

## **APPROVAL FOR THE SUBMISSION OF BOUND PROJECT**

This is to certify that the student “**ADENIGBA FLORENCE OLAMIDE**” with the project topic titled “**PRESCRIPTION SPECTACLE WEAR COMPLIANCE AMONG UNIVERSITY OF BENIN STUDENTS**” has effected all the necessary corrections given by the external supervisors and is approved for submission: in partial fulfillment of the requirement for the award of **DOCTOR OF OPTOMETRY (O.D)** degree in 2020/2021 academic session.

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**PRESCRIPTION SPECTACLE WEAR COMPLIANCE AMONG UNIVERSITY OF  
BENIN STUDENTS**

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**UNIVERSITY OF BENIN**

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**PRESCRIPTION SPECTACLE WEAR COMPLIANCE AMONG UNIVERSITY OF  
BENIN STUDENTS**

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**A THESIS, SUBMITTED TO THE DEPARTMENT OF OPTOMETRY**

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**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF  
DOCTOR OF OPTOMETRY (O.D.) DEGREE**

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**CERTIFICATION**

This is to certify that this research project titled “**PRESCRIPTION SPECTACLE WEAR COMPLIANCE AMONG UNIVERSITY OF BENIN STUDENTS**”, was carried out by **FLORENCE OLAMIDE ADENIGBA** in the Department of Optometry, Faculty of Life Sciences, University of Benin in partial fulfillment of the requirement for the Doctor of Optometry degree in the 2020/2021 academic session.

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## **DEDICATION**

This work is dedicated to Almighty God, the author and the finisher of our faith, for His loving kindness and grace in my life. To my wonderful family and friends who with their presence in my life have been of great help.

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Firstly, I would like to return all the glory to Almighty God for the grace to see this work through to its conclusion.

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## ABSTRACT

This study aimed to determine the compliance and non-compliance of University of Benin students to prescription spectacle wears. Random sampling technique was used to select subjects from the various faculties in the university of Benin as a total number of three hundred subjects were selected which was made up of 233 females and 67 males as a semi-structured questionnaires were distributed to them, which had questions that would help determine compliance and non-compliance level. The questionnaires were given to subjects that are known to be prescription spectacle wearers and instructions were given as regard how to fill the questionnaires and the data were collated after the subjects had filled the questionnaires. The statistical test used for the analysis was the chi-square from the Package of SPSS (version 22.0) to check for the scores and variables obtained in the study. In conclusion, there were more female subjects than males subjects, and the level of compliance was found to be higher than level of non-compliance. The result showed that 76.3% of the subjects had their glasses from optometrist, 9.7% from ophthalmologist and optician respectively, while 4.3% from an outreach. The result also showed that 73 (24.3%) of the subjects believed that they often lose their eye glasses as reason for non-compliance while 227 (75.7%) of the subjects disagreed to the statement. It was also seen that 194 (64.7%) of the subjects disagreed that eye glasses are most useful to them only during exams, while 106 (35.3%) agreed.

## CHAPTER ONE

### 1.0

### INTRODUCTION

Refractive error that has not been corrected is the one of the major factor in vision impairment worldwide. Spectacles help with vision and are a crucial part of refractive therapies (Khandekar *et al.*, 2013). The simplest and most popular method of correcting refractive problems is with glasses, patients must wear their glasses with good compliance in order to do this. Patients' attitudes and perceptions of glasses and eye health may have an impact on whether they use their glasses or not. (Ebeigbe *et al.*, 2013).

The regular wearing of glasses prescribed for refractive errors such as myopia, hypermetropia, and astigmatism is referred to as spectacle wear compliance and can be measured by either observation or by asking the individuals (Dhirar *et al.*, 2020)

Myopia, amblyogenic hyperopia, astigmatism, and anisometropia are examples of refractive abnormalities in children that need prompt treatment. Children with untreated refractive errors experience poor academic development, injuries, decreased social engagement, and functional impairment. The most economical intervention for enhancing individual productivity and functionality is the correction of visual impairment with spectacle-wear. Spectacles have the advantages of being easy to use, non-intrusive, and reasonably priced. However, the effectiveness of these visual aids depends on end users' cooperation. (Dhirar *et al.*,2020).

According to recent evidence, many people have refractive error (RE), which causes visual impairment since they do not properly compensate for it. The most common cause of visual impairment (VI) in the world is refractive error, whose repair has been shown to greatly enhance

both visual performance and quality of life. Children with untreated refractive errors may develop amblyopia, which has a severe impact on their social, psychological, and academic development. Early vision evaluation enables quick refractive error correction, if necessary. This can enhance academic achievement and prevent a significant share of visual diseases, such as binocular vision anomalies.

Spectacles are optical devices made up of a frame that houses a pair of lenses for protection, style, and the correction of vision problems (distance and/or reading) and for achievement of confidence.

Spectacles are the most economical way to universally correct refractive error. Even if refractive error is easily corrected with spectacle-wear, only 1.8 billion people worldwide have access to eye exams and reasonably priced treatment. Approximately 500 million individuals, the majority of whom are from developing nations (about a third are in Africa), lack access to eye exams and corrective procedures, which raises their risk of visual impairment and blindness. Numerous settings, including rural China (60%), suburban Chile (50%) and native Americans (49%), have found a high percentage of children who could benefit from spectacle correction but who do not yet possess or wear glasses. Due to concerns with accessibility and affordability, providing spectacle-wear is now difficult in many developing nations. According to studies, less than one-third of children worldwide who have vision impairment due to refractive error wear corrective lenses. Vision 2020 prioritizes correcting refractive errors, however efforts to do so will be ineffective if eyewear is not worn. Therefore, every effort should be taken to remove barriers to the accessibility and usage of eyewear.

The non-acceptance of prescribed corrective glasses in Nigeria is attributed to a number of factors, including cost, lack of knowledge of refractive status, and lack of awareness of a potential remedy for impaired vision.

This is mostly the result of the poor, and occasionally nonexistent, eye care facilities in various regions of Nigeria. Cultural norms that regard children's or young people's usage of spectacles to be inappropriate in Nigeria make the matter worse. Few research have been conducted to look into the variables that affect children's use of spectacles, despite the poor rates of compliance with spectacle use worldwide. The studies that are now available on this topic have mostly concentrated on post-cataract surgery amblyopic children and adults, which are not generally representative of the population. Few studies, the majority of which were carried out outside of Africa have looked at children's use of spectacles and risk factors for non-compliance.

The use of spectacles and the causes of non-compliance with wearing spectacles in each community must be determined through local research because they vary from one locality to another for a number of reasons. Tribal, ethnic, regional, religious, and cultural elements are among them. The goal of this study was to ascertain the prevalence of spectacle-wear and the causes of non-compliance.

## 1.1 BACKGROUND INFORMATION

### 1.1.1 Types of refractive errors

One of the most typical eye conditions is refractive error. It happens when the eye's ability to focus outside images clearly is compromised. Refractive errors cause hazy vision, which can occasionally be so bad that it impairs vision.

Refractive error include:

- **Myopia (Nearsightedness):** which makes it challenging to see distant objects clearly.
- **Hyperopia (Farsightedness):** which makes it challenging to see properly up close objects.
- **Astigmatism:** a crooked cornea, the transparent covering of the eyeball, causes blurred vision.
- **Presbyopia:** This age-related condition, which makes it difficult to read or see objects far away, is practically universal.

Although refractive errors cannot be avoided, they can be identified during an eye exam and corrected using corrective lenses, such as spectacle-wear or eyeglasses, contact lenses, or through refractive surgery. They do not prevent the full development of good visual function if treated promptly and by eye-care specialists. Depending on the flaw, the person's age, and the demands of the activity being performed, correction is given in a variety of ways.

According to the WHO, 153 million individuals worldwide suffer from untreated refractive errors, which impair vision. This number does not account for those who have untreated presbyopia, which is likely to be a considerable portion of the population.

Efforts have been made by WHO, its Member States, and partners to offer high-quality, locally relevant, affordable corrective refraction services to people in need, especially in poor areas with limited eye care services.

When parallel light rays from infinity (with accommodation at rest) are focused in front of or behind the sensitive layer of the retina, in one or both meridians, this condition is known as refractive error, also known as ametropia. (Khurana 2007) Myopia, hypermetropia, astigmatism, and presbyopia are examples of refractive error.

Refractive error is the term used by eye specialists to describe when the shape of the eye prevents light from focusing properly on the retina. To allow one to see clearly, the cornea and lens combine to bend light onto the retina, the area of the eye that is most sensitive to light. Light will bend away from or not focus directly on the retina if the eyeball, cornea, or lens aren't the proper form.

### **Hyperopia:**

This is also known as hypermetropia or long sightedness, and it is a refractive condition that occurs when parallel rays of light coming from infinity come to a point focus behind the retina i.e. the focal point is behind the retina. Hyperopia occurs when the axial length of the eye is shorter than normal, or the cornea is flatter than normal, hence light rays are focused beyond the retina.

There are three clinical classifications of hyperopia;

1. Simple hyperopia; that occurs normally due to normal biological variations in humans.
2. Pathological hyperopia; this is congenital or acquired, and could arise due to disease conditions, trauma or abnormal development.

3. Functional hyperopia; this occurs due to paralysis of muscles that aid accommodation as seen in patients with third nerve paralysis etc.

- Etiology:

Hyperopia may be axial, curvature, index, positional and due to absence of crystalline lens

1. Axial hyperopia is the commonest, here the refractive power is normal, but there is an axial shortening of the eyeball.
2. Curvature hyperopia is a condition where the curvature of the cornea or lens or both is flatter than normal, hence reducing the refractive power of the eye.
3. Index hyperopia occurs due to decrease in refractive index of the lens in old age.
4. Positional hyperopia results from posteriorly placed crystalline lens.
5. Absence of crystalline lens either congenitally or acquired leads to aphakia- a condition of high hyperopia.

