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Barriers to Spectacle Lens Utilisation for Correction of Refractive Errors among Patients Undergoing Refraction at the Eye Clinics of Selected Tertiary Hospitals in Bauchi State, Nigeria

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Abstract: **Background: Correction of refractive errors with spectacle remains the most economical, non-invasive, and extensively accepted approach. This study is aimed at assessing the barriers to spectacle utilisation among patients undergoing refraction in tertiary hospitals in Bauchi State.**

Methods: The study employed a descriptive survey research design. The respondents consisted of 384 male and female patients, aged 18 to 80 years, undergoing refraction at the Eye Units of Abubakar Tafawa Balewa University Teaching Hospital, Bauchi and Specialist Hospital, Bauchi; who were conveniently and purposefully sampled. Their mean age was 46.0 ± 15.4 years and 47.9% were females. Respondents' demographics and barriers to spectacle utilisation were collected using questionnaires developed through the literature review. Pearson chi-square test was utilised to investigate associations between outcome variables with $p < 0.05$ considered statistically significant at 95% confidence level.

Results: 88.6% of the respondents stated that spectacle utilisation was very expensive; 75.6% and 84.4% cited that 'it was stigmatising' and 'it prevents normalisation of vision' respectively. There were also associations between gender and barriers to spectacle utilisation for refractive errors correction in these areas; 'It makes one look old' ($p=0.0099$) and 'It puts limitations to daily activities' ($p = 0.0008$).

Conclusion: The expensive nature of spectacle the major barrier to its utilisation with the associated perception that it makes one look old and prevents normalisation of vision. The study recommended effective enlightenment on the misconception towards spectacles as of refractive errors corrective measure.

Keywords: **Refractive errors, Barriers, Utilisation, Spectacle lenses, Misconception.**

1. INTRODUCTION

Clear and functional vision is vital for absolute commitment to learning, efficiency, independence, holistic health maintenance, and productive engagement in economic activities. The eyes play significant role in enabling individuals to accomplish their full potential. This is evident in the various support systems instituted by many communities to assist those with permanent vision impairment in navigating their environment and executing daily tasks unaided [1]. Hence, any harm to the eye's structure, health, or function can lead to various eye challenges such as refractive errors, cataracts, glaucoma,

strabismus (crossed eyes) and more. Therefore, good eye health maintenance is pertinent. However, a lot of people do not care about their eye health, which is why preventable vision loss are not addressed timely until further problems arise [2]. This may be associated with various barriers to utilisation of their corrective measures. However, having adequate understating of common eye challenges is critical in inspiring individuals to look for their cure; and adhere to the prescribed solutions such as spectacle utilisation for refractive errors correction [3]. These refractive errors comprise hyperopia (hypermetropia or farsightedness), myopia (short-sightedness), astigmatism, and presbyopia (old-age-sight). These eye defects can significantly impair individuals' visual status resulting in gross social and economic implications especially in developing nations if left unaddressed [4], [5]. They can substantially diminish one's quality of life, educational attainment, carrier prospects, and social relationships. Common symptoms include blurry vision, diplopia (double vision), excessive lacrimation (tearing), extreme light sensitivity (photophobia), eye fatigue or strain, itching, and occasional headache [6].

Refractive errors are visual defects that results from the inability of the eyes' optical systems to focus light from infinity effectively on the retina for clear vision, with accommodation relaxed, thereby resulting in blurred vision. Uncorrected refractive errors comprise a critical public health challenge due to their high prevalence. They constitute one of the leading causes of global vision impairments with an estimated 80% avoidable as reported by the World Health Organisation (WHO) [9]. Also, WHO estimated that globally, over 2.3 billion individuals are affected by refractive errors, and an alarming 670 million are visually impaired due to lack of access to corrective measures like spectacles. Moreover, a stunning 90% of these individuals live in rural and developing countries. Furthermore, a study conducted by the National Blindness and Visual Impairment Survey group in Nigeria (2005-2007) revealed that refractive errors were the cause of 1.4% of preventable blindness among individuals 40 years old and above, at the survey time [8], [9]. Avoidable (preventable) visual impairment or blindness is regarded as impairment or blindness that could be economically managed [10], [11]. Except remarkable commitment and resource allocation are made in pre-emptive measures, the number of people with avoidable visual impairments is likely to escalate, particularly in developing countries.

