

Attitudes and beliefs of undergraduate students to spectacle wear in Ghana

Abstract

Background: There are many psychosocial perceptions attributed to the wearing of spectacles among young adults. It is however unclear what these factors are in Ghana. The purpose of the study was to determine the psychosocial perception of Ghanaian undergraduate students to spectacle wear.

Methods: This descriptive cross-sectional study took place at the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. Participants were undergraduates of the institution. Ninety students were conveniently sampled from each of the six colleges (total of 540) of the University. Forty students were excluded because they either did not respond or provided incomplete answers to the questionnaires. Data on participants' demographics, eye-care-seeking behaviours, knowledge of refractive errors and their correction, and perception and attitude to spectacle wear, was collected using a pretested structured questionnaire. Pearson chi-squared test was used to investigate associations between gender and outcome variables and a p-value < 0.05 denoted statistically significant associations.

Results: Five hundred students [Mean Age: 21.51±1.93 years; Age Range: 17-32 years; Male: 202(40.4%)] participated in the study. There was an association between sex and history of spectacle wear (p= 0.001). 75.8% respondents knew about refractive errors and 36.3% of the respondents cited spectacles as the major method of correction. 186 (37.2%) participants had been told they needed spectacle correction, but 23 (12.4%) of this number neither had nor wore spectacles. Financial constraints were cited as the chief reason (39.1% participants) for not getting spectacles. Aesthetic and cosmetic reasons would most likely underpin the wearing of spectacles in 64.8% of the participants.

Conclusion: Compliance to spectacle wear is a necessary step in reducing the socioeconomic burden of visual impairment from refractive errors. Counselling and education about refractive errors in schools and colleges by stakeholders would help in dispelling the myths and misconceptions about spectacle wear, even among the educated population.

Keywords: refractive errors, spectacle wear, attitudes; beliefs, psychosocial perceptions, undergraduate students, ghana

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Abbreviations: KNUST, kwame nkrumah university of science and technology

Introduction

Universally, refractive error is one of the common causes of visual impairment and blindness.¹⁻³ A total of about 153 million people have been estimated to be visually impaired from uncorrected refractive errors. Out of out this number, about 8 million are blind.¹ Uncorrected refractive errors have become the main culprit of low vision amongst patients.⁴ Refractive errors that go uncorrected could have a huge impact on academic performance; reduce work productivity and negatively impact the overall quality of life. Correction of refractive errors with spectacles is one of the most cost-effective measures to reduce the burden of avoidable visual impairment.^{1,4,5} Wearing spectacles to correct refractive errors is integral to the improvement of vision, productivity and quality of life. However there are many psychosocial perceptions about the wearing of spectacles among

people especially young adults.⁶⁻¹¹ Generally, ignorance of refractive errors and the benefits of using spectacles to relieve symptoms could be said to be one of the main causes of not wearing spectacles.^{12,13} People who need spectacles also shy from wearing them because they would be thought of as being blind or visually handicapped. For others, wearing spectacles could diminish their chances of getting a spouse whereas some also perceive it to be for only the old folks.^{9,12,14} Contrary to the above perceptions, people wear spectacles because it improves their appearance and sight; augments their confidence and demeanour; and makes them look innocent and intelligent.^{12,15,16} Most psychosocial perceptions to spectacle wear, however, usually results non-use of spectacles.

Unmet expectations are a major cause of patient dissatisfaction and may result in patients not wearing their spectacles.¹⁷ Four factors which might determine whether or not one wears spectacles are as follows: labelled style, vision, avoiding and seeking.^{8,17} Style touches on the importance of appearing stylish and getting approval

from others. Vision relates to obtaining clear and healthy sight. Avoiding describes the perceived difficulties in visiting an eye clinic and purchasing a pair of glasses. Seeking corresponds to the desire of information of the technical details of lenses.¹⁷ Affordability of spectacle frames and lenses also plays a big role in the wearing of spectacles. Generally, spectacles are not expensive compared to other means of refractive correction (contact lens and refractive surgery), however, there are still some who cannot afford one. The attitude of eye care professionals towards the patients has also been mentioned as a reason for non-spectacle wear.¹⁰

Ignorance, monetary constraints, desired expectations from spectacles, attitude of eye care professionals towards patients as well as personal and cultural beliefs might be the contributory factors to patients' reluctance to wearing spectacles. These aforementioned factors are not far-fetched, especially within the African setting where alternative medicine is still considered a suitable option for the average person.^{18,19} Knowing the psychosocial perception of Ghanaians towards spectacle wear could inform professionals on the way forward and how to address these perceptions since the use of spectacle correction still remains one of the most cost-effective means of correcting refractive errors. This research therefore sought to determine the psychosocial perception of Ghanaian undergraduates to spectacle wear.