- Signs and symptoms

Signs;

1. The size of the eyeball will appear smaller than normal
2. The cornea may appear smaller than normal
3. The anterior chamber is shallow

Symptoms;

1. Blurry vision
2. Eye strain
3. Frontal headaches

4. Defective vision and poor depth perception may also occur

- Complications;

Complications that could arise from hyperopia include;

1. Accommodative esotropia may arise in children, due to the excessive use of accommodation.
2. Amblyopia may set in, which could be due to large uncorrected hyperopia difference in both eyes (anisometropic amblyopia), or as a result of the excess accommodative esotropia that has set in place (strabismic amblyopia).
3. Due to fatigue, individuals may take relief from excessive eye rubbing which could predispose one to infections e.g. blepharitis, etc.

- Treatment;

Hyperopia can be treated in various ways, or using various techniques which includes, use of corrective spectacle lenses, use of contact lenses, or by surgical methods.

Spectacle lenses used in hyperopia are of the convex or converging type, these lenses help to converge light rays in order to bring it to a point focus on the retina.

Surgical treatments include

1. Photorefractive keratectomy; where there is removal of a minimal amount of the cornea.
2. Laser assisted in situ keratomileusis; here the cornea is reshaped and after this patients no longer have need for spectacles or contact lenses.
3. Laser epithelial keratomileusis; here alcohol is used to loosen the corneal surface.

## **Myopia:**

This is also known as short sightedness, it is a condition where light rays coming from infinity come to a point focus in front of the retina.

- **Etiology**

1. Axial myopia occurs due to an increase in anteroposterior length of the eyeball. It's the most common.
2. Curvature myopia occurs due to increased curvature of the cornea, lens or both, and hence the refractive power of the eye is increased.
3. Positional myopia is produced by anterior placement of crystalline lens in the eye.
4. Index myopia results from increase in the refractive index of crystalline lens associated with nuclear sclerosis.
5. Myopia due to excessive accommodation occurs in patients with spasm of accommodation.

Based on clinical appearance, various forms of myopia have been identified;

- Simple myopia; which is the commonest, is one who dioptric ranges from less than 4.00-6.00 diopters.
- Degenerative or Pathologic myopia; this is characterized by retinal or fundus changes, posterior staphyloma and a very high refractive error this is called degenerative myopia because it usually gets worse over time.
- Signs and symptoms  
Some of the signs of myopia include;
- Prominent eye balls. The eyes are often prominent, appearing elongated and may even simulate an exophthalmos, especially in unilateral cases.

- Cornea is large.
- Anterior chamber is deep.
- Pupils are slightly large and react sluggishly to light
- On fundoscopy, optic disc is observed to be larger and pale, and in the degenerative type abnormal fundus findings and anterior staphyloma are observed.

Symptoms include;

- Poor distance vision.
- Squinting
- Excessive blinking
- Eye rubbing
- Complications; These include;
  1. Retinal detachment
  2. Complicated cataracts
  3. Vitreous hemorrhage
  4. Angle closure glaucoma

- Treatment

Myopia is basically corrected with the use of a spectacle lens prescription (concave or diverging lens). This helps to diverge the rays of light entering the eyes to bring them to a point focus on the retina.

Contact lenses are also used, especially in cases of high myopia, due to the fact that the lenses become too thick and therefore cosmetically unappealing.

Refractive techniques have also been employed, one of which is known as Orthokeratology- a refractive procedure that involves flattening of the cornea.

### **Astigmatism**

Astigmatism is a type of refractive error wherein the refraction varies in the different meridians. Consequently, the rays of light entering in the eye cannot converge to a point focus but form focal lines. Broadly, there are two types of astigmatism: regular and irregular.

- **Regular astigmatism**

The astigmatism is regular when the refractive power changes uniformly from one meridian to another (i.e., there are two principal meridians).

- **Etiology**

1. Corneal astigmatism is the result of abnormalities of curvature of cornea. It constitutes the most common cause of astigmatism.

2. Lenticular astigmatism is rare. It may be:

- i. Curvature due to abnormalities of curvature of lens as seen in lenticonus.

- ii. Positional due to tilting or oblique placement of lens as seen in subluxation.

- iii. Index astigmatism; this may occur rarely due to variable refractive index of lens in different meridians.

3. Retinal astigmatism due to oblique placement of macula may also be seen occasionally

Depending upon the axis and the angle between the two principal meridians, regular astigmatism can be classified into the following types:

- *With-the-rule astigmatism*. In this type the two principal meridians are placed at right angles to one another but the vertical meridian is more curved than the horizontal.
- *Against-the-rule astigmatism* refers to an astigmatic condition in which the horizontal meridian is more curved than the vertical meridian.
- *Oblique astigmatism* is a type of regular astigmatism where the two principal meridians are not the horizontal and vertical though these are at right angles to one another (e.g.,  $45^\circ$  and  $135^\circ$ ).
- *Bioblique astigmatism*. In this type of regular astigmatism the two principal meridians are not at right angle to each other e.g., one may be at  $30^\circ$  and other at  $100^\circ$ .

Depending upon the position of the two focal lines in relation to retina, the regular astigmatism is further classified into three types:

- *Simple astigmatism*, wherein the rays are focused on the retina in one meridian and either in front (simple myopic astigmatism) or behind (simple hyperopic astigmatism) the retina in the other meridian
- Compound astigmatism. In this type the rays of light in both the meridians are focused either in front (compound myopic) or behind (compound hyperopic) the retina.
- Mixed astigmatism refers to a condition where the light rays in one meridian are focused in front and in other meridian behind the retina. Thus in one meridian eye is myopic and in another hyperopic.

Symptoms of regular astigmatism include:

- (i) Defective vision;
- (ii) blurring of objects;
- (iii) objects appear distorted

(iv) asthenopic symptoms, these consist of a dull ache in the eyes, headache, early tiredness of eyes and sometimes nausea and even drowsiness.

Signs include;

1. Different power in two meridian is revealed on refraction.
2. An oval or tilted optic disc may be observed on ophthalmoscopy in patients with high astigmatism.
3. Head tilt. The astigmatic patients may (very exceptionally) develop a torticollis in an attempt to bring their axes nearer to the horizontal or vertical meridians.

- Treatment

1. Optical treatment of regular astigmatism comprises the prescribing appropriate spectacle cylindrical lens correction.
2. Contact lenses. Rigid contact lenses may correct up to 2-3 of regular astigmatism, while soft contact lenses can correct only little astigmatism. For higher degrees of astigmatism toric contact lenses are needed.

Irregular astigmatism

In this type, the principal meridians are not perpendicular to one another.

Etiology

1. Curvature astigmatism is found in patients with extensive corneal scars or keratoconus.
2. Index irregular astigmatism due to different refractive index in different parts of the crystalline lens.

Symptoms of irregular astigmatism include:

- Defective vision,
- Distortion of objects

- Polyopia.

Treatment

1. Optical treatment of irregular astigmatism consists of contact lens which replaces the anterior surface of the cornea for refraction.
2. Phototherapeutic keratectomy (PTK) performed with excimer laser may be helpful in patients with superficial corneal scar responsible for irregular astigmatism.

### **Presbyopia**

Presbyopia is not an necessarily error of refraction but a condition of physiological insufficiency of accommodation resulting from the decreased elasticity and plasticity of the lens due to advancing age (usually after the age of 40 years) leading to failing vision for near. It's a normal part of aging that occurs due to lens sclerosis. It is the leading cause of near visual impairment (World Health Organization).

Symptoms include;

Difficulty reading tiny prints, hence always pulling materials farther away.

Eye pain or headache after close work.

For the purpose of this study, myopia, hypermetropia and astigmatism is looked at because of the age group of the subjects used for this study.

#### **a. Myopia**

Myopia is one of the most common ophthalmological diseases in the world. The prevalence has almost doubled worldwide within the past two decades, and the age of onset is decreasing at an alarming rate. It is well known that the younger a patient acquires myopia, the faster the progression is. In some patients, the progression can be unrelenting, leading to excessive myopia and inevitable consequences such as retinal detachment, macular hemorrhage and scarring, glaucoma, and myopic strabismus fixus.

(Young 1997) defines myopia in terms of visual performance and suggests a connection between the condition and close tasks, such as reading. There is proof that myopia cannot be passed down in a straightforward manner. There is research citing the behavioral induction of monkeys' reversible myopia. Myopia may begin to develop slowly in both young and old eyes, but once it does, it advances further and more quickly in young eyes. The onset may be a two-stage process that starts with a long-term increase in vitreous body volume and evolves to a chronic accommodation increase under stimulus control. The ciliary muscle is blamed, and experiments showing improvement in myopia after prolonged pharmacological paralysis of this muscle are detailed. Myopia has also been reported arrested in some young children who wore positive corrective lenses while reading.

#### **b. Hypermetropia**

Similar to myopia, hypermetropia is an axial refractive error that is most frequently brought on by a decrease in the anteroposterior diameter of the eye. In young children, hypermetropia is common and typically gets worse with age. In young patients, moderate hypermetropia is typically easily tolerated. Hypermetropia should be treated with prescription lenses if it is severe

or linked to functional abnormalities. Contrary to myopia, definitive surgical therapy for hypermetropia is not currently standard practice. (Chaine *et al.*, 1993).

### **c. Astigmatism**

The eyes' ability to focus at both near and vast distances is hampered by astigmatism. This makes it challenging to do visual tasks like reading, driving (especially at night), focusing on the whiteboard and computer screen, and produces distortion, blurred vision, eye strain, and headaches.

The variation in the eye's refractive strength along different meridians results in astigmatism, a frequent refractive error. Due to this, there are two line foci that are impossible to eliminate by adjusting the viewing angle or accommodating. Although astigmatism has been linked to a variety of conditions in human studies, its exact origin is still unknown (Chen *et al.*, 2014) inaccuracy that needs to be corrected Irvin *et al.*, (1975).

Uneven astigmatism may be brought on by inflammatory or degenerative processes (including opacities), pterygia, or the healing of wounds. (Irvin *et al.*, 1975; Emerole 1992; Ekor *et al.*, 2006). Astigmatism is the most widely prevalent refractive error that presents for correction (Irvin *et al.*, 1975). Inflammatory or degenerative processes (including opacities), pterygia or healing of wounds may cause irregular astigmatism (Irvin *et al.*, 1975; Emerole 1992; Ekor *et al.*, 2006).

