]. The universal symptoms like headache, watering, eye discomfort, blurring of distant and near vision with which patient visit the ophthalmologist may be related to the refractive errors. Uncorrected refractive errors are a foremost cause of visual impairment and blindness, globally. It is projected that 153 million people worldwide have distance vision worse than 20/60 due to uncorrected refractive errors [2,3]. There is no single method for correction of refractive errors

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that is worthwhile to patients. Some patients feel, spectacles as the best choice. Contact lenses or refractive surgery are the correction method of choice in other circumstances[4]. Refractive errors not only impose a huge financial burden on the society but if left uncorrected could extensively affect patient's independence, quality of life and well-being[7]. There is no study about awareness of refractive error correction method in our region. To our best knowledge, there is no complete and documented survey on the perception and insight of the people about refractive errors correction methods in North India. Therefore, we strong-willed to perform this study for a better understanding about the level of awareness and attitude of the young students toward refractive correction.

**II. Materials and methods**

The present study was conducted in Era University among Paramedical students, India between March and April 2019. A random sampling method was applied to choose 500 subjects aged 17-28 years. The students were selected for the study were from different paramedical courses of, Bachelor of Radio Imaging, Bachelor of Medical Laboratory Technology and Physiotherapy. In our study we exclude Optometry courses. An informed verbal consent was also obtained from all participants by the researcher.

A structured questionnaire was designed to gather information related to the awareness of the refractive correction (figure 1). Initially, all questions of the questionnaire used in this study were assessed by a team of the ophthalmologist, optometrist and psychologist for ease of comprehension and psychological aspects of the questionnaire. The questionnaire was standardized and was explained to the students in their own language if they found difficulties. The questionnaire comprised of five sections with 16 brief questions, both closed and open ended. Closed-ended questions were in the form of Yes/No and multiple choice with an option for "other". Open-ended questions were added to double-check the respondent answers to the related closed-ended questions. The first section contained questions according to demographic data such. The second part was set to evaluate the ability of respondents to distinguish between an ophthalmologist and an optometrist. The remaining sections were arranged to assess respondents' attitude toward spectacles, contact lenses and refractive eye surgery.

All interviewees were asked to answer the closed-ended questions by placing a "×" mark over the box next to the response that they have chosen. Also, there was enough space after every open-ended question for respondents' answers. All questionnaires were filled in with the assistance of our trained interviewers. Statistical data analysis was done with proportional test.

## Results:-

**3.1 Demographic data of the participants**

Out of the 500 participants, 429 (86%) were male and 71 (14%) were female (Figure 2). The 74% of the subjects were 17-20 years age group, 23% in age group 21 -25 and 3% were 26-30 (figure 3).

**Questionnaire**

**Section 1**

Name: Age: Sex:
Educational status: Occupation:

**Section 2**

1. Have you ever had an eye examination?
   Yes No
2. If yes, who conducted it?
   Ophthalmologist Optometrist others
3. Do you know the difference between an ophthalmologist and an optometrist?
   Yes No.

**Section 3**

1. Do you wear glasses?
   Yes No
2. Do you believe that glasses had limit day to day activities?
   Yes No (If Yes, in which aspects?)

**Section 4**

1. Are you aware of contact lens usage instead of spectacles?
   Yes No (If yes, please explain)
2. Have you ever worn contact lenses?
   Yes No
   (If yes, how many years? How many hours in a day? )
3. Who prepared the contact lens prescription?
   Ophthalmologist Optometrist others
4. Are you aware of possible contact lens side effects?
   Yes No
   (If yes, please name the side effects.)
5. Do you have any information about colored contact lenses worn exclusively for cosmetic purposes on normal eyes?
   Yes No
   (If yes, please explain what do you know about it?)
6. Are you aware of the presence of contact lenses which have both refractive correction and cosmetic properties?
   Yes No I do not know

