

Knowledge and Acceptance of Corrective Measures for Refractive Errors Among Teachers in Selected Secondary Schools in Ido/Osi Local Government Area, Ekiti State

Author(s), BORODE, Samuel Busuyi (RN, RNEd, BNSc),
SALAWU, Rasidi Akinade (RN, PhD, FPNP, ADV.MGT, FWACN)

Abstract:

The study investigated level of knowledge and acceptance of corrective measures for refractive errors among secondary school teachers in Ido/Osi Local Government Area of Ekiti state Nigeria. The study objectives were to assess the knowledge of the respondents about refractive error and assess the level of acceptance of corrective eye glasses wearing among the respondents. A quantitative design, adopting descriptive approach was employed to seek responses from 275 secondary schools' teachers selected through multistage sampling procedure. A self-constructed questionnaire on Knowledge and Acceptance of Corrective Measures was used. The face validity and content validity were ensured. The reliability of the questionnaire was 0.74 using Pearson's Product Moment Correlation; while the 0.826 co-efficient of internal consistency was archived using Cronbach's Alpha method. Descriptive and inferential statistics were used to analyze the data collected. The findings revealed that 26.2% of the respondents scored below 8, 52.0% scored between 8 and 12, while 21.8% scored between 13 and 16 in the assessment of knowledge, this implies that majority of the teachers had fair knowledge. The study also revealed that the level of acceptance of wearing corrective eye glasses among secondary teachers was high. In

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addition, there was a significant relationship between knowledge and level of acceptance of corrective eyeglasses among teachers of secondary school. It was recommended among others that public awareness through electronic media, social media, and print media should be engaged to educate populace about needs of importance of corrective glasses in ameliorating refractive error and to disabuse the minds of the people about fear of going blind if usage of spectacles is upheld.

Keywords: Acceptance, Knowledge, Refractive errors, Corrective measures, Teachers,



About Author

Author(s):

BORODE, Samuel Busuyi (RN, RNEd, BNSc)

Department of Adult Health Nursing,
School of Nursing,
BABCOCK University, Ilishan-Remo,
Ogun State, Nigeria.

And

SALAWU, Rasidi Akinade (RN, PhD, FPNP, ADV.MGT, FWACN)

Professor of Nursing,
BABCOCK University, Illisan-Remo,
Ogun State, Nigeria.



Introduction

The eyes are sensorineural organs of the visual system. Human eye is a specialized sense organ of sight capable of receiving visual images which are carried to the brain for interpretation to effect clear vision. They provide human with vision and the ability to receive and process visual details, as well as enabling several photo response functions that are independent of vision. Despite this notable importance of vision which the eye performs in human, many people still don't care about the health of their eyes. This is why avoidable causes of blindness with little eye defects are not attended to by majority of the people that comes to eye clinics until complications sets in. Refractive error is a common cause of blindness which can easily be corrected using a simple and low cost implicative measure like spectacles wearing. But the society is structured in such a way that individual determines what should be accepted as a treatment modalities for their eye defect. This is why majority of people including our teachers who are elites still don't accept the uses of spectacles as a treatment option for common refractive errors.

A significant proportion of eye impairment and blindness results from refractive errors. Myopia and other refractive errors have been grouped among the leading cause of blindness and vision impairment worldwide as stated in vision 2020 projection. Refractive errors can affect anybody in the population regardless of age, gender, race, occupation, and ethnicity. Estimated populations of 442 million people across the globe are living with visual impairment (VI) out of which 36 million are reported blind (Flaxman, et al, 2017). The distribution of visual impairment globally is not equally spread, people living in low and middle income countries are most affected and this is estimated to be about 90%. If adequate intervention therefore is not initiated, the number of people living with VI will rise to 700 million by 2050. (Bourne, et al, 2017)

Refractive error is a disorder of optical power of the eye resulting in inability to focus light rays on the retina. Refractive error can also be said to be the inability of the eye to bend (refract) focused light sharply on a retina. The main symptom is blurred vision. Refractive errors are caused by a combination of genetic and environmental factors. Refractive errors can be corrected with glasses, contact lenses, and refractive surgery (Ayanniyi, et al., 2010). It has been observed over the years that people do not want to accept the uses of eye glasses as a way of correcting refractive errors. This is linked to lack of knowledge on the part of majority of the people.