## **1.1.2 Treatment of refractive errors**

The majority of refractive problems can be effectively treated with the right refractive correction. If excessive refractive error is not treated in early childhood, it might cause amblyopia, which can impair vision permanently. Refractive surgery, contact lenses, or eyeglasses are all options for correcting vision. Given that they are the cheapest and most straightforward of the three refractive correction alternatives, spectacle-wears are the refractive error treatment that is most frequently utilized in underdeveloped nations. However, those living in industrialized nations have easier access to and can afford all three types of refractive error treatment. With differing degrees of blindness, many tactics have been explored to boost the accessibility and cost of decent-quality spectacle-wear. Different strategies have been tried to increase the availability and affordability of reasonable-quality spectacle-wears, with varying degrees of blindness.

## **1.2 STATEMENT OF PROBLEM**

In most societies, there is this notion that people who wear glasses are nerdy, shy, awkward, weak, clumsy, and sometimes even visually handicapped. This results in name calling and teasing among individuals, which affects a patient's mental health and general wellbeing, as teasing is a form of bullying, and bullying affects an individual's self-worth, confidence, and overall mental health and this made the individuals to not comply to prescribed spectacle-wear.

## **1.3 AIM AND OBJECTIVES OF STUDY**

### **1.3.1 Aim of study**

The aim of this study is to determine the level of compliance to spectacle-wear among University of Benin students.

### **1.3.2 Objectives of study**

1. To assess the level of compliance to the use of spectacle-wear among undergraduates.
2. To determine their attitudes towards the use of spectacle-wear.

#### **1.4 RESEARCH QUESTION**

What is the level of compliance to the use of prescription spectacle wear among undergraduates?

#### **1.5 SIGNIFICANCE OF STUDY**

This study will determine the level of compliance to spectacle-wear among undergraduates and the findings properly documented will act as reference point for further research in the line of the study.

#### **1.6 DEFINITION OF TERMS**

**Compliance:** This is the act of obeying an order, rule, or request. In general, compliance means conforming to a rule, such as a specification, policy, standard or law.

**Spectacle wear:** This is also known as eyeglasses. People who have defective vision need spectacles to see properly. Spectacles have two main parts; the lenses and the frames that hold the lenses.

## **CHAPTER TWO**

A study carried out by Aaron *et al.*, (2006) carried out a study on the prevalence and determinants of compliance with spectacle-wear among school-age children in Oaxaca, Mexico, who were provided spectacles free of charge. A cohort of 493 children aged 5 to 18 years chosen by random cluster sampling from primary and secondary schools in Mexico, all of whom had received free spectacles through the local program, underwent unannounced, direct examination to determine compliance with spectacle wear within 18 months after initial provision of spectacles. Potential determinants of spectacle-wear including age, gender, urban versus rural residence, presenting visual acuity, refractive error and time since dispensing of the spectacle-wears were examined in univariate and multivariate regression models. Children not currently wearing their spectacle-wears were asked to select the reason from a list of possibilities, and reasons for noncompliance were analyzed within different demographic groups. Among this sample of children with a mean age of  $10.4 \pm 2.6$  years, the majority (74.5%) of whom were myopic (spherical equivalent [SE]  $\leq -0.50$  D), 13.4% (66/493) were wearing their spectacles at the time of examination. An additional 34% (169/493) had the spectacles with them but were not wearing them. In regression models, the odds of spectacle-wear were significantly higher among younger (OR = 1.19 per year of age; 95% CI, 1.05–1.33) rural (OR = 10.6; 95% CI, 5.3–21.0) children and those with myopia  $\leq -1.25$  D (OR = 3.97; 95% CI, 1.98–7.94). The oldest children and children in urban–suburban areas were significantly more likely to list concerns about the appearance of the spectacle-wears or about being teased than were younger, rurally resident children. They concluded that compliance with spectacle-wear may be very low, even when spectacle-wears were provided free of charge, particularly among older, urban children, who have been shown in many populations to have the highest prevalence of myopia. They opined

that as screening programs for refractive error become increasingly common throughout the world, new strategies are needed to improve compliance if program resources are to be maximized.

Kang *et al.*, (2021) carried out a study on the factors determining spectacle-wear compliance and reasons for non-wear among students in rural China. This study was based on a spectacle intervention trial among 162 schools in rural China. Students with refractive errors were randomly assigned to either a free or voucher group to receive spectacles at baseline. Spectacle-wear compliance was assessed through an unannounced follow-up 7 months after spectacle-wears were distributed. Students not wearing spectacles were also asked their reasons for non-wear. The collected data underwent descriptive, bivariate, and logistic regression analyses. A total of 1904 students received spectacle-wears at baseline, 1826 (95.9%) of whom were present at the 7-month follow-up. Among those students, 41.7% wore their spectacles. There was no significant difference in compliance rates between the free and voucher groups. Predictors of wearing spectacles at follow-up included older age (Odds ratio = 1.56, 95% CI: 1.12–2.19), the severity of refractive error (3.68, 2.23–6.07), wearing spectacles before baseline (3.91, 2.53–6.04) and having friends who wore spectacles (1.87, 1.32–2.63). When students could see the blackboard from their seats (0.68, 0.51–0.89) and thought that wearing spectacles was bad looking (0.76, 0.57–1.00), they were reluctant to wear spectacles. The two main reasons for non-wear were the widespread perception that wearing spectacles would weaken eyesight (32.8%) and the inconvenience of wearing spectacles during activities (23.6%). The main reason that accounted for the low compliance of spectacle-wear was misconceptions around spectacle. They concluded that school-based spectacle programs should consider enhancing the compliance rates to maximize the benefits of spectacle wear.

Omolase *et al.*, (2009) carried out a study on Factors Associated With Non-compliance with Spectacle Wear in an Adult Nigerian Population. This study aims to determine the degree of compliance of patients with spectacle wear and the factors associated with non-compliance. A total number of one hundred patients were selected and interviewed by the author for correspondence and two assistants. With the aid of semi-structured questionnaires, the information sought after collecting bio-data, included respondents' duration of spectacle correction and how often they wore their pair of spectacles. Those who wore their pair of spectacles at all times for the intended purpose for which the glass was prescribed such as distance vision, near (reading) vision, or both, were regarded as using it "always". Those who wore theirs to a lesser degree but for more than 50% of times were regarded as using it "often". The "occasional" wearers were those who used it for less than 50% of the times. Each respondent was also asked to identify the possible factors associated with non-compliance with spectacle wear. Majority (71%) used their spectacle occasionally while the remaining few (29%) used it often. The reasons cited for not complying with spectacle correction were lack of felt need (58%), spectacle intolerance (28%) and ignorance (14%). Majority of respondents wore their glasses only occasionally. The reasons for not complying fully with spectacle correction were lack of felt need which might have cultural underpinnings, spectacle intolerance, and ignorance of the attendant dangers of not seeing clearly while not wearing their pairs of glasses. Appropriate health education and improvement in optical infrastructures will assist in remedying the poor compliance culture with the wearing of glasses in Nigeria.

Green *et al.*, (2010) in a study conducted on parent eyeglass wear compliance concluded that response rate to the initial mailing was 20.7%, and to date, the response rate is 30.6%. Responses indicated that 34.3% of children's glasses were currently lost or broken. The most common

reasons parents/guardians reported related to why they think their child may not be wearing their glasses included: 36.4% only wears glasses when feels like he/she needs them, 29.9% of the children's spectacle-wears are broken, scratched, or lost, 37.7% forgets to bring the glasses to school, or forgets to bring them home, 23.4% glasses are uncomfortable or do not fit well, 46.8% takes them off when he/she goes out to play so they don't get broken. On a scale from 1 to 5, with 1= never and 5= always the average rate of glasses wear was 3.40 in general, 4.36 at school, and 3.25 at home. Parents rated importance of glasses wear on average as 4.56, with 1= not at all important and 5= extremely important.

This descriptive cross-sectional study carried out by Kobia-Acquah *et al.*, (2018) on Attitudes and Beliefs of Undergraduate Students to Spectacle Wear in Ghana, 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 was 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. In 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.

Clifford *et al.*, (2006) in a study conducted on determining factors associated with eyeglass wearing compliance in school-age children: suggested that surveys such as the one conducted here may be a valuable tool for helping to identify important factors associated with eyeglass wearing compliance because the results of their study were promising. They concluded that further study and development of the questionnaire may provide more definitive results and insights into the factors most strongly associated with eyeglass wear.

Aldebasi *et al.*, (2013) conducted a study on compliance of spectacle-wear in children of primary schools at Qassim Province, Saudi Arabia. The non-compliance rate of spectacle-wear in primary school children was 66.80%. A significantly higher proportion of boys 244 (69.13%) were not wearing their spectacles compared to girls 178 (64.03%) ( $p < 0.05$ ). Non-compliance was not related to age of the students ( $p < 0.05$ ), but older and myopic children were slightly more non-compliant. The main reasons for non-compliance in primary school boys and girls for using spectacles were disapproving spectacle-wear by parents, broken spectacles and many children felt spectacles were not needed or caused head ache. They concluded that comprehensive eye care for primary school children with refractive error was practiced in Qassim Province, but limited information was available on the magnitude of the compliance for spectacle wear and their reasons. School children were not compliant because of many issues that could and should

be addressed. This information was deemed crucial for establishing a program and would strengthen its efforts for better eye care in primary school children with refractive errors.

Ezinne *et al.*, (2020) carried out a study on spectacle utilisation rate and reasons for non-compliance with wearing of spectacles amongst primary school children in Onitsha, Anambra state, Nigeria. A stratified random cluster sampling procedure was used to select children aged 5–15 years in 17 primary schools. A total of 1020 were enumerated; 998 (97.8%) were examined, and 97 (9.7%) had refractive error (uncorrected visual acuity of 20/40 or worse in both eyes). A questionnaire interview using items derived from the revised Refractive Error Study in Children protocol was used to get information regarding reasons for spectacle-wear non-compliance. Of the 97 children with refractive error, 20 wore their spectacles during the time of study, yielding a spectacle utilisation rate of 20.6%. Eleven (55%) of those wearing spectacles were females, 13 (65%) were myopic and the highest number (50%) of spectacle wearers was in the 8–10 years age category. Age, gender and type of refractive error were significantly associated with spectacle wear ( $p < 0.05$  was considered statistically significant). The major reasons for non-compliance with spectacle-wears were parental disapproval for using spectacles and misconceptions about wearing spectacles. They concluded that spectacle utilisation amongst primary school children in Onitsha was low. These findings suggest the need for public awareness about the importance and benefits of wearing spectacles. Of the 998 children examined in the RESC in Onitsha, uncorrected VA of 20/32 or better in the better eye was found in 901 (90.3%) children; 97 (9.7%) children had uncorrected VA of 20/40 or worse in the better eye and 20 (2%) wore spectacles.