**Section 5**

1. Are you aware of the possibility of refractive surgery in order to improve the eyesight and decrease or eliminate dependency on spectacles?
   Yes No
   (If yes, please explains what do you know about it?)
2. Are you aware of possible refractive surgery side effects?
   Yes No
   (If yes, what are its side effects?)
3. If u wears glasses are you willing to undergo the refractive surgery?
   Yes No (explain the reason)

**Figure 1:- Survey Questionnaire**

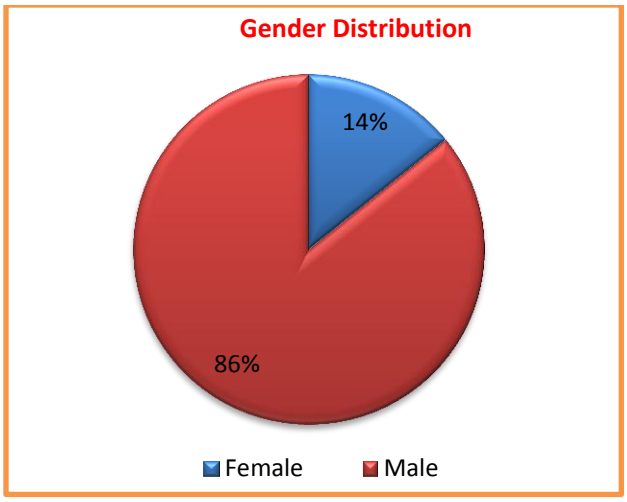



**Figure 2:- Gender Distribution**

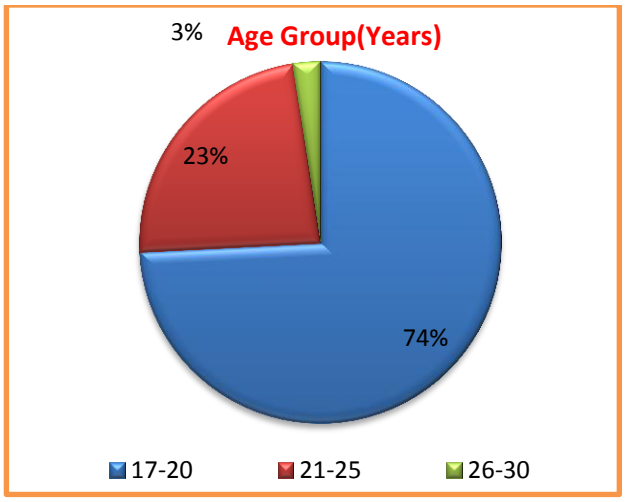



**Figure 3:- Age group Distribution**

### 3.2 Overall awareness

Of the total participants 153 (30.6%) did undergo eye checkup but 69.4% (347) never had any eye check up. Out of 153 (37.2%) got eye examined by ophthalmologist and rest 96 (62.7%) eye examined by optometrist. Those who had visited ophthalmologist for common symptoms like headache, watering, blurring of vision. 131 (26.2%) knew the difference between ophthalmologist and optometrist. 369 (73.8%) did not know difference between ophthalmologist and optometrist. Only some correctly identified an ophthalmologist as the person who is responsible for diagnosing and treating eye-related diseases and an optometrist as the person who tests people's vision and orders glasses for them (table 1 and figure 4).

**Table:-1**ophthalmologist vs. Optometrist and overall eye health awareness

| | | |
|---|---|---|
| Got Eye Examination(n=500) | Yes | 153 (30.6%) |
| | No | 347 (69.4%) |
| Eye examination Conducted by(n=153) | Ophthalmologist | 57 (37.2%) |
| | Optometrist | 96 (62.7%) |
| Aware about Optometrist/Ophthalmologist (n=500) | Yes | 131 (26.2%) |
| | No | 369 (73.8%) |