Materials and methods

This descriptive cross sectional study was carried out at the Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi, Ghana. The KNUST community comprises of students from Ghana and International students. Participants of this study, who were undergraduates of the school, were conveniently sampled from the six different colleges in the University. Ninety (90) students were conveniently sampled from each of the six colleges (total of 540).

Table 1 Cross tabulation of the sex and age of participants

Age group of respondent	Gender of respondent		Total
	Male N (%)	Female N (%)	
17-20 years	70 (14.0%)	84(16.8%)	154(30.8%)
21-24 years	212(42.4%)	108(21.6%)	320(64.0%)
25-28 years	14(2.8%)	10(2.0%)	24(4.8%)
29-32 years	2(0.4%)	0(0.0%)	2(0.4%)
Total	298(59.6%)	202(40.4%)	500(100.0%)

Eye care seeking behavior of participants

Out of the 500 participants, 365 (73.0%) reported having had an eye examination from a professional. Also, 197 (39.4%) had a positive history of spectacle wear. There was however statistically significant difference between sex and history of spectacle wear [$\chi^2(1)=11.79$, $p=0.001$]: women more likely to wear glasses than men.

However forty (40) participants were excluded because they either did not respond or provided incomplete answers to the questionnaires. Data was collected using a pretested structured questionnaire. The questionnaire gathered information on participants' demographics, eye care seeking behaviours, knowledge of refractive errors and their correction, and perception and attitude to spectacle wear.

The data collected was entered into a pre-designed Epi Info™ database file (software version 7, CDC, Atlanta, Georgia, US) and then imported into IBM SPSS 23.0 (IBM Corporation, Armonk, NY, US) for statistical analyses. Pearson chi-squared test was used to investigate significant associations between gender and outcome variables and p- values less than 0.05 were considered statistically significant. Permission to conduct the study was sought from the Department of Optometry and Visual, Kwame Nkrumah University of Science and Technology. Informed consent was also obtained from the participants after the purpose of the study had been explained to them. The investigators ensured confidentiality and anonymity of records and the information collected from participants were used solely for the purpose of the study. All procedures carried out in this study conformed to the principles of the Declaration of Helsinki.

Results

Demographics

A total of five hundred (500) students participated in the study. Out of this number, 298 (59.6%) were males and 202 (40.4%) were females. Results from Shapiro-Wilk test showed that, the age of the participants was not normally distributed [$W(500)=0.958$, $p<0.001$]. The mean (\pm SD) age of the participants was 21.51 (\pm 1.93) years and the age ranged from 17-32 years. There was a statistically significant difference in age between males (Mdn=22 years) and females (Mdn=21 years) ($U=23705$, $p<0.001$) (Table 1).

Further questioning revealed that 186 participants had been told that they needed spectacles, with 163 (87.6%) of them actually getting and wearing the spectacles. There was no statistically significant difference between "getting the glasses prescribed by a professional" and sex [$\chi^2(1)=0.05$, $p=0.827$]. The reasons cited for not "getting" spectacles/glasses by those who didn't get the spectacles [23(12.4%)] are summarised in Figure 1.