Visual acuity in 84 (86.6%) children improved to  $\geq 20/32$  in the better eye after refraction, and 13 (13.4%) had the best corrected VA of 20/40 or worse in the better eye, including in one child

(1%) with no light perception in one eye. Of the 97 children who had refractive error, 45 (46.4%) had myopia, 35 (36.1%) had astigmatism and 17 (17.5%) had hyperopia. In all, 42 of the 97 (43.3%) children with refractive error were boys, whilst 55 (56.7%) were girls. Refractive error was highest (45.4%) amongst the children aged 11–13 years and the least common (4.1%) amongst children aged 14–15 years. Refractive error was found to be significantly associated with age (Pearson  $\chi^2 = 13.13$ ,  $p = 0.004$ ) and gender (Pearson  $\chi^2 = 4.17$ ,  $p = 0.04$ ). Myopia was significantly associated with males ( $p = 0.032$ ) but not with age. Astigmatism and hyperopia were not significantly associated with age and gender (all  $p$ -values  $> 0.05$ ). Details of the results regarding the prevalence and distribution of refractive errors have been discussed in the RESC Study in Onitsha of the 97 children with refractive error, 41 (42.3%) had previously tested their eyes and were prescribed spectacle corrections but only 20 (48.8%) wore them at the time of examination; the spectacle utilisation rate was therefore 20.6% (20/97). Eleven (55%) of those wearing spectacles were girls, 13 (65%) were myopic and children aged 8–10 years had the highest number (10, 50%) of those wearing spectacles. A statistically significant association was found between age, gender, type of RE and use of spectacles (all  $p$ -values  $< 0.05$ ). Amongst those not wearing their spectacles, the majority (28.6%) reported that their parents disapproved the use of spectacles.

Spectacle utilisation rate was relatively low (20.6%), and parental disapproval of the use of spectacles was the major reason for non-compliance in this study. These highlight the need for awareness programmes about the use of corrective spectacles in school health and education programmes. These would help to prevent the negative impact of refractive error and vision impairment on children's education and development. Compliance with spectacles wearing could

be improved by educating the parents and their children about the importance of wearing spectacles.

Gogate et al., (2013) conducted a study on Spectacle compliance amongst rural secondary school children in Pune district, India. The students were examined by a team of optometrists who collected the demographic details, observed if the child was wearing the spectacles, and performed an ocular examination. To study the compliance of spectacle wear among rural school children in Pune district as part of the *sarva siksha abhiyan* (education for all scheme) after 6 - 12 months of providing free spectacles. The students were asked to give reasons for non-wear in a closed-ended questionnaire. Chi-square test and multiple logistic regression was used for data analysis. Of the 2312 students who were dispensed spectacles in 2009, 1018 were re-examined in 2010. 523 students (51.4%) were female, the mean age was 12.1 years 300 (29.5%) were wearing their spectacles, 492 (68.5%) students claimed to have them at home while 211 (29.4%) reported not having them at all. Compliance of spectacle wear was positively associated to the magnitude of refractive error ( $P < 0.001$ ), father's education ( $P = 0.016$ ), female sex ( $P = 0.029$ ) and negatively associated to the visual acuity of the better eye ( $P < 0.001$ ) and area of residence ( $P < 0.0001$ ). Of those that were examined and found to be myopic ( $N = 499$ ), 220 (44%) wore their spectacles to examination. Factors associated with compliance to spectacle usage in the myopic population included increasing refractive error ( $P < 0.001$ ), worsening visual acuity ( $P < 0.001$ ), and higher academic performance ( $P < 0.001$ ). The causes for not wearing spectacles were 'lost spectacles' 67(9.3%), 'broken spectacles' 125 (17.4%), 'forgot spectacles at home' 117 (16.3%), 'uses spectacles sometimes' 109 (15.2%), 'teased about spectacles' 142 (19.8%) and 'do not like the spectacles' 86 (12%). They concluded that spectacle compliance was poor amongst school children in rural Pune; many having significant vision loss as a result.

Khandekar et al., (2013) carried out a study on the impact of spectacle wear compliance on the visual function related quality of life of Omani students. This historical cohort study was conducted in 2012. Students using spectacles and those not using spectacles after 1 year of prescribing/providing spectacles were interviewed to assess their VFQ. The VQ 20 questionnaire with 5 graded close-ended responses was adopted for this purpose. The responses for the VFQ related to different visual functions of students who were/were not spectacle wear compliant, were compared. For the results, their cohort had 124 students in each group. The overall VFQ was significantly higher among the compliant spectacle wearers (compliant group) compared with the non-complaint wearers (non-compliant group) (relative risk [RR] =4.7% [95% of the confidence interval (CI): 2.8-6.6]). The association of gender and the grade level was not significant ( $P > 0.05$ ). However, the variation of governorate was significantly associated to the difference of VFQ in both groups ( $\chi^2 = 16.6$ , degrees of freedom = 4,  $P = 0.0003$ ). The VFQ related to the near work (RR = 1.3) and school related activities (RR = 1.3) was better in the compliant group.

They came to a conclusion that VFQ was better among those students who were spectacle wear compliant compared with those who were not. VFQ related to near work and school related activities seem to be the most influenced by spectacle wear compliance.

## **CHAPTER THREE**

### **3.0**

### **METHODOLOGY**

### **3.1 RESEARCH DESIGN**

This was an observational study carried out on students in University of Benin. The study was carried out in the University of Benin, Ugbowo campus. The questionnaire distribution was done within 2 months.

#### **3.1.1 Study population**

300 subjects were used for this study and they comprised of both male and female students drawn from the various faculties in University of Benin.

#### **3.1.2 Study duration**

This study was carried out within a period of two months.

### **3.2 SAMPLING TECHNIQUE**

Random sampling technique was used for this study.

### **3.3 STUDY MATERIAL**

- Data collection questionnaires
- Pen

#### **3.3.1 Inclusion criteria**

- University of Benin students who wear spectacle or have history of spectacle glasses wear.
- Participants within the ages of 16-30 years.
- Have sufficient language skills, hearing and mental ability to understand the questionnaire instructions.

#### **3.3.2 Ethical consideration**

Ethical approval was obtained from the ethical committee of the department of Optometry, University of Benin. The informed consent of the study participants will also be obtained after a thorough explanation of the study's purpose.

### **3.4 DESCRIPTION OF PROCEDURE**

The study was carried out by distributing questionnaires randomly to students in the University of Benin from different faculties, these subjects are those within the age range of 16-30 years, a total of 300 subjects volunteered for the study. There are 14 faculties in the University of Benin, class representatives of the departments in the various faculties aided in the distribution of the questionnaires to their course mates after which the questionnaires were collated.

### **3.5 STATISTICAL PACKAGE**

The information collected is represented in tables, charts and figures. The statistical test used for the analysis was the chi-square from the Package of SPSS (version 22.0) to check for the scores and variables obtained in the study.

## CHAPTER FOUR

### 4.0

### RESULTS

#### 4.1 DEMOGRAPHIC DISTRIBUTION OF SUBJECTS

**Table 4.1.1: Gender distribution**

<b>GENDER</b>	<b>FREQUENCY</b>	<b>PERCENTAGE (%)</b>
Female	233	77.7
Male	67	22.3
<b>TOTAL</b>	<b>300</b>	<b>100</b>

This table shows the frequency and percentage of males and females subjects used for this study.

**Table 4.1.2: Age distribution of the subjects**

<b>AGE GROUP (years)</b>	<b>FREQUENCY</b>		<b>PERCENTAGE (%)</b>
	<b>Male</b>	<b>Female</b>	
16-20	4	72	25.3
21-25	47	140	62.4
26-30	16	21	12.3
<b>TOTAL</b>	<b>67</b>	<b>233</b>	<b>100</b>
<b>MEAN</b>	<b>23.41 ± 2.18</b>	<b>21.62 ± 2.79</b>	

This shows the age distribution, frequency and percentage of males and females subjects used for this study.

Continuous variable i.e. mean age is presented as mean +- standard deviations and others are categorical variables presented as frequency counts and percentages. Percentages are column percentages.

**Table 4.3: Faculty distribution of the subjects**

<b>FACULTY DISTRIBUTION</b>	<b>FREQUENCY</b>		<b>PERCENTAGE (%)</b>
	<b>MALE</b>	<b>FEMALE</b>	
Management	4	15	6.3
Life Science	31	58	29.7
Arts	4	31	11.7
Law	6	8	4.7
Social Sciences	5	16	7
Pharmacy	8	16	8
Physical Science	4	18	7.3
Education	8	10	6
Engineering	1	5	2
BMS	9	11	6.7
Medical Science	2	3	1.7
Agriculture	3	4	2.3
Environmental Science	2	8	3.3
School of Dentistry	4	6	3.3
<b>TOTAL</b>	<b>91</b>	<b>209</b>	<b>100</b>

The table shows the faculty distribution, frequency and percentage of males and females subjects used for this study.