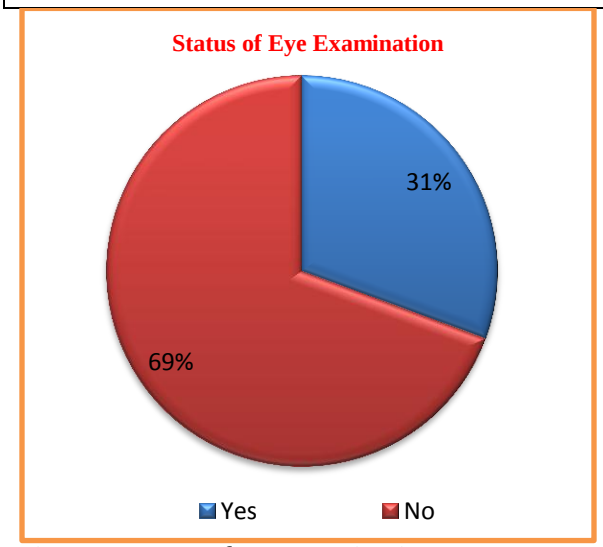



**Figure 4:-Status of Eye Examination**

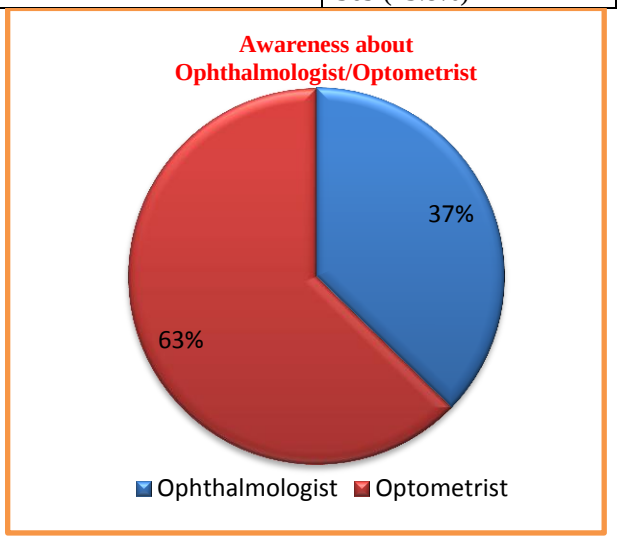
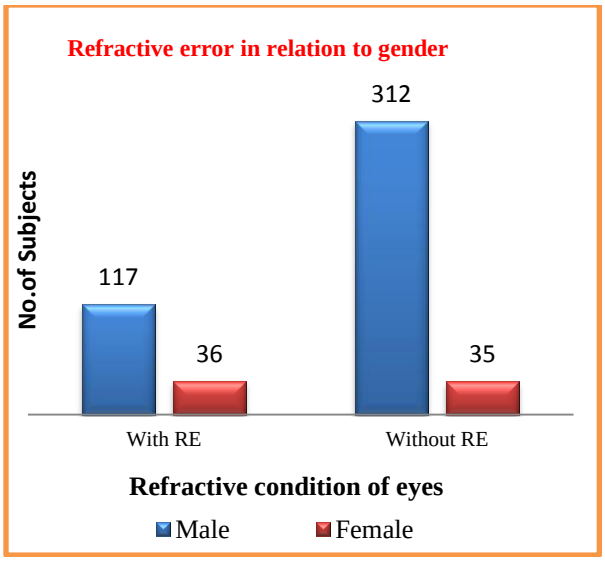



**Figure 5:- Awareness about Ophthalmologist/Optometrist**

### 3.3 Attitude awareness and spectacles

Out of 500 subjects 153 reported that they had refractive error. Of 153, 117 (76.4%) were male and 36 (23.5%) were female. The percentage of male was higher than the percentage of female. This indicated that gender biasness is still present in middle and low income society. Out of 153, 56% (86) participants already had a history of wearing spectacles, while 67 (44%) were not using glasses though they had refractive error (Figure 6 & 7).