The precise underlying factors leading to refractive errors are not well defined. Frequently predisposing factors include: genetic predisposition, nutrition, environment, anterior-posterior length of the eye ball, and shape of the eyes' cornea [12]. Refractive errors can also be affected by various physiological factors, including age and diseases. There has not been any known way to prevent refractive errors; and it's not triggered or aggravated by prolonged eye use [12], [13]. It is a universal condition, impacting individuals of all walks of life, without bias towards gender, age, occupation, income level, or cultural background. It can be readily diagnosed, evaluated and managed with a variety of correction methods including spectacles, contact lenses, low vision devices and surgical intervention like photorefractive surgery [12]. The selection of correction is influenced by factors like cost, profession, socioeconomic status and hobbies. Failure to correct refractive errors on time can result in conditions like amblyopia (lazy eye), strabismus (half past 4 o'clock eye), and diplopia (double vision). These implications significantly impair an individual's educational performance, mental health, and social interactions [14]. Although refractive errors had been included into the national plans for the prevention of avoidable blindness; "VISION 2020 - The Right to Sight", launched by WHO and the International Agency for the Prevention of Blindness (IAPB) in 1999, which aimed to increase the access to affordable spectacles, the prevalence of uncorrected refractive errors remained high due to lack of awareness, limited demand for glasses, cultural beliefs, and misconceptions about wearing spectacles [7], [15], [16]. It could also be attributed to a shortage of skilled eye care professionals, leading to lack of access to accurate information and effective treatment, as well as financial constraints that makes it difficult to afford the necessary corrective devices [8]. This study tends to elicit the associated barriers to spectacle lens utilisation by patients undergoing refraction at the eye clinics of selected tertiary hospitals in Bauchi state, Nigeria.

A spectacle lens is an optical device comprising a pair of lenses mounted in a frame that rest on the nose and is secured by arms that extends over the ears, and aligned about 12 millimetres from the eyes [4]. Its use for refractive errors correction has a long history dating back to the middle ages (5th—15th century) and has remained the most economical, non-invasive and extensively acceptable solution due to its high success rate in improving visual acuity, and overall well-being [8]. But the societal framework allows individuals to dictate what treatments are acceptable for their eye challenges, resulting in a widespread lack of acceptance of spectacles as a treatment option for refractive errors even among the educated segment of the population [2]. Studies have revealed that without spectacle, individuals with uncorrected refractive errors are prone to face significant limitations in both schools and social settings as about 80% of all learning is visually mediated [17]. And, neglecting to mitigate poor eye health especially through spectacle utilisation can result in significant economic consequences globally, as the Lancet Commission reported that vision impairment led to an estimated US$411 billion

annual loss in productivity in 2020, based on conservative estimates. Moreover, addressing unaddressed refractive errors and cataracts is projected to cost US$244 and US$24.8 billion respectively [1].

Spectacles can function as shield to protect one's eyes, a disguise to conceal eye defects, a fashion statement to express style, and a status symbol to signify dignity [4]. However, the social stigma associated with spectacle utilisation can be a significant barrier, causing people to shy away from wearing them, even when they are provided at no cost due to the concerns about being viewed as blind or visually impaired. Despite the popular belief, individuals wear spectacle because it improves their visual acuity, enhance their physical appearance, boost their self-assurance, project an image of innocence and humility, and convey an impression of intelligence to others [16], [18]. Besides, there seem to be a significant association between gender and barriers to spectacle use which might encourage its utilisation. Furthermore, understanding the psychological mind-set of patients as regards barriers to spectacle use can help eye care professionals to develop effective strategies to address these concerns and improve compliance. By grasping the psychological dynamics at play, eye care professionals and decision-makers can develop strategies that address the needs of society, leading to an improved productivity and a reduction in the economic cost lost in productivity associated with uncorrected refractive errors at both global and national levels. The noticeable reluctance of patients undergoing refraction to accept spectacle for vision correction at the eye clinics in selected tertiary hospitals in the state motivated the conduct of this study to unravel the underlying factors. The evaluation of the study findings will equip stakeholders, including Government, Non-Governmental Organisations (NGOs), Educators, and Researchers, with essential evidence to inform and implement future health promotion strategies targeting the removal of barriers to spectacle utilisation and promoting its acceptance.

2. METHODOLOGY

Research Design

Descriptive survey research design was utilised, to achieve the purpose of the study.