**Table 4.4: Father's level of education of the subjects**

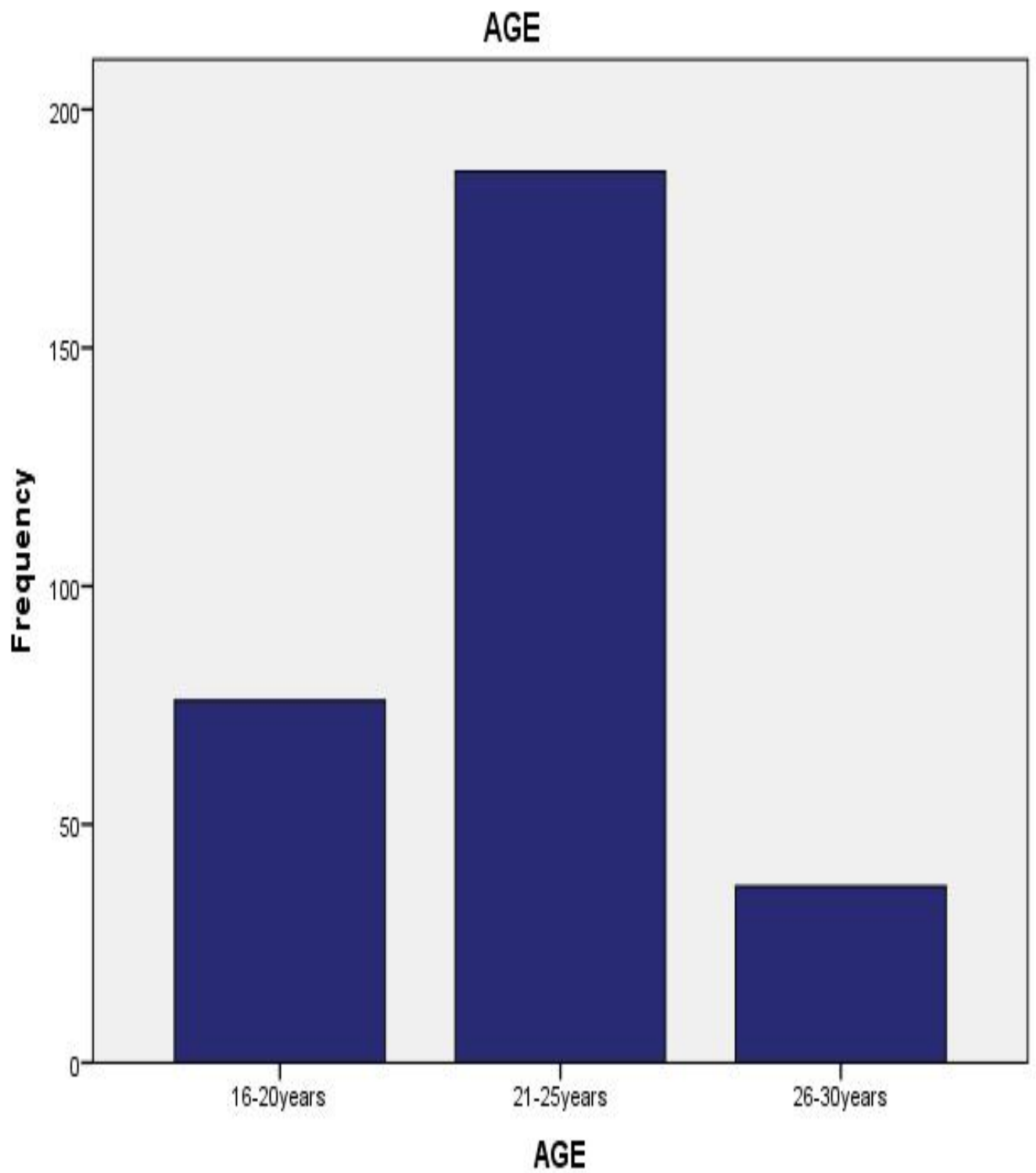
<b>FATHER'S EDUCATION</b>	<b>FREQUENCY</b>	<b>PERCENTAGE (%)</b>
Primary	4	1.3
Secondary	49	16.4
Tertiary	247	82.3
<b>TOTAL</b>	<b>300</b>	<b>100</b>

This shows the frequency, percentage and father's education distribution of the subjects used for this study.

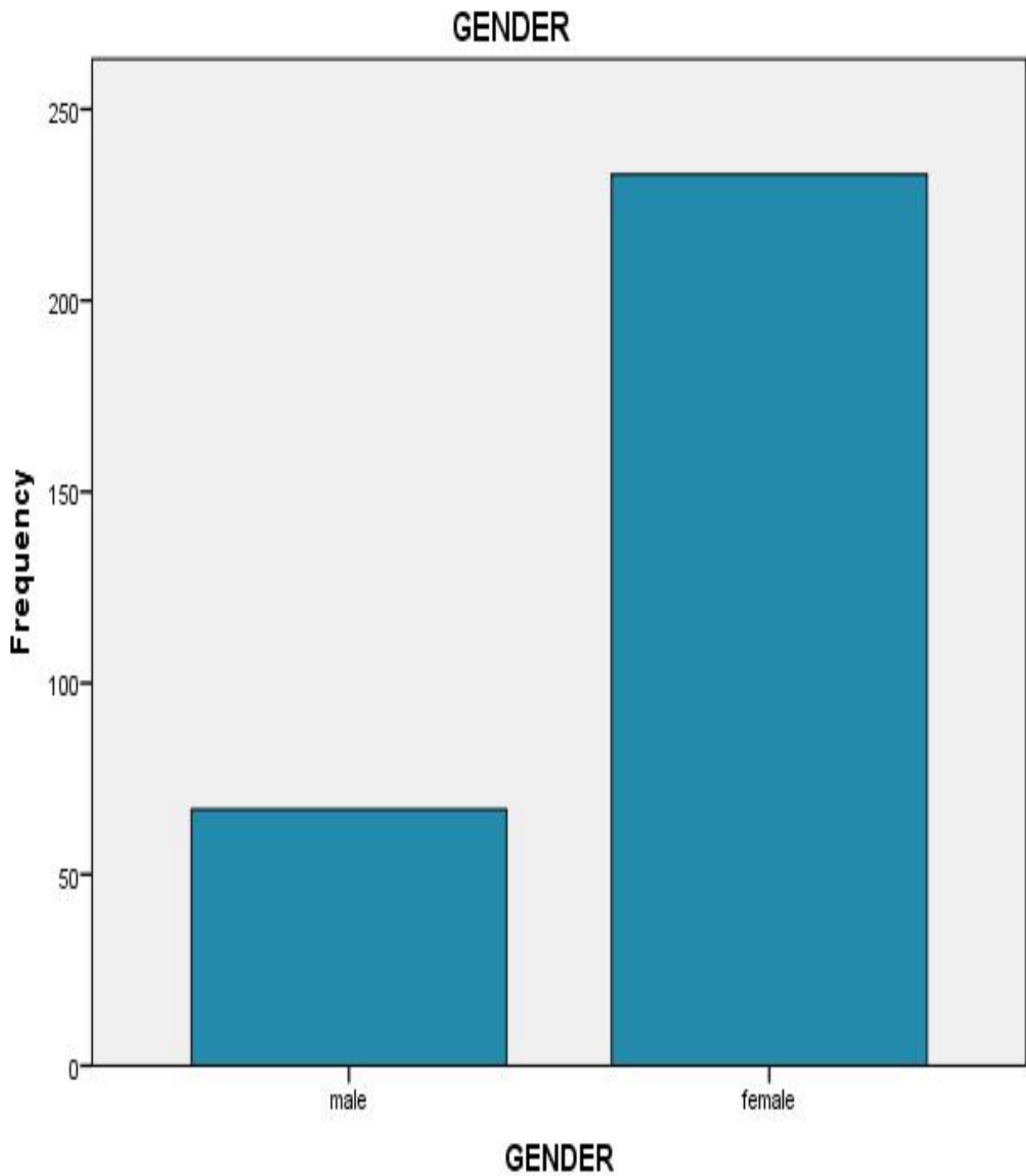
**Table 4.5: Mother's education distribution of the subjects**

<b>MOTHER'S EDUCATION DISTRIBUTION</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Primary	21	7
Secondary	65	21.7
Tertiary	214	71.3
<b>TOTAL</b>	<b>300</b>	<b>100</b>

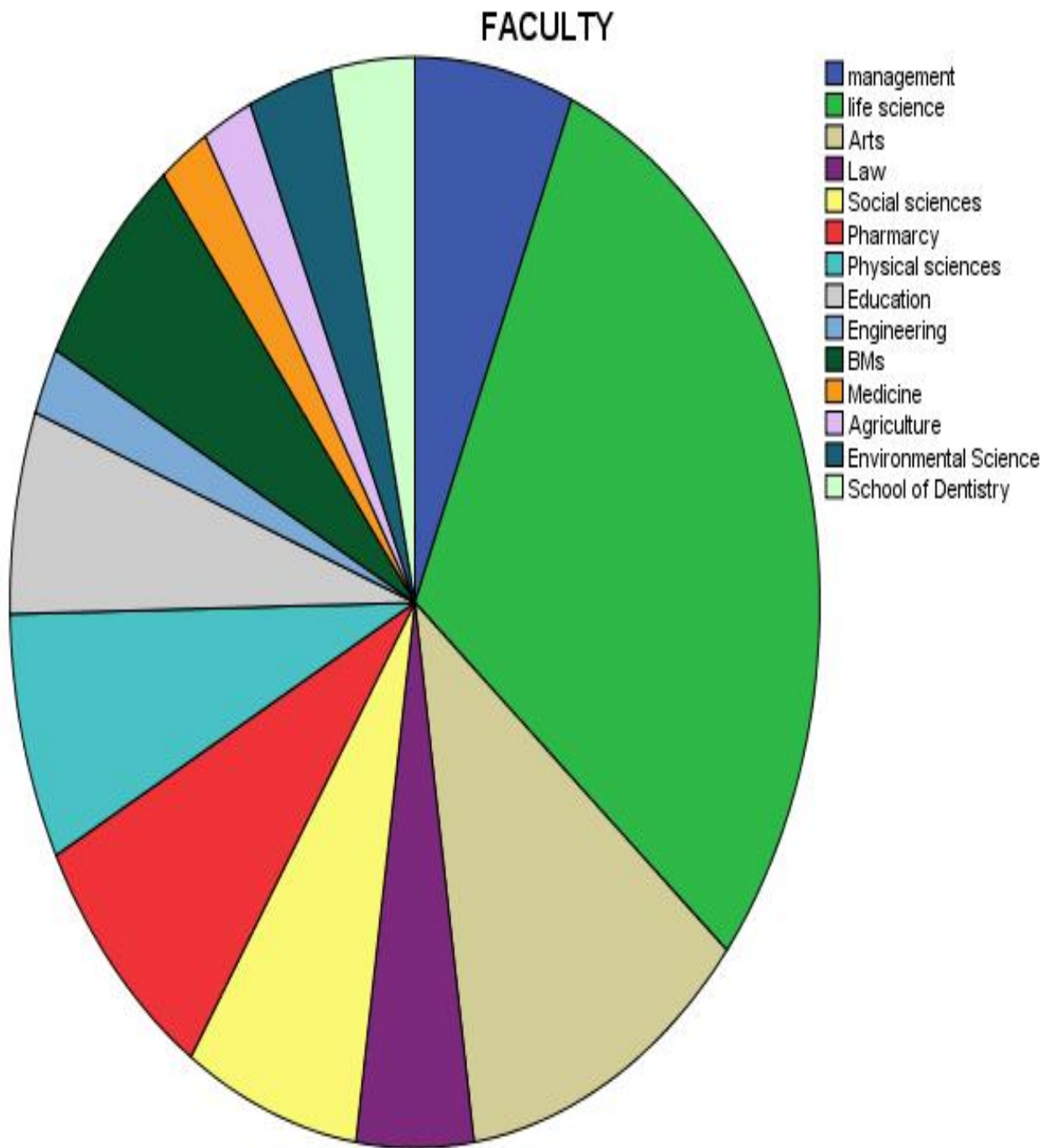
This shows the frequency, percentage and mother's education distribution of the subjects used for this study.



