

# Attitudes and Beliefs of Undergraduate Students to Spectacle Wear



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## Abstract

**Purpose:** The aim of the study was to determine the attitudes and beliefs of KNUST undergraduates to spectacle wear.

**Method:** A descriptive cross-sectional study was done. Close ended questionnaires were distributed to 500 KNUST undergraduates to collect data on their attitudes and beliefs to spectacle wear.

**Results:** A total of 500 undergraduates from the Kwame Nkrumah University of Science and Technology (KNUST) were included in this study. 298 were males (59.6%) and 202 (40.4%) were females with age ranging from 17-32 years (mean 21.51±1.93SD). 76% of the study population had heard of refractive error (near-sightedness, far sightedness or astigmatism) before. 57.4% felt that spectacles could be used to correct refractive error. 61% agreed they would wear spectacles if they were prescribed by an eye doctor. 53.4% believed eyeglasses cause the eyes to be pushed in and 66.9% believed eyeglasses are an inconvenience. Two-thirds (66%) did not know that eyeglasses could be used to relieve other forms of ocular discomfort like headache and tearing. 54.2% of respondents saw people who wore eyeglasses as visually handicapped, while 14.6% believed that eyeglasses were meant for old people. 27.8% of the respondents believed that they would be teased if they wore glasses. 57.2% said people who wear spectacles look professional.

**Conclusion:** Spectacles are still the most commonly preferred modality for the correction of refractive errors in the world today. Acceptance of glasses for the correction of refractive errors among KNUST undergraduates is not encouraging. There still lingers in the minds of the educated population, certain misconceptions regarding refractive errors and the various methods of correction which needs to be addressed. Counseling, mass media, support groups and the provision of information about refractive errors in schools and college textbooks, will help in dispelling the misconceptions and the distorted facts about these.

**Keywords:** Refractive error; Near-sightedness; Far sightedness; Astigmatism glasses; Spectacle; Students; Blindness; Perception; Psychosocial

## Background

Uncorrected refractive is a major leading cause of preventable visual impairment. Global estimates indicate that more than 2.3 billion people in the world suffer from poor vision due to refractive error; of which 670 million people are considered visually impaired because they do not have access to corrective treatment. Current data suggests that more than 90% of people with uncorrected refractive error, worldwide, reside in rural and low-income countries [1].

Refractive errors, if uncorrected, results in an impaired quality of life of people. There is difficulty performing daily life tasks, such as learning, working and driving thus depriving them of the advantages in living a complete life. The commonest and cheapest treatment modality for correcting refractive errors is

spectacles or eye glasses. The zeal with which patients comply with wearing of spectacle will be triggered by the level of their understanding of refractive errors and their attitudes towards eye glasses [2].

In Ghana and Africa at large, it is widely believed that children or young people should not have eye problems and as such should have no need to wear glasses. This therefore imposes some kind of stigma on anyone who wears glasses [3]. Others believe that glasses damage and weaken the eyes and they only wear them when it is absolutely necessary or on special occasions [4-6], have concluded from their studies that only a small percentage of young people who are living with marked uncorrected refractive errors actually have their spectacle

prescription on. These studies have all focused on children, parents' attitude and teachers' involvement. The present study focused on undergraduates; because they are more mature and better informed to make educated decisions for themselves. With this background, this study seeks to find out the attitude and beliefs of KNUST undergraduates to spectacle wear. This is in order to improve acceptance of glasses when prescribed thus reducing blindness and visual impairment due to uncorrected refractive errors.

**Methods**

It was a descriptive cross-sectional study done among undergraduate students in Kwame Nkrumah University of Science and Technology (KNUST). KNUST, located in Kumasi in the Ashanti Region, is one of the largest public universities in Ghana. A convenience sampling technique was used to select the participants.

The sample size was calculated using the formula:  $n = Z^2p(1-p) / d^2$

Where:

'p' is the assumed population proportion = 0.75 'd' is the margin of error= 0.04

With a (CI) confidence interval of 95% 'Z'= 1.96

$$n = 1.962 \times 0.75(1-0.75) / 0.042 = 451$$

$$10/100 \times 451 = 46$$

Minimum sample size = 497 participants. A sample size of 500 students was used in the study.

Informed consent was obtained from all participants before the study and aim of the study was described to them. Participants were also told they could withdraw from the study at any time. Confidentiality and anonymity was ensured with records and the information collected from participants and they were used solely for the purpose of the study. The study was approved by the Ethics and Research Committee of the Kwame Nkrumah University of Science and Technology, and was carried out in accordance with the tenets of the declaration of Helsinki.