Research Setting

The study was conducted at the Ophthalmology units of Abubakar Tafawa Balewa University Teaching Hospital, (ATBUTH), Bauchi and Specialist Hospital Bauchi (SHB), between June, 1 and August, 31, 2023, to assess the level of barriers to spectacle lens use for refractive errors correction. Their eye clinics were chosen among others in in the state because they have well equipped up-to-date clinical equipment and functional eye units, greater man power and patients turn-out. Their location in the state capital also serves as referral centres for other primary and secondary health centres within the state.

Study Population, Sample Size and Sampling Techniques

The study population comprised of 10,100 of the 27,260 adult patients, male and female aged 18 to 80 years old, undergoing refraction at the Ophthalmology Units of the two tertiary hospitals, seen in 2022; according to the Records and Health Information Units of the Eye clinics of the two hospitals [19]. The respondents' sample size was 384, calculated using William G. Cochran's formula (1977) for estimating sample size population proportion of a known population as follows:

$$N = Z^2 P \frac{(1-P)}{D^2}$$

Where:

P = estimated proportion of the outcome of the response assumed to be (50.0%) or 0.50 of the respondents' barriers to spectacle utilisation for refractive errors correction. (Since the proportion of the population with the characteristics was not known)

D = maximum acceptable sampling error (degree of precision) = (5.0%) or 0.05 in decimal notation:

Z = Normal deviation at the desired confidence interval. The value of the z-statistic at the 95% confidence interval level = 1.96.

N = minimum number of sample size (where target or total population > 10,000).

The (10.0%) non-respondents rate =10/100 x 384 = 34 was not taken into consideration because the possibility of drop-outs and unforeseen circumstance were rare, as the respondents were accessed as they visit the clinics to access eye care until the require sample size was reached. They were sampled through a multistage sampling procedure involving convenient and purposive sampling techniques, as not all patients accessing eye care services had need for refraction. A total of 384 were sampled, 192 from each of the two hospitals.

The criteria for inclusion in the study were male and female patients aged 18 years and above, undergoing refraction, as well as consent to participate in the study. A pretested, structured, self-administered questionnaire developed based on the literature review was utilised to collect quantitative data from the respondents. It was sectionally divided into (A and B), that gathered information on respondents' demographics, and level barriers to spectacle utilisation respectively.

Validity and Reliability of the Instrument

Three research experts established the validity of the instrument. Their observations and corrections were used for the final draft of the instrument.

The instrument's reliability was determined by test re-test method. It was administered twice within the interval of two weeks on fifty hospital workers from Federal Medical Centre, Azare, Bauchi State, who were not part of the study sample, but had the similar characteristics with the study population. The scores obtained on these two separate administrations were subjected to Pearson's Product Moment Correlation coefficient, which yielded a coefficient of 0.78 (r = 0.78). However, Cronbach's alpha statistics was further utilised to ascertain the instrument's internal consistency which yielded a coefficient of 0.832. Both coefficient values were high enough and were considered reliable for used in the study.

Method of Data Collection

Research and Ethical Clearance obtained from the Research and Ethics Committees, of the Bauchi State Ministry of Health, and ATBUTH, Bauchi, respectively, was submitted to the Heads of Ophthalmology Departments, SHB and ATBUTH, Bauchi, respectively before the study commenced. Copies of the questionnaire (384 in number) were administered by the researcher and three assistants who were briefed on the modalities of the instrument's administration. The questionnaires were collected back the same day they were given as soon as the respondents were done answering them. The process continued until the required sample size was reached.

Method of Data Analysis

Statistical Package for the Social Sciences (SPSS) version 23 was utilised for the data analysis. The results were calculated in frequencies and percentages. Tables were used to present the results for easy appraisal. The proportion of barriers to spectacle utilisation for refractive errors correction was computed using descriptive statistics. Pearson chi-square (X^2) test was used to assess the significant associations between the outcome variables and $P< 0.05$ was considered statistically significant at 95% confidence level.

Ethical Consideration

Permission for the study was obtained from the Ethics and Research Committee of the Bauchi State Ministry of Health, and ATBUTH, Bauchi, respectively. Informed consent was obtained from all the respondents and the study aims explained to them before the study. Confidentiality and anonymity was ensured with records and the information collected from the respondents and they were used solely for the study purpose. The study was also performed in accordance with the tenets of the Declaration of Helsinki, 2013.