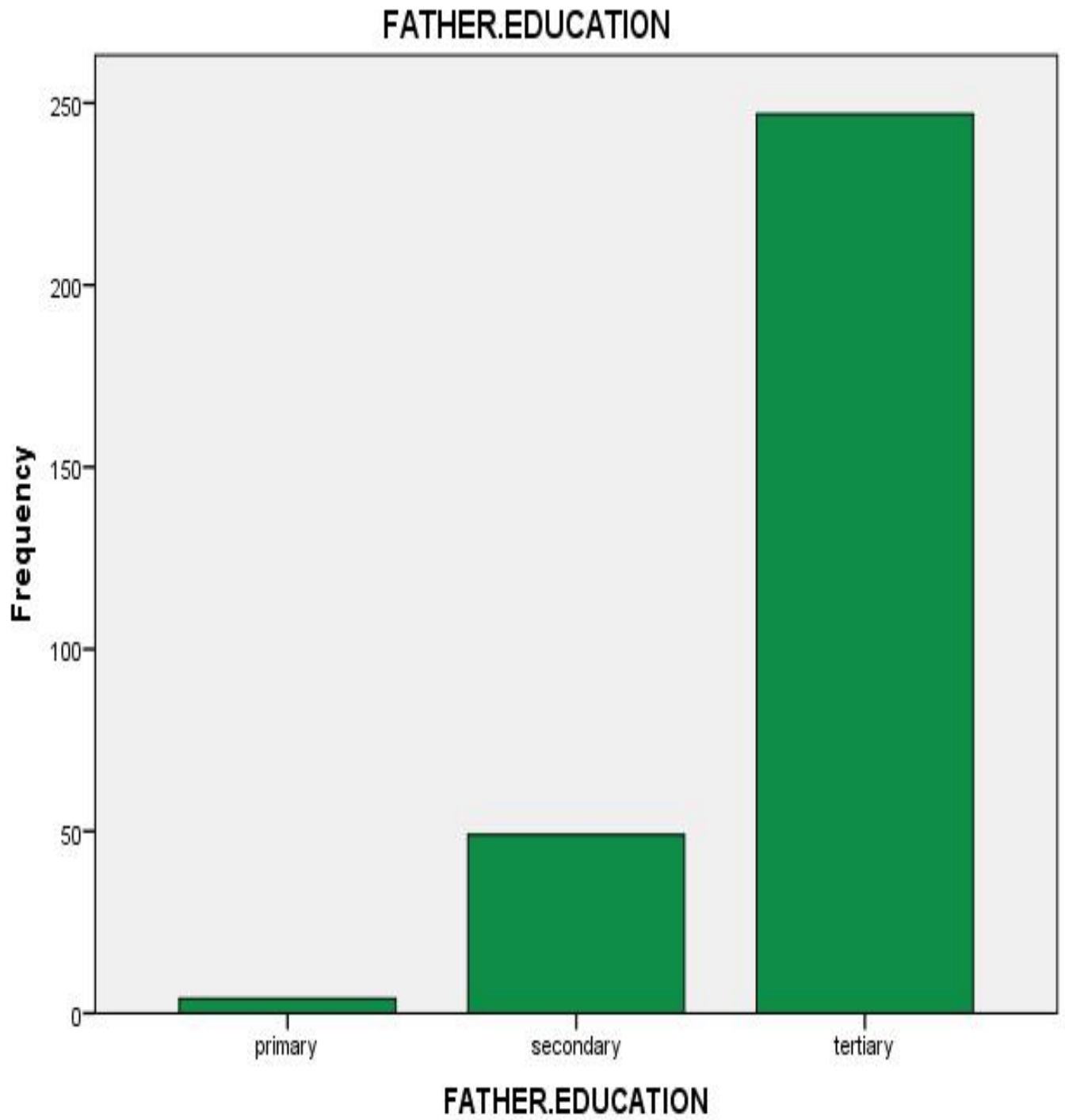
**Figure 4.1: Bar chart showing the age distribution of the subjects.**



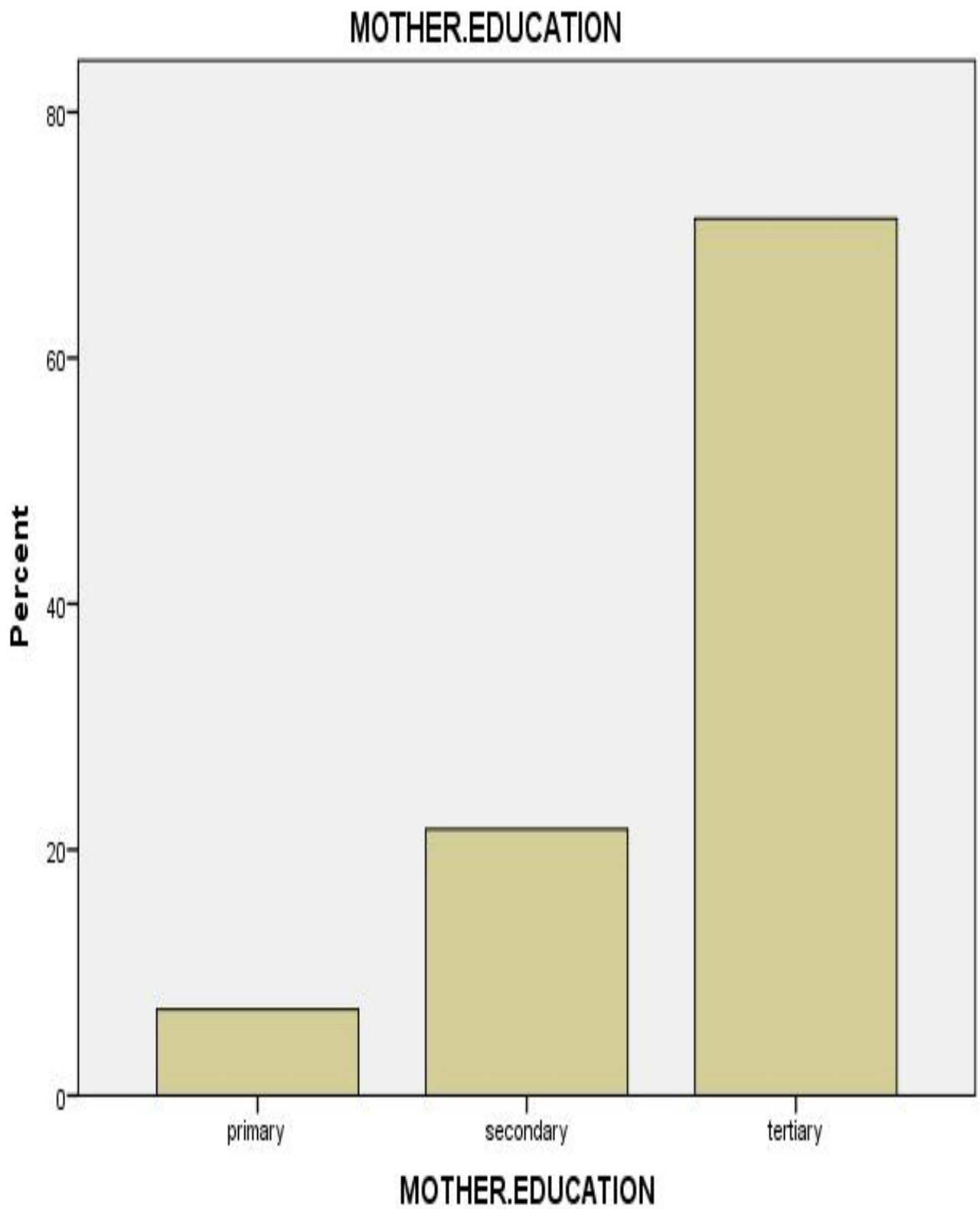
**Figure 4.2: Bar chart showing the gender distribution of the subjects of the study**



**Figure 4.3: Pie chart showing the faculty distribution of the subjects of the study**



**Figure 4.4: Bar chart showing the father's education of the subjects of the study**



**Figure 4.5: Bar chart showing the mother's education of the subjects of the study**

**Table 4.6: Prescription Lens Wearers**

<b>PRESCRIPTION LENS WEARERS</b>		<b>Total Population =300</b>	<b>Mean ± SD</b>
		<b>Frequency/Percentage</b>	
Who did you get your glasses from	Optometrist	229 (76.3%)	1.42 ± .836
	Ophthalmologist	29 (9.7%)	
	Optician	29 (9.7%)	
	Outreach	13 (4.3%)	
	Others	-	
Were you properly counseled after prescription of spectacle wear?	Yes	233 (77.7%)	1.22 ± .417
	NO	67 (22.3%)	
How long have you used spectacle glasses?	1-5yrs	178 (59.3%)	1.51 ± .681
	6-10yrs	90 (30%)	
	11-20yrs	32 (10.7%)	
How often do you wear your glasses daily?	1-3hrs	89 (29.7%)	2.32 ± 1.12
	4-6hrs	92 (30.7%)	
	7-10hrs	53 (17.7%)	
	Above 11hrs	66 (22%)	