The data was collected and gathered using structured questionnaires. The questionnaires were given to the students and they were instructed to make sure their attitudes and beliefs toward spectacle wear were best presented by ticking or circling the right answers among the alternatives. The other components of the questionnaire were the demography of the participant, psychosocial aspects, the perceptions about refractive errors and the various treatment options. The questionnaires were taken back the same day they were given as soon as the participants answered them. This was done in a period of one week. Data analysis was performed using SPSS version 23.0 (IBM Corporation, Armonk, NY, USA) and the results were calculated in percentages and presented in tables.

**Results**

**Table 1:** Age distribution of respondents.

Age (years)	Number	Percentage (%)
17-20	154	30.8
21-24	320	64.0
25-28	24	4.8
29-32	2	0.4
Total	500	100.0

**Table 2:** Gender distribution.

Gender	Number	Percentage (%)
Male	298	59.6
Female	202	40.4
Total	500	100.0

Shown in Table 1 & 2 are age and gender distribution of the participants respectively. 500 students took part in this study and there were 298 males (59.6%) and 202 (40.4%) females with age ranging from 17-32 years (mean age: 21.51±1.93). Table 3 shows correspondents' knowledge of refractive error correction methods. 57.4% of the study subjects responded that spectacles are one of the treatment plan to correct refractive errors, 38.6% felt contact lenses could be used to correct refractive errors, 21.8% felt drugs could be used to correct refractive errors, 23.0% considered surgery to be appropriate to correct refractive errors.

**Table 3:** Knowledge of refractive error correction methods.

Treatment option	Male (%)	Female (%)	Total (%)
Spectacles(eyeglasses)	33.6	23.8	57.4
Surgery	13.2	9.8	23.0
Drugs(medication)	11.6	10.2	21.8
Laser	6.4	5.8	12.2
Contact lens	23.0	15.6	38.6
Exercise	3.0	1.6	4.6
Prayer	0.4	0.0	0.4

76.0% among the 500 students knew what refractive error (near-sightedness, long sightedness or astigmatism) is. 65.0% of the total population knew of at least one of the various methods of correction of refractive errors.

Table 4 comprises the psychosocial questions and their answers given adjacent to the questions. 60.6% of the total study population said the attractive style of spectacles will affect their decision to wear them. 61.0% of the total population agreed they would put on their eye glasses if they are a prescription from an eye care professional. 37.2% and 53.4% think spectacles

will worsen their vision and cause the eyes to be sunken in respectively. 66.9% of the total population felt that spectacles are an inconvenience. 27.8% of the respondents felt that they would be teased for wearing spectacles by others. 54.2% also see people who wear spectacles as being visually impaired. 14.6% think spectacles are only meant for old people while 34.4% think spectacles can relieve different forms of discomfort like headache, tearing and burning sensation. 57.2% of the study participants also think people who wear spectacles look professional.

**Table 4:**

Statement	Males (%)	Females (%)	Total (%)
Style of spectacles affect your decision to wear it or not	38.0	22.6	60.6
Spectacles will worsen your vision	21.0	16.2	37.2
Spectacles pushes the eyes in	28.4	25.0	53.4
Spectacles are an inconvenience	45.7	21.2	66.9
Teased for wearing spectacles by others	16.0	11.8	27.8
People who wear spectacles as being visually impaired/bad eyes	32.0	22.2	54.2
People who wear spectacles appear intelligent/smart	24.4	20.0	44.4
People who wear spectacles appear to you as innocent and gentle.	33.6	18.8	22.4
Consider wear spectacles if they are prescribed for you by a professional.	38.4	22.6	61.0
Spectacles are meant for only old people	7.2	7.4	14.6
People who wear spectacles are boring and uninteresting	9.8	8.4	18.2
Spectacles can relieve different forms of discomfort like headache, tearing and burning sensation	15.4	19.0	34.4
People who wear spectacles look professional	33.0	24.2	57.2

**Discussion**

Majority of the total population in this study (76.0%) know what refractive error is or had heard of refractive error before. This compares favorably to the study by [7] where a proportion of only 32.0% of the 500 study participants knew of refractive error in the University of Benin, Nigeria or gone to examine their eyes before despite the fact that they had had an eye problem before. The number (32.0%) is quite low compared to the figure obtained in this study and may be due to time gap. Approximately 65.0% of the respondents in this study knew of the various refractive error correction methods which is relatively high. As part of the treatment modalities which were reported, eye glasses were higher, contact lenses were next, with surgery and drugs following. This is in agreement with

statistics from a previous study where it was reported that 50.0% of the study population agreed that eye glasses are a treatment option for correcting refractive error. Almost two-thirds of the participants (61%) in this study would not mind wearing spectacles if they are prescribed by an eye professional for them. This is in agreement with previous studies by [8,9], where 38.4% and 45.0% respectively also confirmed they would wear prescribed eye glasses [7]. Also reported that 49.8% of their participants would not mind wearing spectacles that will correct their refractive error.