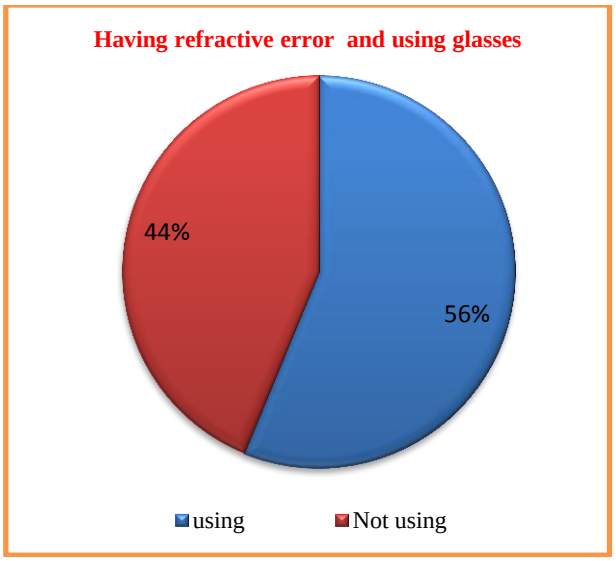
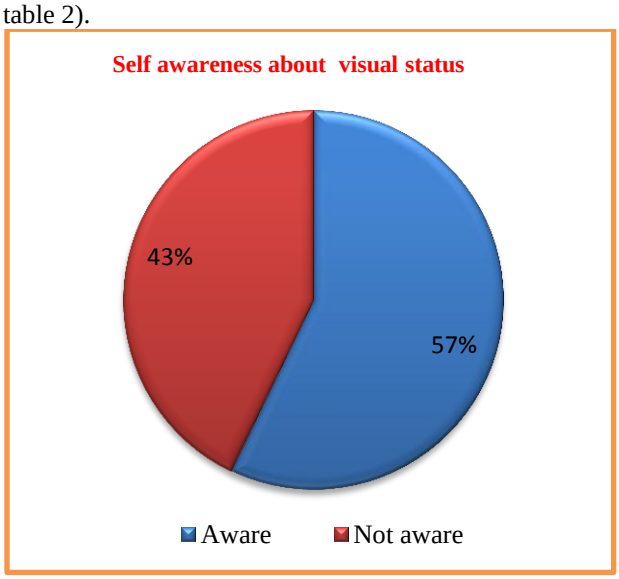




**Figure 6:- Refractive error in different gender**

**Figure 7:- Having refractive error and using glasses**

The subjects who did not get eye examination (347) till the period of survey, after conducting a visual examination 70 individual had a visual acuity less than 6/9 in one or both eye. Out of 70, 57% were aware that they have difficulties in their vision while 43% did not notice that they have any difficulties in binocular seeing (figure 8 & table 2).



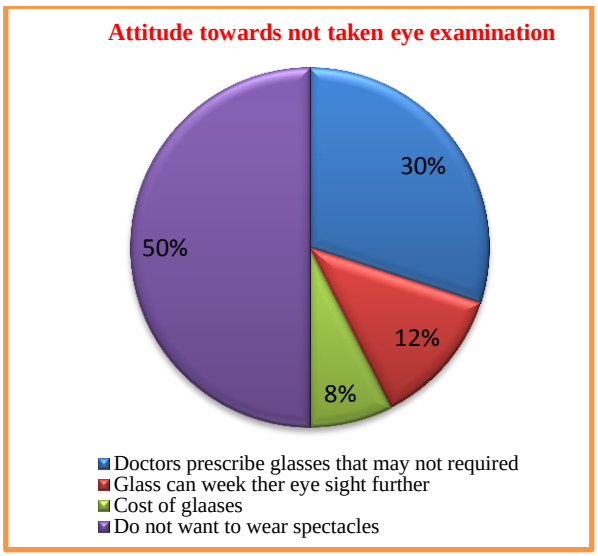




**Figure 8: - Aware /Unaware about diminished vision examination**

**Figure 9:-Attitude towards not taken eye examination**

There were several reasons behind having refractive error and not take advice. Some of them were mentioned in **table 2** and **figure 9.** Out of 40**,** 20 **(**50%) did not want to wear spectacle, 12 (30%) thought doctors prescribed

glasses but they did not required, 5 (12%) were thought glasses decrease eye sight further and 3 (8%) were have financial issues.