The most cost-effective intervention for improving eye care is the correction of visual impairment with spectacles and with this; productivity and functionality of both children and adults would greatly improve. Some of the great qualities of spectacles used in correcting visual impairment are that, it is simple to use, it is non-invasive and inexpensive. However, compliance and acceptability of spectacles use by the clients with visual impairments is still expected so as to achieve these benefits. Many studies have shown that the compliance with spectacle use in children with visual impairment due to refractive errors is about one third or less (Bhandari, et al, 2016)

A wide range of modalities are available for the correction of refractive errors. They can broadly be divided into optical (spectacles, contact lenses) and surgical (refractive surgery). By definition, spectacles are made of a pair of lenses set in a frame worn on the nose



and ears in order to correct deficiencies in eyesight or to ornament the face. They are the cheapest and most commonly used form of refractive correction worldwide (Bassey, et al, 2018). One of the significant obstacle to eye glasses use in Nigeria is the beliefs that eye glasses damages the eye further (Ayanniyi, et al 2010).

Observations of the researchers over the years with experiences shown that teacher's knowledge about refractive errors and its preventive measures using corrective eye glasses was very inadequate. This might be because the teachers in Ido/Osi Local Government area of Ekiti State has little or no access to information to educate them about refractive errors' treatment and prevention. This situation informed the researcher's needs for this study on the "Knowledge and acceptance of corrective measures for refractive errors among teachers in selected secondary schools in Ido/Osi Local Government Area, Ekiti State. The study specifically assessed

- i. the knowledge level about corrective measures for refractive errors among secondary schools teachers in Ido/Osi local government area; and
- ii. the level of acceptance of corrective eye glasses wearing among secondary school teachers in Ido/Osi Local Government Area of Ekiti State.

Research questions

1. What is the knowledge level of secondary schools teachers in Ido/Osi local government area about corrective measures for refractive errors?
2. What is the level of acceptance of corrective eye glasses wearing among secondary school teachers in Ido/Osi Local Government Area of Ekiti State?

Research Hypothesis

Ho1: There is no significant relationship between the knowledge of the teachers and acceptance of corrective measures for refractive errors.

Methodology

The research was a quantitative type that employed cross-sectional method to assess the knowledge and the level of acceptance of corrective measures for refractive errors among selected secondary schools' teachers. The target population for the study consisted of 467 secondary School teachers in selected public Secondary Schools in Ido/Osi local government Area of Ekiti State. The sample size was determined using modified Fischer's formula (1998). The incidence of refractive errors in Ekiti State is 21.4% according to research study conducted by Iyiade et al., (2017).

Modified Fischer's formula (1998)

$$N = \frac{Z^2 P Q}{D^2}$$

Where P = 21.4% = 0.214

Z = 1.96

D = Error level = 0.05

Q = 1 - P

Q = 1 - 0.214 = 0.786

$$N = \frac{1.96^2 \times 0.214 \times 0.786}{0.05^2}$$



$$N = \frac{3.841 \times 0.214 \times 0.786}{0.0025}$$

$$N = \frac{0.646071564}{0.0025}$$

$$N = \underline{258.42 \cong 258}$$

10% Non-response = 258 + 26 = 284

Sample size (N) = 284 respondents.

284 Teachers was selected from the population and use for the study.

Multistage sampling procedure was used to select 284 teachers from the secondary schools in Ido/Osi local government area in Ekiti State. Data was collected using self-constructed questionnaire tagged Questionnaire on Knowledge and Acceptance of Corrective Measure (QKACM). The questionnaire includes section A which dealt with details of socio-demographic profile of the respondents. Section B consisted of questions regarding knowledge about refractive error and its corrective measures while section C consisted of questions regarding acceptance of the corrective measure for refractive errors.

The instrument was given to some experts in medicine, ophthalmology and nursing who ensured the face and content validity. The content validity was further subjected to empirical analysis using Lawshe (1975) formula called content validity ratio (CVR) with five experts each in medical-surgical nursing

$$CVR = \frac{n - (N/2)}{N/2}$$

Where n = number of experts indicated 'essential', N = Total number of experts. This was done for each item and a value between 0.60 and 1.00 per item was recommended by Lawshe. Fourteen items in knowledge and 10 items on acceptance made the final selection.