Approximately 57.4% had in mind that spectacles could correct refractive errors yet very few of the respondents (34.4%) knew eye glasses could also be used to prevent headaches, glare from sunlight, burning sensation and other discomforts associated with the eye. 77.0% of the correspondents in this study did not know they could do refractive surgery in order to improve their eyesight and decrease or eliminate their dependency on spectacles. This agrees with the result obtained by where it was estimated that 83.0% of the interviewees were not aware of refractive surgery as a method of correcting refractive error. This is not a problem of much concern here in Ghana since modern machinery and equipment to carry out such an operation on the eyes are not available and considering the fact that Ghana is a developing country. 4.60% and 0.42% of the correspondents in this study thought prayers and exercises could be used to correct refractive errors respectively [4]. Confirmed that 31.0% of the subjects in their study felt that diet, yoga and traditional medicine could cure refractive errors.

The difference in the findings above could be due to the fact that, their study was conducted in a rural setting whereas this study was conducted in an urban centre where the level of education is higher. However, a misconception like this could result in them refraining from seeking appropriate treatment. 53.4% of participants in this study feared to use glasses with the belief that eye glasses cause sunken eyes. This is in line with two previous studies where people despised the use of eye glasses even when given to them for by an eye professional [10,11]. The fear of spectacles damaging the eyes was also a significant hindrance to spectacle use in a Nigerian study [1]. In studies on Chinese children, a common reason for not wearing spectacles was the belief that spectacles weakened the eyes [12]. In a report among secondary school students in Tanzania, this ‘fear’ was referred to as ‘parental concerns about the safety of spectacle use’ and it was listed among the barriers against the use of spectacles by students [5].

It has been speculated that spectacle wear could interfere with normal emmetropization (which depends on the growth of the eye, the refractive state, and the visual stimulation) in infants. Yet, the long term effect of spectacles on normal changes in the refractive error of the human eye is negligible [13]. The fear of spectacles damaging the eyes should be directly addressed and the concerns should be alleviated during consultations at

eye care clinics. A greater proportion of the study population (66.90%) also said eye glasses are an inconvenience and will not wear it even if prescribed by an eye doctor. This indicates the need to change their perspective towards the use of spectacles through the dissemination of knowledge and information.

More males (16.0%) than females (11.8%) believed that they will be laughed at for wearing glasses as they regarded spectacles as one that makes beauty fade. 27.8% of the total population in this study said they will be mocked if they wear spectacles. This is similar to a previous study by [4] where it was reported that a large percentage of respondents (35.0%) were teased for wearing eyeglasses. It was generally the peers who had negative attitude to glasses wear and victimized other children with refractive errors who wear glasses. According to [4] 31.0% respondents were ready to hide their glasses to avoid rejection before marriage. An attitude like this could result in serious problems like psychosocial maladjustment, anxiety, depression loneliness, lowered self-esteem and behavioral problems.

37.2% of the respondents in this study believed that the continuous use of glasses would progressively cause their vision to worsen. This agrees with the result obtained by [4] in Dakshina where 30% of the participants thought that glasses would worsen their vision if used continually. In a study which was conducted in Pakistan by [14,15], 69.0% of the people thought that using spectacles would cause their vision to deteriorate and therefore tried to avoid it. The reason for the difference in numbers between the above two studies could be the difference in the study setting and in the educational level between the two populations, ours being an urban setting with a higher educational level of the respondents, our findings were contrary to those of the Pakistan study [7], confirmed that, 57.0% of the participants considered other people who wore glasses as visually impaired. In this study, 54.20% of the respondents regarded people who wore glasses as visually handicapped. The above two findings are similar. Children are discouraged with this inaccurate view by their teachers and parents and may decide not to wear them when they grow [16,17].

### Conclusion

From this study, eyeglasses are still atop of all the various methods used to correct refractive error. Knowledge of refractive errors among KNUST undergraduates is not encouraging. There still lingers in the minds of the educated populace, certain misconceptions regarding refractive errors and the various methods used in correcting them [18-25]. All patients visiting the eye clinics should be made to be aware of the good outcomes eye glasses offer to the eyes more especially when their present eye condition calls for a spectacle prescription. This would help to erase any false information and deep rooted taboos regarding spectacle usage. Students should also be educated on the disadvantages associated with not wearing a prescribed eye glass and the basics of refractive errors as well as its other

treatment modalities. There is also the need for people to have their eyes checked at the eye clinics and at outreach programs organised by recognised eye care units. This would help in the early diagnosis of refractive error if there exist any [26-31].

### Conflict of Interest

The authors report no competing interests in this work.

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