**Table 2:- Attitude towards not take eye examination**

| | With Refractive error | |
|---|---|---|
| | **Aware** | **Not aware** |
| Attitude towards not take eye examination | 40 | 30 |
| Doctors prescribe glasses that may not required | 12 | |
| Glass can week their eye sight further | 5 | |
| Cost of glasses | 3 | |
| Do not want to wear spectacles | 20 | |

### 3.4 Attitude and awareness about contact lens use

A 347 (71.4%) of respondents were not aware of contact lens usage instead of spectacles. 132 (26.4%) participant had history of contact lens wear those belonged to high class profession were knowing the contact lens side effects 194 (38.8%), 145 (29%) were aware about the difference between cosmetic contact lenses and prescription lenses. 130 (26%) were worn cosmetic lenses. 12 ( 2.4%) were aware of presence of contact lenses which have both refractive and cosmetic properties (Table 3 and figure 10).

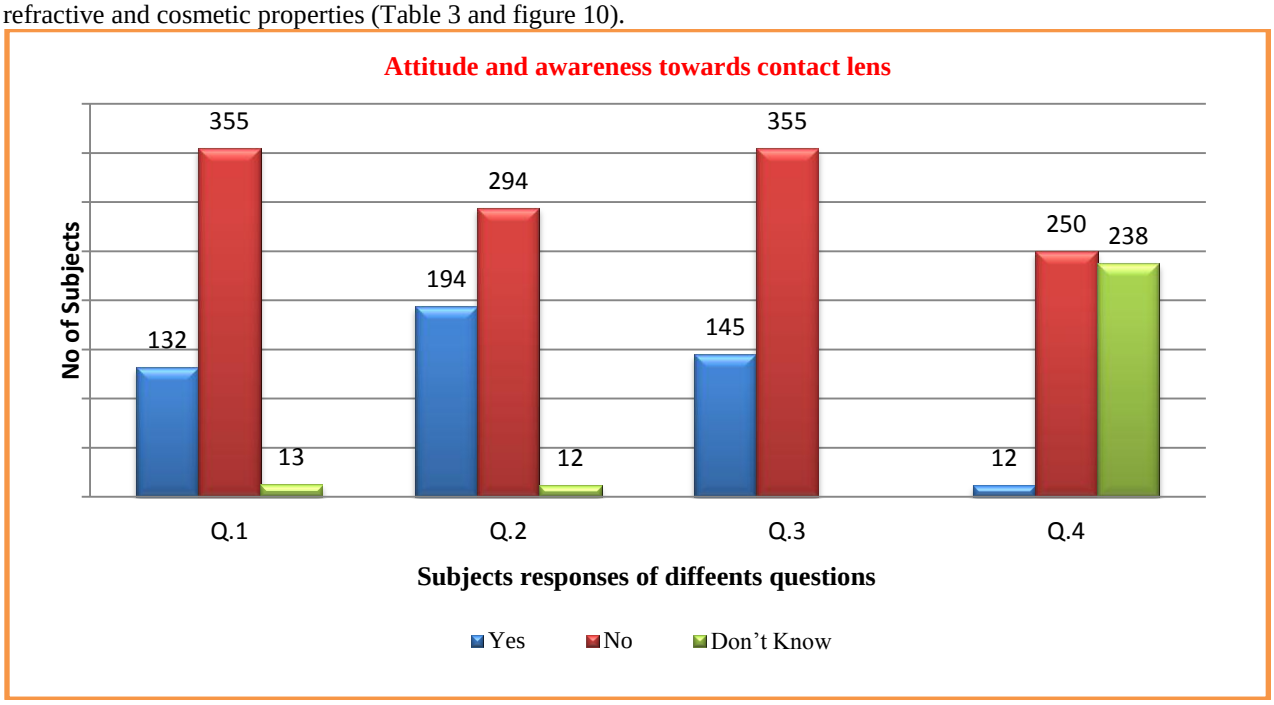



**Figure 10:- Attitude & awareness towards Contact lenses**

**Table 3:- Attitude & awareness towards contact lenses**

| | Contact lens awareness and attitude | Yes | (Yes) % | No | (No) % | Don't Know | Don't Know (%) |
|---|---|---|---|---|---|---|---|
| Q. 1 | Have you ever worn contact lenses? | 132 | 26.4 | 355 | 71 | 13 | 2.6 |
| Q. 2 | Are you aware of possible contact lens side effects? | 194 | 38.8 | 294 | 58.8 | 12 | 2.4 |
| Q. 3 | Do you have any information about colored contact lenses worn exclusively for cosmetic purposes on normal eyes? | 145 | 29 | 355 | 71 | 0 | 0 |
| Q. 4 | Are you aware of the presence of contact lenses which have both refractive correction and cosmetic | 12 | 2.4 | 250 | 50 | 238 | 47.6 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | properties? | | | | | | |

**3.5 Attitude & awareness towards refractive surgery**

Only 157 (31.4%) knew the possibility of refractive surgery being used to improve the eyesight and decrease or eliminate the dependence on spectacles. And mere 74 (14.2%) were aware of

**Table 4:- Attitude & awareness towards refractive surgery**

| | Refractive Surgery Awareness and Attitude | Yes | No | Yes (%) | No (%) |
|---|---|---|---|---|---|
| Q.1 | Are you aware of the possibility of refractive surgery in order to improve the eyesight and decrease or eliminate depending on spectacles? | 157 | 343 | 31.4 | 68.6 |
| Q.2 | Are you aware of possible refractive surgery side effects? | 71 | 429 | 14.2 | 85.8 |
| Q.3 | If u wears glasses are you willing to undergo the refractive surgery? | 97 | 403 | 19.4 | 80.6 |

refractive surgery side effects. 97 (19.4%) were willing to undergo surgery .Those who were not gave the reasons of cost expenses, lack of knowledge about the surgery. Those who had information about the surgery were highly educated or got the information through friends ,family members, health care professional or media (table 4 & figure 11).