The reliability of the instrument was measured by using test re-test method; the instrument was administered twice on 28 teachers within the interval of two weeks. The teachers were not part of sample for the study, they were selected from Anglican Secondary School Ado Ekiti in Ado Local Government Area of Ekiti State. The scores obtained from the sampled teachers on two separate administrations were subjected to Pearson's Product Moment Correlation which yielded coefficients of 0.74. The reliability was further established by determining the overall internal consistency which was ascertained using Cronbach's alpha with co-efficient value of 0.826.

After obtaining informed consent from the respondents, the instrument was administered on 284 teachers by the researchers and three trained research assistants. The data obtained were summarized using descriptive analyses including frequency, percentages and table, measures of central tendencies (mean) and dispersions (standard deviation). Chi-square (χ^2) was used to test the hypothesis at 0.05 level of significance.

Results

Research Question 1: What is the knowledge level of secondary schools teachers in Ido/Osi local government area about corrective measures for refractive errors?

Table 1: Knowledge Level of Teachers on Refractive Errors



Variable	Criterion	Frequency	Percent	Mean±SD	Mode	Median
Poor knowledge	0-7	72	26.2	9.8109±3.17	12.00	10.00
Fair Knowledge	8-12	143	52.0			
Good Knowledge	13-16	60	21.8			
Total		275	100.0			

Table 1 indicated that the mean, mode and median scores were 9.8, 12 and 10 respectively. The teachers that scored between 0-7 (poor knowledge) were 72(26.2%), those that had fair knowledge 143 (52%) scored between 8-12 marks and those that were considered to have good knowledge were 60(21.8%) and scored between 13 -16 marks since maximum attainable mark was 16. It is implied from this table that the secondary school teachers in Ido/Osi local Government Area of Ekiti State had fair knowledge of refractive index error.

Research Question 2: What is the level of acceptance of corrective eye glasses wearing among secondary school teachers in Ido/Osi Local Government Area of Ekiti State?

Table 2: Acceptance of Corrective Eye Glasses among Secondary School Teachers

Acceptance of Corrective Glasses	Mean±SD	Comment
Wearing of glasses does not make one to see more clearly	2.25 ± 0.998	Accepted
Wearing of glasses may help one to read well	3.33 ± 0.780	Accepted
No poor vision can ever make me to wear glasses	2.00 ± 0.962	Accepted
No incentive can make me accept wearing of glass	2.27 ± 0.931	Accepted
No legal restriction can make me accept wearing of glasses	2.23 ± 0.867	Accepted
I can't never wear glasses even if it is medically prescribed	2.15 ± 1.069	Accepted
Spectacle wearing is cosmetically good and acceptable	2.74 ± 0.874	Accepted

Standard Mean = 2.5 SD=Standard deviation

Table 2 accounted for the acceptance of wearing of corrective glasses among Ido/Osi teachers. All the seven items on acceptance of wearing corrective glasses were accepted. "Wearing of glasses may help one to read well" had the highest mean±SD value (3.33±0.780) and "spectacle wearing is cosmetically good and acceptable" had the second highest mean±SD value of (2.74±0.874). It is therefore, implied that the level of acceptance of wearing of corrective glasses among secondary school teachers in Ido/Osi was high.

Test of Hypothesis

Ho1: There is no significant relationship between the knowledge of the teachers and acceptance of corrective measure for refractive errors.

Table 3: Relationship between knowledge and level of acceptance

Knowledge	Level of Acceptance		Total	Df	χ^2	P
	Rejection	Acceptance				
Poor knowledge	17	55	72	2	36.08	<0.001
Fair knowledge	65	73	138			



Good knowledge	45	14	59		
Total	127	142	269		

The significant relationship between knowledge level and acceptance was tested using chi-square statistical tool in Table 3. The Pearson's chi-square value was 36.08 and the alpha value was found out to be <0.001, this is less than significance level of 0.05 hence, it was significant, therefore the null hypothesis one stated above was rejected. It implies that knowledge of secondary school teachers in Ido/Osi Local Government Area of Ekiti is statistically related to acceptance of wearing of corrective glasses.