**Table 4.7: Reasons for Compliance**

<b>REASONS FOR COMPLIANCE</b>		<b>Total Population =300</b>	<b>Mean ± SD Response of Participants</b>
		<b>Frequency/Percentage</b>	
<b>Eye glasses are most useful to me only during exams?</b>	True	106 (35.3%)	1.64 ± .478
	False	194 (64.7%)	
<b>I cannot carry out my daily activities without my eyeglasses</b>	True	98 (32.7%)	1.67 ± .469
	False	202 (67.3%)	
<b>My eye glasses aid my vision</b>	True	264 (88%)	1.12 ± .325
	False	36 (12%)	
<b>My spectacle glasses serves beautification purpose</b>	True	162 (54%)	1.46 ± .499
	False	138 (46%)	
<b>My eye glasses provide protection from computer rays and sunlight</b>	True	233 (77.7%)	1.22 ± .417
	False	67 (22.3%)	

**Table 4.8: Reasons for Non-Compliance**

<b>REASONS FOR NON-COMPLIANCE</b>		<b>Total Population =300</b>	<b>Mean ± SD Response of Participants</b>
		<b>Frequency/Percentage (%)</b>	
<b>My vision gets worse when I wear my eye glasses</b>	True	18 (6%)	1.94 ± .237
	False	282 (94%)	
<b>I often lose my eye glasses</b>	True	73 (24.3%)	1.75 ± .429
	False	227 (75.7%)	
<b>My eye glasses always get broken</b>	True	82 (27.3%)	1.72 ± .446
	False	218 (72.3%)	
<b>I always forget my eye glasses in the hostel</b>	True	94 (31.3%)	1.68 ± .464
	False	206 (68.7%)	
<b>My eye glasses make me uncomfortable</b>	True	79 (26.3%)	1.73 ± .441
	False	227 ( 73.7)	
<b>If true, please tick your reason?</b>	<b>Blurry vision</b>	18 (6%)	
	<b>Headaches</b>	53 (17.6%)	
	<b>Dizziness</b>	8 (2.7%)	
<b>My parents disapprove spectacles</b>	True	26 (8.7%)	1.91 ± .281
	False	274 (91.3%)	

## CHAPTER FIVE

### 5.0

### DISCUSSION

#### 5.1 DEMOGRAPHICS CHARACTERISTICS

The result of the social demographic characteristics of the subjects showed that 67(22.3%) of the subjects were males, while 233 (77.7%) were females. This implies that majority of the subjects were females. More so the result on the age distribution of the subjects showed that 25.3% of the subjects were within the age range of 16-20years, 62.4% were within the age range of 21-25years, while 12.3% of the subjects were within the age range of 26-30years. Therefore majority of the subjects were within the age range 21-25years. The result also showed that 6.3% of the subjects were in Faculty of Management science, 29.7% were in Life science, 11.7% of the subjects were in faculty of Arts, 4.7% were drawn from Faculty of Law, 7% were in Social sciences, 8% were in Faculty of Pharmacy, 7.3% of the subjects were in Physical sciences, 6% were in Faculty of Education, 2% of the subjects were in Engineering, 6.7% were in Basic Medical Sciences, 1.7% were in Medicine Science, 2.3% were in Agriculture, while 3.3% were in Environmental science and School of Dentistry respectively. More so the result of the subjects' fathers' education showed that 1.3% had primary education, 16.4% secondary education, while 82.3% had tertiary education. The mothers' education levels of the subjects are thus: 7% had primary education, 21.7% had secondary education, while 71.3% had tertiary education reflecting the urban setting of the study. The findings of the study is similar to (Nyamai 2015), who carried out a study on Prevalence, Knowledge, Attitude and Practice on Refractive error among Students attending Public High Schools in Nairobi County. The study population was from Form III students numbering 9500 with  $16.98 \pm 1.04$  years as the mean age. This study population was selected because they had a mean age of above 16 years and most

refractive errors have manifested by this age. The Form IV class ahead was not selected to participate because they were sitting a national examination. Our sample size for the study was 1622, with a response rate of 85.6% making the survey study valid. Most of the students who did not participate were absent or declined. Access to schools is more for boys and this is shown by the higher response rates among male students 54% versus 46% for girls. More than 50% of the students' parents of both sexes had college/university education, reflecting the urban setting of the study.

## **5.2 PRESCRIPTION LENS WEARERS**

The result showed that 76.3% of the subjects had their glasses from optometrist, 9.7% from ophthalmologist and optician respectively, while 4.3% from an outreach. The result also showed that 77.7% of the subjects were counseled while 22.3% were not counseled. It was also gathered as findings that 59.3% of the subjects had worn their glasses for 1-5years, 30% 6-10 years and the rest 10.7% had worn their glasses for 11-20years. Deductively, majority of the subjects had worn their glasses for 1-5years. The result on how often the subjects wear their glasses daily, showed that 29.7% of the subjects wear their glasses for 1-3hrs daily, 30.7% wore theirs for 4-6hrs, 17.7% of the subjects wore their glasses for 7-10hrs daily, while 22% wore their glasses for more than 11hrs. Therefore, on the average majority of the subjects wear their glasses for 4-7hrs daily. This study is similar to (Dandona *et al.*, 2002) who carried out a study in India reported that 43.8% of patients had discontinued glasses use because they felt either the prescription by the optician was incorrect or the spectacles were uncomfortable. This therefore means that people are aware that spectacle glasses are to be worn based on prescription by/from an eye expert.

### 5.3 ATTITUDES TOWARD THE USE OF SPECTACLE WEAR

The result showed that 282 (94%) of the subjects disagreed to the statement that wearing of glasses make their vision worse, while 18 (6%) agreed to the statement. The result also showed that 73 (24.3%) of the subjects believed that they often lose their eye glasses as reason for non-compliance while 227 (75.7%) of the subjects disagreed to the statement. The subjects also responded to the statement that their eye glasses getting broken is a reason for non-compliance to spectacle wearing with 218 (72.3%) disagreeing to the statement while 82 (27.3%) agreed. 206 (68.7%) of the subjects disagreed that they always forget their glasses in the hostel as reason for non-compliance while 94(31.3%) agreed. 227 (73.7%) of the subjects also disagreed to the statement; my eye glass make me uncomfortable as reason for non-compliance, while 79 (26.3%) agreed with the statement. The result also showed that 274 (91.3%) parents' disapproval of spectacle-wear is a reason for non-compliance, while 26 (8.7%) agreed. This study is different from the study by Osuji and Bazuaye (2020), who investigated on history and utilization of spectacle correction among young adults of a tertiary Institution in Nigeria. They in their study reported that 14 (2.8%) of the subjects stopped using it because it was broken. Thirteen (2.6%) of them stopped using theirs because it was unattractive and made them look weird, 28 (5.6%) subjects stopped it because it was missing while another 14 (2.8%) subjects stopped using theirs because they couldn't see with it anymore. These were similar to the results obtained by (Gogate, *et al.*, 2013) in India where the causes for not wearing spectacles were missing spectacles, 67 (9.3%), broken spectacles, 125 (17.4%), forgot spectacles at home, 117 (16.3%) and do not like the glasses, 86 (12%). (Mireku and Ebenezer 2017) also reported in their studies that 37.2% of the subjects in this study believed that the continuous use of glasses would progressively cause their vision to worsen. This agrees with the result obtained by (Sheetal 2011) in Dakshina where

30% of the subjects thought that glasses would worsen their vision if used continually. In a study which was conducted in Pakistan by (Yasmin 2007), 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 of the present study and other studies could be the difference in the study setting and in the educational level.

#### **5.4 LEVEL OF COMPLIANCE OF SPECTACLE WEAR**

The result of the study showed that the level of compliance to spectacle wear among university of Benin students is high. From the result it was seen that 194 (64.7%) of the subjects disagreed that eye glasses are most useful to them only during exams, while 106 (35.3%) agreed. Also, the result showed that 202 (67.3%) of the subjects disagreed that they cannot carry out their daily activities without their eye glasses, while 98 (32.7%) agreed. It was also discovered that the result of the study showed that 264 (88%) of the subjects agreed that their eye glasses aid their vision, while 36 (12%) disagreed. Furthermore, the study revealed that 162 (54%) of the subjects agreed to the statement that their spectacle glasses serves as beautification purpose, while 138 (46%) disagreed. The result also showed that 233 (77.7%) of the subjects agreed their eye glasses provide protection from computer rays, while 67 (22.3%) disagreed. This study disagrees with (Okafor 2013) who reported that compliance to spectacle wear is very poor as one of the common reason given by people for not wearing glasses is the belief that glasses could cause the eyes to be sunken/pushed in. This makes them abhor the use of spectacle lenses even when prescribed for by a doctor. Emmanuel also reported that the wearing rates of prescribed refractive spectacles are reportedly low in many parts of the world (Faderin and Ajaiyeoba, 2001; Wedner *et al.*, 2002; Congdon *et al.*, 2008). The low wearing rate of recommended glasses found in this study is in consonance with other Nigerian studies. In a Nigerian school survey,

(Abubakar 2001), reported that at the time of screening, none of the children screened wore glasses. Only 2(3%) children previously diagnosed with refractive errors were found to wear corrective lenses by (Ajaiyeoba *et al.*, 2006). In a study among 1,707 secondary school students in Ile-Ife, Nigeria, (Adegbehingbe *et al.*, 2006) reported that none of the 52 students who had refractive error had eye examination in the past or wore prescribed eyeglasses. The study by (Faderin and Ajaiyeoba 2001) showed that out of the 67 pupils with refractive errors, 18 pupils (26.9%) were not willing to wear glasses despite their refractive errors. Twenty-nine (45.3%) pupils who did not have refractive errors were also not willing to wear glasses. The remaining 20 pupils (29.8%) did not express any preference. The difference in findings of previous studies with the findings of the presents study could be attributed to the urban setting of the study as the respondents are exposed based and has a relative high level of education.