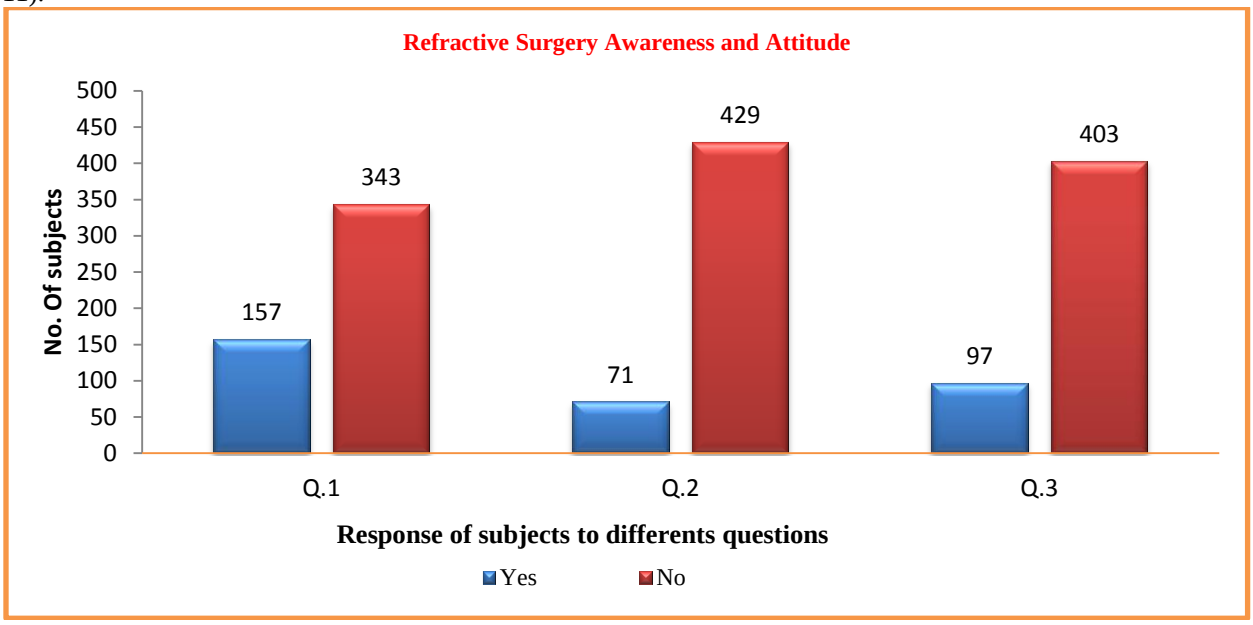



**Figure 11:- Attitude & Awareness towards Refractive Surgery**

**3.6 awareness about different corrective modalities in different groups – comparative**

Out of 500 subjects 347 (69.4%) were not having refractive error but had knowledge about spectacles, only 72 (14.4%) and 85 (17%)had idea about contact lenses and refractive surgery respectively. Subjects with refractive error (RE) and using spectacle, most of them had idea about contact lens 71 (14.2%) and refractive surgery 72 (14.4%). But who had refractive error and did not wear any corrective modalities, out of 67 (13.4%), only 30 (6%) had awareness about contact lens and 20 (4%) had idea about refractive surgery (Figure 11 & table 5).

**Table 5:- awareness about different corrective modalities in different groups – comparative**

| | Without RE | With RE | |
|---|---|---|---|
| | | Using Glasses | Not using Glasses |
| Spectacle | 347 | 86 | 67 |

| | | | |
|---|---|---|---|
| Contact lens | 72 | 71 | 30 |
| Refractive surgery | 85 | 72 | 20 |