3. RESULTS

Socio-demographic Characteristics

Table 1: Cross tabulation of age, gender and educational levels distribution of the respondents (n=384)

Age (years)	Male f (%)	Female f (%)	Total f (%)
18-38	74 (19.3)	61 (15.9)	135 (35.2)
39-59	91 (23.7)	78 (20.3)	169 (44.0)
60-80	35 (9.1)	45 (11.7)	80 (20.8)
Total	**200 (52.1)**	**184 (47.9)**	**384 (100.0)**

Education level			
Primary	40 (10.4)	20 (5.2)	60 (15.6)
Secondary	70 (18.2)	80 (20.8)	150 (39.1)
Tertiary	60 (15.6)	80 (20.8)	140 (36.5)
Non- formal	30 (7.8)	4 (1.0)	34 (8.8)
Total	**200 (52.1)**	**184 (47.9)**	**384 (100.0)**

Source: Researchers' questionnaire 2023.

Three hundred and eighty-four (384) respondents participated in the study, with 200 males (52.1%) and 184 females (47.9%), aged 18-80years (mean age: 46.0 ± 15.4). The age, gender and educational level distribution of the respondents were presented in (Table 1). The average ages of males and females were 44.9± 15.0 and 47.2 ± 16.0 respectively. Greater proportion of the respondents (79.2%) were between 18-59 years old, with the highest number in the 39-59 age range (44.0%) and lowest in the 60-80 age range (20.8%). Most respondents (75.6%), had secondary (39.1%), or tertiary (36.5%) education, while (24.6%) had primary (15.6%), or non-formal (8.8%) education; indicating a relatively educated population. The slim difference in the male-to-female ratio (1.1:1.0) might be attributed to serendipity arising from the convenient sampling method applied. The age range and education levels of the respondents imperatively signify that the selected tertiary hospital were likely locate in an educational community.

Table 2: Barriers to respondents' spectacle lens utilisation for refractive errors correction and the Pearson chi-square test results of hypothesis 1. df=1 (n=384)

Statement: Which of the following Seem to cause barriers to spectacle use?	**Male f(%)**	**Female f(%)**	**Total f(%)**	**X^2**	**P-value**
It doesn't make any difference to your eye vision					
Agreed	130(33.9)	120(31.3)	65.2	0.00	1.0000
It is stigmatising					
Agreed	140(36.5)	150(39.1)	75.6	6.83	0.0099
It makes one look old					
Agreed	120(31.3)	134(34.9)	66.2	6.83	0.0099
It makes one depend on it					
Agreed	80(20.8)	140(36.5)	57.3	51.05	9.0039
I feel headache					
Agreed	110(28.6)	120(31.3)	59.9	4.13	0.0421
It puts limitations to daily activities					
Agreed	80(20.8)	44(11.5)	32.3	11.32	0.0008
Teased for wearing spectacles by others					
Agreed	140(36.5)	120(31.3)	67.8	0.99	0.3197
It prevents normalisation of vision					
Agreed	160(41.7)	164(42.7)	84.4	6.07	0.0137
It causes injury to the eye					
Agreed	40(10.4)	84(21.9)	32.3	28.78	8.1084
It is very expensive					
Agreed	180(46.9)	160(41.7)	88.6	0.90	0.3428
Grand Value				**116.90**	**0.0000**

Source: Researchers' questionnaire 2023. Scale of barriers to spectacle utilisations: 0-49% low, 50-69% moderate, and 70-100% high. X^2_{cal} =116.90, $X^2_{0.05(1)}$ =3.841; P-value = 0.0000, Hypothesis rejected.

The result showed that the study respondents highly believed that: 'it is very expensive' (86.6%); 'it prevents normalisation of vision' (84.4%); 'it is stigmatising' (75.6%); and moderately that: 'teased for wearing spectacles by others' (67.8%); 'it doesn't make any difference in their vision' (65.2%); and 'it makes one look old' (66.2%) were barriers to spectacle utilisation for correction of refractive errors in the selected tertiary hospitals in Bauchi state (Table 2).

HYPOTHESIS 1. Ho1: There is no significant association between respondents' gender and barriers to spectacle utilisation for correction of refractive errors.