## CHAPTER SIX

### 6.0 CONCLUSION AND RECOMMENDATION

#### 6.1 CONCLUSION

From the study done, the following conclusions are made;

- The compliance to prescription spectacle wear was high among students of University of Benin.
- The attitudes of the subjects towards prescription spectacle wear was positive hence their compliance to prescription spectacle wear.

In conclusion, this systematic review and meta-analysis has thrown light upon compliance with spectacle use and attitude of University of Benin students towards spectacle-wear. It was pertinent to undertake the study to ascertain the level of compliance and attitude of the students toward spectacle wear. This review can help stakeholders and program managers in defining health care interventions to ensure the sustainability of compliance with spectacle use to avoid blindness.

The students of University of Benin were counseled by experts and the spectacle glasses were prescribed by optometrist, ophthalmologist, optician, e.t.c. Their attitude towards spectacle wear was positive and hence the level of their compliance to spectacle glasses wear amongst the students.

The compliance of spectacle wear was high among students of University of Benin. Majority of the subjects were counseled on spectacle wear and the level of compliance was evidently high. The determinants for compliance of visual aid found in this study could be compared with other

Universities in the country and then polices for improving the refractive services could be revised accordingly.

## **6.2 RECOMMENDATION**

Spectacle wears are still atop of all the various methods used to correct refractive error. The attitude of the students towards prescription spectacle-wear is encouraging and their level of compliance to spectacle glasses wear is worth sustaining. All students wearing spectacle glasses should then be educated and made to be aware of the how to take care of their eye glasses so as to ensure the continuity and effective working of the spectacle.

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## APPENDIX

### Frequencies

**Case Processing Summary**

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
AGE * GENDER	300	100.0%	0	0.0%	300	100.0%
FACULTY * GENDER	300	100.0%	0	0.0%	300	100.0%

**Report**

GENDER		AGE	FACULTY
male	Mean	2.1791	4.5522
	N	67	67
	Std. Deviation	.52006	3.65681
female	Mean	1.7811	5.4163
	N	233	233
	Std. Deviation	.59392	3.68631
Total	Mean	1.8700	5.2233
	N	300	300
	Std. Deviation	.60081	3.69128

## Descriptives

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
FACULTY	300	1.00	14.00	5.2233	3.69128
Valid N (listwise)	300				

**Statistics**

FACULTY

N	Valid	300
	Missing	0

**FACULTY**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Management	19	6.3	6.3	6.3
	life science	89	29.7	29.7	36.0
	Arts	35	11.7	11.7	47.7
	Law	14	4.7	4.7	52.3
	Social sciences	21	7.0	7.0	59.3
	Pharmacy	24	8.0	8.0	67.3
	Physical sciences	22	7.3	7.3	74.7
	Education	18	6.0	6.0	80.7
	Engineering	6	2.0	2.0	82.7
	BMs	20	6.7	6.7	89.3
	Medicine	6	2.0	2.0	91.3
	Agriculture	6	2.0	2.0	93.3
	Environmental Science	10	3.3	3.3	96.7
	School of Dentistry	10	3.3	3.3	100.0
	Total	300	100.0	100.0	

	AGE	GEN DUL R	FAC UL TY	DEP ART MENT	FATHER .EDU CATION	MOTHER .ED UCATION	Who. made. glass es	Co uns elli ng	Perio d.of.g lass.u se	Durat io.of. weari ng	Use s.of. glas ses	Daily.act ivities.wi th.glasse s	vi si on .ai d	beautif ication .purpo se	prote ction. purpo se	visio n.get .wor se	loss .of. glas ses	brea king. glass es	forget ting.of .glass es	comf ort.of .glass es	if.true	pare nts.a ppro val
IV ali d	3000	300	300	0	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	79	300
M is si ng	0	0	0	300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	221	0

## Frequency Table

### AGE

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 16-20years	76	25.3	25.3	25.3
21-25years	187	62.3	62.3	87.7
26-30years	37	12.3	12.3	100.0
Total	300	100.0	100.0	

### GENDER

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid male	67	22.3	22.3	22.3
female	233	77.7	77.7	100.0
Total	300	100.0	100.0	

## FACULTY

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Management	13	4.3	4.3	4.3
life science	154	51.3	51.3	55.7
Arts	32	10.7	10.7	66.3
Law	4	1.3	1.3	67.7
Social sciences	14	4.7	4.7	72.3
Pharmacy	19	6.3	6.3	78.7
Physical sciences	14	4.7	4.7	83.3
Education	15	5.0	5.0	88.3
Engineering	5	1.7	1.7	90.0
BMs	20	6.7	6.7	96.7
Medicine	5	1.7	1.7	98.3
Agriculture	5	1.7	1.7	100.0
Total	300	100.0	100.0	

## DEPARTMENT

	Frequency	Percent
Missing System	300	100.0

## FATHER'S EDUCATION

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid primary	4	1.3	1.3	1.3
secondary	49	16.3	16.3	17.7

tertiary	247	82.3	82.3	100.0
Total	300	100.0	100.0	

**MOTHER'S EDUCATION**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid primary	21	7.0	7.0	7.0
secondary	65	21.7	21.7	28.7
tertiary	214	71.3	71.3	100.0
Total	300	100.0	100.0	

**Who.made.glasses**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid optometrist	229	76.3	76.3	76.3
ophthalmologist	29	9.7	9.7	86.0
optician	29	9.7	9.7	95.7
outreach	13	4.3	4.3	100.0
Total	300	100.0	100.0	

**Counselling**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid yes	233	77.7	77.7	77.7
no	67	22.3	22.3	100.0
Total	300	100.0	100.0	

**Period.of.glass.use**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1-5years	178	59.3	59.3	59.3
6-10years	90	30.0	30.0	89.3
11-20years	32	10.7	10.7	100.0
Total	300	100.0	100.0	

**Duratio.of.wearing**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1-3hrs	89	29.7	29.7	29.7
4-6hrs	92	30.7	30.7	60.3
7-10hrs	53	17.7	17.7	78.0
above 11hrs	66	22.0	22.0	100.0
Total	300	100.0	100.0	

**Uses.of.glasses**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid true	106	35.3	35.3	35.3
false	194	64.7	64.7	100.0
Total	300	100.0	100.0	

**Daily.activities.with.glasses**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid true	98	32.7	32.7	32.7
false	202	67.3	67.3	100.0
Total	300	100.0	100.0	

**vision.aid**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid true	264	88.0	88.0	88.0
false	36	12.0	12.0	100.0
Total	300	100.0	100.0	

**beautification.purpose**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid true	162	54.0	54.0	54.0
false	138	46.0	46.0	100.0
Total	300	100.0	100.0	

**protection.purpose**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid true	233	77.7	77.7	77.7
false	67	22.3	22.3	100.0
Total	300	100.0	100.0	

**vision.get.worse**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	true	18	6.0	6.0	6.0
	false	282	94.0	94.0	100.0
	Total	300	100.0	100.0	

**loss.of.glasses**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	true	73	24.3	24.3	24.3
	false	227	75.7	75.7	100.0
	Total	300	100.0	100.0	

**breaking.glasses**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	true	82	27.3	27.3	27.3
	false	218	72.7	72.7	100.0
	Total	300	100.0	100.0	

**forgetting.of.glasses**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	true	94	31.3	31.3	31.3
	false	206	68.7	68.7	100.0
	Total	300	100.0	100.0	

**comfort.of.glasses**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid true	79	26.3	26.3	26.3
false	221	73.7	73.7	100.0
Total	300	100.0	100.0	

**if.true**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid blurry vision	18	6.0	22.8	22.8
Headaches	32	10.7	40.5	63.3
Dizziness	8	2.7	10.1	73.4
Others	21	7.0	26.6	100.0
Total	79	26.3	100.0	
Missing System	221	73.7		
Total	300	100.0		

**parents.approval**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid True	26	8.7	8.7	8.7
False	274	91.3	91.3	100.0
Total	300	100.0	100.0	

**QUESTIONNAIRE ON PRESCRIPTION SPECTACLE WEAR COMPLIANCE AMONG  
UNIVERSITY OF BENIN STUDENTS**

**SECTION A: DEMOGRAPHIC INFORMATION**

**Please fill in**

1. Age; 16 -20( ) 21-25( ) 26-30( )
2. Gender; Male( ) Female( )
3. Faculty \_\_\_\_\_
4. Department \_\_\_\_\_
5. Father's education. Primary ( ) Secondary ( ) Tertiary ( )
6. Mother's education. Primary ( ) Secondary ( ) Tertiary ( )

**SECTION B: PRESCRIPTION LENS WEARERS**

7. Where did you get your glasses from?  
Optometrist ( ) Ophthalmologist ( ) Optician ( ) Outreach ( ) Others ( )
8. Were you properly counselled after prescription of spectacle wear? Yes( ) No( )
9. How long have you used spectacle glasses? 1-5yrs ( ) 6-10yrs ( ) 11-20yrs ( )
10. How often do you wear your glasses daily?  
1-3hrs ( ) 4-6hrs ( ) 7-10( ) Above 11hrs ( )

**SECTION C: REASONS FOR COMPLIANCE**

11. Eye glasses are most useful to me only during exams? True( ) False( )
12. I cannot carry out my daily activities without my eyeglasses. True( ) False( )
13. My eye glasses aid my vision. True( ) False( )

14. My spectacle glasses serves beautification purpose. True ( ) False ( )
15. My eye glasses provide protection from computer rays and sunlight. True( ) False( )

**SECTION D: REASONS FOR NON COMPLIANCE**

16. My vision gets worse when I wear my eye glasses. True( ) False( )
17. I often lose my eye glasses. True( ) False( )
18. My eye glasses always get broken. True( ) False( )
19. I always forget my eye glasses in the hostel. True( ) False( )
20. My eye glasses make me uncomfortable. True( ) False( )

If true, please tick your reason

- a. Blurry vision ( )
- b. Headaches ( )
- c. Dizziness ( )
21. My parents disapprove spectacles. True ( ) False ( )