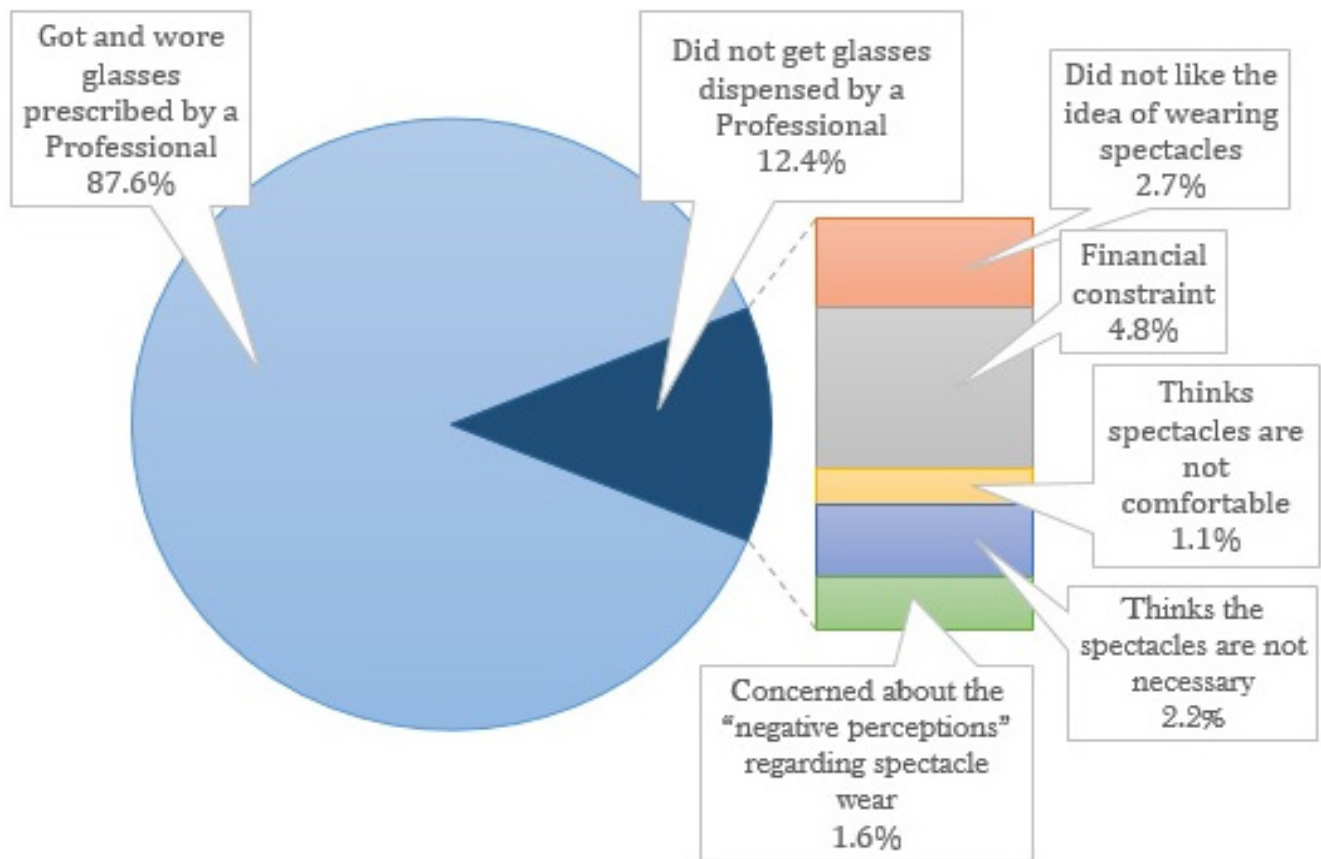


Figure 1 Proportion of participants that both got and wore glasses prescribed and those who did not get glasses dispensed.

Knowledge of refractive errors and their correction

When participants were asked whether they knew what refractive errors were, majority [379(75.8%)] responded in the affirmative. When further queried on the various methods of correcting refractive

errors, 326 (65.2%) respondents claimed they knew at least one method of correcting refractive errors: spectacles (38.5%) and contact lenses (25.9%) received the majority of the 746 multiple responses. The granular details from multiple response analysis are shown in Table 2 below.

Table 2 Knowledge of refractive error correction methods

Method of correction	Responses	Percentage of participants
	N (%) N=746	N (%) N=500
Spectacles	287 (38.5)	57.4
Surgery	132 (17.7)	26.4
Drugs/Medication	109 (14.6)	21.8
Contact Lens	193 (25.9)	38.6
Exercise	23 (3.1)	4.6
Prayers	2 (0.3)	0.4
Total	746 (100.0)	

Perception to spectacle wear

Psychosocial questions were asked to elicit information on the attitudes, beliefs and perception to spectacle wear among the 500 participants. Detailed results are summarised in Table 3. Pearson Chi-square analysis showed statistically significant differences between sex and these three questions: “Do you think spectacles

cause the eyes to be sunken/ pushed in?” [$\chi^2(1)=9.80, p=0.002$], “Do you think spectacles can relieve different forms of discomfort like headache, tearing and burning sensation?” [$\chi^2(1)=23.96, p<0.001$] and “Do people who wear spectacles appear to you as innocent and gentle?” [$\chi^2(1)=4.675, p=0.036$], with only the latter showing a male preponderance.