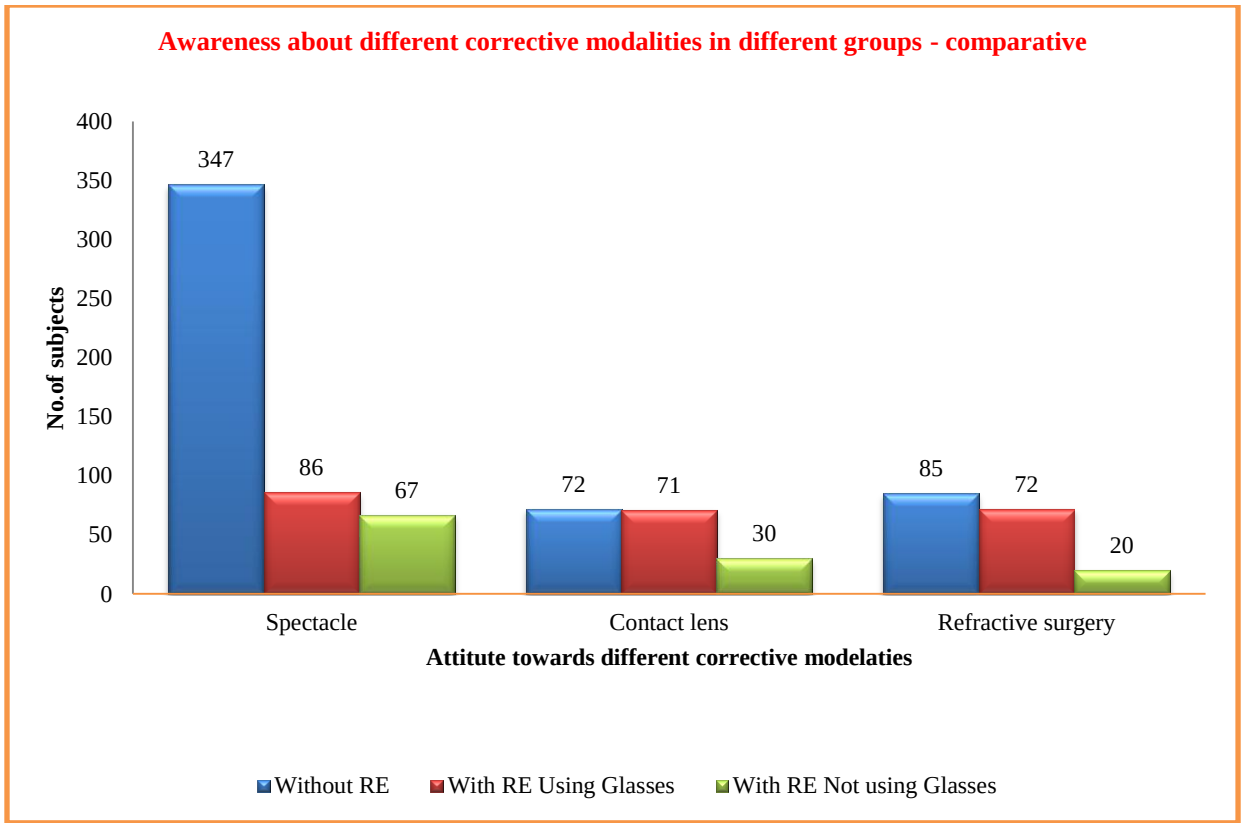



**Figure11:-Awareness about different corrective modalities in different groups - comparative**

## Discussion:-

This study is a population-based survey on refractive correction method awareness amongest the paramedical students. The maximum participants belong to rural area of Lucknow. Awareness in our study did not mean that participants had a complete knowledge about the subject. The obtained results could have a possible significant effect on public health education because it was found that even with the fact that uncorrected refractive errors are a major cause of visual impairment and blindness globally, the level of knowledge about this issue and its correction methods is low even amongest paramedical students. The study participants were randomly selected without any criteria.Majority of the participants were not aware about refractive surgery as a method for correction ; Just 12% of participants were aware of refractive surgery, some of the respondents unexpectedly mentioned fear of refractive surgery and its side effects as the main reason for not undergoing such correction methods. These findings indicated that in people do not get informed about these subjects by the eye care practitioner.This obersvation result may convey the idea that ocular health educational programs promoting awareness about correction methods, targeted should mostly at university level and/or higher educated individuals.Although there are no other surveys which have particularly examined the awareness of the general public on refractive error correction methods, several published original researches have revealed the factors affecting the awareness of a population about under corrected refractive errors and other major eye diseases. A disappointing result of this survey is the fact that 73.8% were not knowing the difference between ophthalmologist and optometrist,23.8% were