Table 2 showed the grand calculated Pearson chi-square value of 116.90 with the corresponding table value of 3.841 and a p-value of 0.0000. The hypothesis was rejected because the $X^2_{cal} = 116.90 > X^2_{0.05(1)} = 3.841$, p = 0.0000. This indicated that there was significant association between respondents' gender and barriers to spectacle utilisation for refractive errors correction in the selected tertiary hospitals in Bauchi State. The table further showed the calculated Pearson chi-square values for the following components of the respondents' gender and barriers to spectacle utilisation for refractive errors correction with their corresponding p-values that were significant: 'It is stigmatising' (X^2 = 6.83, p-value = 0.0099); 'It makes one look old' (X^2= 6.83, p-value = 0.0099); 'I feel headache' (X^2 = 4.13, p-value = 0.0421); 'It prevents normalisation of vision' (X^2 = 6.07, p-value = 0.0137); with significant barriers associated with female gender.(Table 2).

4. DISCUSSION

Barriers are seen as challenges that hinder the utilisation of an object. In this scenario, spectacles for refractive errors correction. The respondents in this study, were of the opinion that the following: 'it is very expensive 88.6%'; it prevents normalisation of vision 84.4%'; and 'it is stigmatising 75.6%'; 'it makes one look old 66.2%', were barriers to the use of spectacles for refractive errors correction. Others were: 'teasing by others for wearing spectacles 67.8%'; 'it doesn't make any difference in their vision 65.2%'; and 'it makes one depend on it 57.3%'. (Table 2).

The costly state of the spectacles as indicated by the study was in line with the studies carried out in Zaria, Nigeria; Mozambique, and Igabi, North-western Nigeria respectively [8], [10], [13]. The expensive nature of spectacles in these areas was responsible for non-uptake of spectacles as indicated by the respondents. The collaboration of public-private-partnership (PPP) by the hospitals for spectacle lens dispensing could be associated with the expensive nature of the glasses as seen in the study. In this case, both partners want to maximise profits thereby raising the cost of the spectacles. It could also be linked to the high supply price of the frames and lenses by the suppliers engaged by the hospitals to supply the consumables as a result of rising inflation in the country attributable to the currency devaluation against the dollar. To alleviate this challenge, provision of spectacles should be incorporated into the National and social health insurance schemes for its affordability. Besides, Non-governmental organisations involved in eye care services should extend a helping hands by collaborating with the hospitals to subsidise the cost of spectacle provisions to the masses. The concept of spectacle stigmatisation, teasing, makes no difference in vision, prevents normalisation of vision, and it makes one depend on it, was in tandem with the studies conducted in Ghana, and India respectively [11], [16], [18]. These myths about spectacle utilisation might be linked to ignorance, lack of socialisation, and defective information about the usefulness of spectacles in refractive errors correction. It could also be due to past ugly or negative experiences encountered from the use of incorrectly prescribed spectacles, as well as abnormally fitted glasses causing them to shy away from its utilisation. The unconventional or unorthodox designs and irregular or quirky shapes of some spectacle lenses might also constitute a factor. Lack of professionals in the eye field to provide the needed enlightenment on the significance of spectacles could also be an associated factor. On the other hand, some customs and values of the respondents could also be a factor. In some traditions, putting on spectacles could be seen as a mark of soft spot, senility or impaired vision, which could make individuals shy away from utilising them though they required them for clearer and comfortable vision. In this context, government and private organisations should endeavour to employ appropriate numbers of eye care professionals both at the towns and villages to foster efficient eye care services and enlightenment on the relevance of spectacle in the correction of refractive errors. With this, distorted facts, and misconceptions, common with spectacle usage among the masses could be eliminated.

5. CONCLUSION

The study indicated that despite the cited barriers of presumed expensive nature of spectacles as well as the perception the it was stigmatising; it makes one look old and it prevents normalisation of vision; spectacles still remained the most popular method of correcting refractive errors; as it cost effective, simple, non-invasive and most widely acceptable due to its high success rate in terms of visual acuity, and improved quality of life.

6. RECOMMENDATIONS

1. Patients undergoing refraction in any government approved eye clinic should be counselled on the benefits of spectacles for correction of refractive errors. This will help erase the misconceptions, and negative attitudes towards spectacles use.

2. Education, and enlightenment programmes about spectacles as a means of refractive errors correction should be propagated through various media of communications, public health experts, stakeholders in the eye sector and institutions of learning. This will help in curtailing the disinformation or distorted facts, along with long-standing stigmas associated with spectacles lenses utilisation among the masses.

REFERENCES

[1] International Labour Organisation. 'Eye health and the world of work', Geneva: International Labour Office; 2023.Available from: http://www.ilo.org/publns.