Table 3 Perceptions to spectacle wear

Sl no.	Question	Yes		Total
		Male (%)	Female (%)	
1	Would you wear spectacles if you were prescribed one by a professional?	38.4	22.6	61
2	Will the aesthetics of spectacles affect your decision to wear it or not?	38	26.8	64.8
3	Do you think spectacles will worsen your vision or damage your eyes?	21	16.2	37.2
4	Do you think spectacles cause the eyes to be sunken /pushed in?	28.4	25	53.4
5	Do you think spectacles are an inconvenience?	27.4	21.2	48.6
6	Do you think others will tease you for wearing spectacles?	16	11.8	27.8
7	Do you see people who wear spectacles as being visually impaired or having bad eyes?	32	22.2	54.2
8	Do you think people who wear spectacles appear intelligent/smart?	24.4	20	44.4
9	Do people who wear spectacles appear to you as innocent and gentle?	33.6	18.8	52.4
10	Do you think people who wear spectacles are fashionable?	23.4	13.4	36.8
11	Do you think people who wear spectacles look professional?	22.6	12.5	35.1
12	Do you think spectacles are meant for only old people?	7.2	7.4	14.6
13	Do you think people who wear spectacles are boring and uninteresting?	9.8	8.4	18.2
14	Do you think spectacles can relieve different forms of discomfort like headache, tearing and burning sensation?	15.4	19	34.4

Discussion

Five hundred (500) undergraduates from the Kwame Nkrumah University of Science and Technology in Kumasi, Ghana, partook of the present study, which sought to elicit their responses regarding attitude and belief towards spectacle wear. Out of this number, 298(59.6%) were males and 202 (40.4%) were females. The marginally higher male to female ratio (3:2) recorded in this study could be attributed to chance following the convenient sampling of participants. The results from Shapiro-Wilk test showed that, the age of the participants was not normally distributed [$W(500)=0.958$, $p<0.001$] and this observation could be explained on the account of the fact that the ages as seen in most undergraduate population were mostly skewed. The mean (\pm SD) age of the participants was 21.51 (\pm 1.93) years and a (range= 15, 17-32 years). This mean age very much typifies the mean age of the undergraduate population in most universities in the country. There was a statistically significant difference in age between males (Mdn=22 years) and females (Mdn=21 years) ($U=23705$, $p<0.001$). As shown in Table 1 above, majority of participants (64%) from both sexes were within the 21-24 years age range, which again, justifies the mean age obtained.

In assessing the eye care seeking behaviour of participants, 365 (73%) out of the 500 participants reported having had an eye exam from a professional. Since undergraduates are within the literate bracket of the general population, this could be an attribution of this positive eye care seeking attitude. There was, however, a statistically significant difference between sex and history of spectacle wear [$\chi^2(1)=11.79$, $p=0.001$]: women were more likely to wear glasses than men. This finding was supported by Congdon et al.²⁰ study.²⁰ In furtherance to this, Harris and Mary²¹ revealed in their research that, males considered the typical woman with glasses as sexier and more attractive than the typical woman without glasses, plus women with

glasses were viewed as more feminine. It is however interesting to note that this finding was in dissonance with a study by Bourne et al.²² in which men were significantly more likely to wear spectacles than women. The differences in these previous studies could be ascribed to cultural differences and socialization.

Further questioning revealed that 186 participants had been told they needed spectacles, with 163 (87.6%) of them actually getting and wearing the spectacles. There was no association between “getting the glasses prescribed by a professional” and sex [$\chi^2(1)=0.05$, $p=0.827$]. As shown in Figure 1 above, about thirteen percent of the participants had various reasons for not wearing spectacles. It is not surprising that majority stated financial constraints, since the cost of spectacle correction, in recent times, has become an issue for most patients, from anecdotal accounts. In addition, even though spectacles are the most cost-effective method for correcting refractive errors, these spectacles must also be fashionable especially in the university setting. There is a common saying that “life is too short to wear ugly spectacles”, as a result, they would rather not wear spectacles than wear something that is cheap but “ugly”.