Discussion

The study revealed a little above one-fourth 72 (26.2%) teachers displayed poor knowledge on items on knowledge, 143(52%) teachers had fair knowledge and 60(21.8%) had good knowledge on corrective errors. This depicted a normal distribution. The fair knowledge obtained might be because majority of the respondents attained bachelor degree as their highest level of education. The overall result indicated fair knowledge among teachers in Ido/Osi LGA of Ekiti State. In a research study on knowledge in Gondar city, Northwest Ethiopia out of 565 study participants 316 (55.9%) had good knowledge. Among study participants, who had poor knowledge, 82(14.5%) didn't know what refractive error is (Abiy et al., 2018). Bassey et al., (2018) reported that 47% of patients with refractive error did not know what was wrong with their eyes, were unaware of appropriate treatment and did not know what spectacles were meant for. The result of the findings on knowledge was in agreement with findings of aforementioned authors' works. In contrast, Desalegn et al., (2016) reported that in Gondar town adult population has adequate knowledge on refractive errors.

The finding shows that level of acceptance of eye glasses among Ido/Osi LGA teachers was high as all the seven items on acceptance were accepted. "Wearing of glasses may help one to read well" (3.33 ± 0.780) and "spectacles wearing is for cosmetic reasons" (2.78 ± 0.874) were the major reasons identified. "I can never wear glasses even if it is medically prescribed" recorded 2.15 ± 1.069 mean value standard deviation. This acceptance level might be related to their academic attainment as majority of the respondents were bachelor degree holder and above and for the fact that majority were above 40 years that required corrective eye glasses. In Reddy et al., (2017) study investigated the possibilities of accepting corrective glasses by making it available free of charge and the clients were asked option to return if found unfit, it was recorded that acceptance level was high, no client returned the spherocylindrical correction spectacles given. In addition, Nausheen et al., (2018) findings reveals that 73% of children between ages of 2-15years sampled accepted the use of corrective glasses after diagnosed of anisometropia defect.

Reddy et al (2017) and Nausheen et al., (2018) findings were in line with each other by reporting high level of acceptance. Again, Bhandari et al. (2016) reported that the compliance with spectacle use in children with visual impairment due to refractive errors is about one third or less. However, the results of this study and Bhandari et al. (2016) results on level of



acceptance of corrective glasses were in variance with the two studies it may be as a result of location, awareness and level of funding of health sector by government.

Significant relationship was observed between the respondents' knowledge level and acceptance of corrective glasses. Significant relationship observed might be due to the fact that the fair knowledge acquired influenced the good acceptance of spectacle use among the respondents. This was at variance with the study of Ayanniyi et al. (2010) which reported no significant association between literacy levels and acceptance of corrective eyeglasses. Also, in another study by Ayanniyi et al., (2014), it was affirmed that level of knowledge was not significantly related to acceptance of acceptance of corrective glasses.

Conclusion

In accordance to the findings of this study, it could be concluded that the sampled secondary school teachers in Ido/Osi Local Government Area have fair knowledge on corrective errors with high acceptance level of corrective eyeglasses. In addition, the knowledge of the teachers was significantly associated with level of acceptance but age did not significantly relate to level of acceptance of wearing of corrective eyeglasses.

Recommendations

In view of the above findings the following recommendations are hereby suggested:

1. It was discovered that the teachers who are ought to be more knowledgeable in the society demonstrated fair knowledge on the questions asked, hence public awareness through electronic media(Television and radio), social media(Facebook, Instragram, Twitter etc), print (portals, handbills, billboard etc) should be engaged to educate populace about needs of importance of corrective glasses in ameliorating refractive error and to disabuse the minds of the people about fear of going blind if usage of spectacles are upheld.
2. In addition, visitations to schools, offices, market by ophthalmologists should be encouraged, this will go a long way to address the problem of refractive error before deterioration to major problems.
3. The Ekiti State Government through Teaching Service Commission are advised to prioritize eye test among teachers in order to boost their productivity and increase their awareness on refractive errors.

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