using glasses and 26 % were thinking glasses as a limiting factor in their daily routine work ,this might provide the clue to the fact that they might not using the glasses. Effective health education in eye care may manipulate the behavior of individuals towards considering regular ocular care. Communicating visual prognosis by primary health care clinicians and primary eye care practitioners would help to increase knowledge and compliance among patients[8] because needless to say, health promotion and communicating risk is a key public health strategy [9-11]. These findings emphasize the crucial role of ophthalmologists and optometrists in bringing the general ocular health information to the public consideration. Awareness about eye care facilities in rural population is very pathetic. In this survey we assumed that students

came from good socioeconomic condition so they might be aware about the refractive error correction method but when we analyzed the data that was socking for us also, if the this situation is from good family then what about the pure villagers? Students believed that wearing spectacle will further detoriate a vision or they will become dependent to it. Some of the participants did not have ant idea about contact lens and refractive surgery.

## Conclusion:-

The results of our study demonstrate major loose ends in the awareness about the role of ophthalmologists as well as refractive error correction modalities creating awareness about such important issues in genral public will be major step in improving proper ophthalmic services and preventing avoidable visual impairments. Thus, it is crucial for eye care management that ophthalmologists, general practitioners and optometrists provide proper information in details to patients about their refractive error condition and the available correction options.

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