The other reasons given, most of which were misconceptions, could potentially result from inadequate or lack of education on the subject matter to the populace. Generally, a greater number of participants who were told needed spectacles got and wore it probably because it was prescribed by a professional and also had good counsel regarding the use of spectacles. Doctor-patient relationship has been shown in researches by DiMatteo et al.²³ Vermeire et al.²⁴ and Zolnierok et al.²⁵ to affect patient compliance with medical consumables of which spectacle prescriptions are a part. Patients tend to accept what the doctor thinks is best for them even though, in some sense, patients have autonomy. Thus, patient-centred advice also goes a long way to improve compliance with medical consumables.²⁶

Other participants who felt wearing spectacles was unnecessary might have had refractive errors that were not so high, hence thought they could cope without the spectacles regardless of the mild symptoms associated with non-use. Negative comments and ridicule from friends is another factor that could be pretty compelling especially for the more apprehensive first timers and even those who have had a positive history of spectacle wear.

When participants were asked whether they knew what refractive errors were, majority 379(75.8%) responded in the affirmative. After further querying on the various methods of correcting refractive errors, 326 respondents claimed they knew at least one method of correcting refractive errors, with spectacles (38.5%) and contact lenses (25.9%) receiving majority of the 746 multiple responses. A study conducted by Desalegn et al.⁵ showed that educational status has an overall statistical association with knowledge about spectacles (overall $P < 0.001$). In their study to determine knowledge, attitudes, practice and associated factors towards spectacles use among adults in Gondar town, northwest Ethiopia, 90.6% of participants had adequate knowledge about spectacles. The university setting of this research may have accounted for the high number of participants who knew about refractive errors and spectacles as correction. The finding in this study however differed from that of Ebeigbe et al.¹² which was also among undergraduates. In their study, majority of the participants (68%) of the total population studied had not heard of refractive error. The percentage of participants who claimed spectacles to be one of the methods used to correct refractive errors were however similar- 38.5% in this study and 38% in the study conducted among Nigerian undergraduates. Participants mention of drugs, exercises and prayer as a means of correction should be a wake-up call to eye care professional so as to intensify education in that regard.

In order to determine the perceptions of undergraduates to spectacle wear, psychosocial questions were asked among the 500 participants as shown in Table 3 above. Pearson Chi-square analysis showed statistically significant differences between sex and three questions as stated in the results above: A similar trend is seen in a research carried out in Gondar Town Northwest Ethiopia to determine attitudes towards spectacles wear among its inhabitants. The findings in that study showed that 6.7% of the 780 participants reported not using spectacles even if prescribed because; it made their eyes look small. Furthermore, that same research, in assessing practice of spectacles wear among participants revealed that 15.4% of respondents had more than one reason for using spectacles (near, distance vision, fashion and protections)⁵ Another research by Adeoti²⁷ in determining the attitudes and beliefs towards spectacles wear reported that 18(23.68%) did not use prescribed glasses because they felt they would have sunken eyes. Adeoti's (2009) research also showed that some of the bad experiences such as, headache, and eye ache rather disappeared after spectacles were removed: a finding that was not consistent with the one in this study. Other researches in the area of binocular vision abnormalities have shown that glasses relieve symptoms of asthenopia, a syndrome that comprises, eye strain, tearing, headache, blurred vision etc.²⁸

Conclusion

Spectacles are still the mainstay correction method of refractive errors in the world. Compliance to spectacle wear is a necessary step in reducing the socioeconomic burden of visual impairment from refractive errors. Education, counselling and the propagation of information about refractive errors in schools and colleges by the various stakeholders would help in dispelling the fallacies and misconceptions about spectacle wear, even among the educated

population. A concerted effort from eye care professionals, public health experts, the mass media, and the ministries of health and education in Ghana, should thus, be the way forward.

Conflicts of interest

The authors declare that they have no conflict of interests regarding the publication of this manuscript.

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