[2] Borode SB, Salawu RA. Knowledge and Acceptance of Corrective Measures for Refractive Errors Among Teachers in Selected Secondary Schools in Ido/Osi Local Government Area, Ekiti State. *International Journal of Medicine, Nursing & Health Sciences.* 2022; 3(2):25-34.

[3] Pallerla SR, Khanna RC. Krishnaiah S, Keeffe J. Awareness and knowledge about refractive errors and strabismus in South Indian population. *Int J Med Public Health.* 2022; 9(3):1312-1317. https://dx.doi.org/10.18203/2394-6040.ijcmph20220688

[4] Mukhaiseer MH, Faisal V. Attitudes and Beliefs of Students to spectacles wear for the correction of refractive errors in Dijlah University College. *DJSE.* 2021; 2(2):15-21.

[5] Vankudre GS, Noushad B. Barriers and Perception Towards Spectacle Wear among a Student Population of University of Buraimi, Oman. *Sultan Qaboos University Med J.* 2021; 21(3):416–422. https://doi.org/10.18295/squmj.4.2021.004

[6] Garg P, Malik M. Awareness of Presence of Refractive error among Rural North Indian Population. *Journal of Ophthalmology and Research.* 2020; 3(2):16-26.

[7] Sethu S, Bharani S, Phanindra BN, Rishi BR, Rahul A, Lisa K. Prevalence of refractive errors, uncorrected refractive error, and presbyopia in adults in India A systematic review. *Indian Journal of Ophthalmology.* 2019; 67(5): 583-592.

[8] Abdulsalam HO, Muhammad N, Pam V, Oladigbolu KK. Pattern of Ametropia, Presbyopia, and Barriers to the Uptake of Spectacles in Adult Patients Attending a General Hospital in Kaduna State. *Journal of the West African College of Surgeons.*2022; 12(1):28-33.

[9] Kyari F, Gudlavalleti MVS, Sivsubramaniam S, Gilbert CE, Abdull MM, Entekume G, Foster A. Prevalence of Blindness and Visual Impairment in Nigeria: The National Blindness and Visual Impairment Survey. *Investigative Ophthalmology & Visual Science.* 2009; 50(5):2033-2039.

[10] Bambamba J, Bambamba Â, Fereira G, Pires P, Cossa Y. Knowledge, Attitudes and Practices (KAP) about Refractive Error among Students Attending Faculty of Health Sciences at Lúrio University in Mozambique. 2020. *Open Journal of Ophthalmology.* 2022; 12: 57-69. https://doi.org/10.4236/ojoph.2022.121007

[11] Mireku A, Ebenezer E. Attitudes and Beliefs of Undergraduate Students to Spectacle Wear. *JOJ Ophthal.* 2017; 4(2): 1-5. https:// doi.org/00210.19080/JOJO.2017.04.555634.

[12] Grosvenor T. Primary Care Optometry. 4th ed. Butterworth-Heinemann; 2018. p. 29-30, 48,124-125,488-495.

[13] Rodge HY, Lokhande S. Refractive Error in Children. International Journal of Current Research and Review. 2020; 12(23):185-188. http://dx.doi.org/10.31782/IJCRR.2020.122307

[14] Ezinne NE, Mashige KP, Akano OF, Ilechie AA, Ekemiri KK. Spectacle utilisation rate and reasons for non-compliance amongst primary school children in Onitsha, Anambra state, Nigeria. *African Vision and Eye Health.* 2020; 79(1):16-19. https://doi.org/10.4102/aveh.v79i1.544

[15] Mukhaiseer MH, Faisal V. Attitudes and Beliefs of Students to spectacles wear for the correction of refractive errors in Dijlah University College. *DJSE.* 2021; 2(2):15-21.

[16] Acquah EK, Essien E, Ablordeppey R, Donkor R, Ankamah-Lomotey R, Nartey A. Attitudes and beliefs of undergraduate students to spectacle wear in Ghana. *Adv Ophthalmol Vis Syst.* 2018; 8(1):30–35.

[17] Smith E, Congdon N, Frick K, Kassalow J, Naidoo K, Sloan JA. Eyeglasses for Global Development: Bridging the Visual Divide. World Economic Forum 2018, June. Available from: https://www.weforum.org

[18] Boaitey O. (2018). Knowledge, Attitude and Perception of Spectacle Use Among Senior High School Students in Ghana. *International Journal of Healthcare Sciences.* 2022; 5(2):632-640.

[19] Department of Ophthalmology, ATBUTH, Bauchi, & SHB, Record unit. (2022).