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Quality of Life for Patients with Glaucoma in the West Bank, Palestine: A Field Study

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Everything written in this thesis is the researcher's own efforts, except that that has otherwise been referenced. No part of it has been submitted to another school or research institution for publication.

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Dedication

I would like to dedicate this work to my husband, parents, family, and friends whose encouragement and support carried me out through the difficult and hard times.

I would like also to dedicate this work to my colleagues and classmates who have inspired and motivated me to continue and persevere despite all of the challenges. To all those who supported me I would like to dedicate this work and express my heartfelt thanks.

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ABSTRACT

Abstract

Background: Glaucoma is a serious eye disease that impairs eyesight and negatively impacts quality of life. If left untreated, glaucoma can lead to blindness. Therefore, it is important to study the quality of life of affected patients in order to assist in early diagnosis and management.

Aims: This study aims at determining the factors that influence the quality of life of glaucoma patients in the West Bank of Palestine. These factors include socio-economic variables such as gender, age, educational level, place of residence, occupation, income, private care, and health facility of care. This study also aims to explore how general health variables influence the quality of life of patients with glaucoma. These general health variables include general health, medical eye screening, type of glaucoma, having other chronic conditions, duration of chronic diseases, and family history of glaucoma.

Methods and Participants: This is a mixed-methods research that included quantitative and qualitative parts. The quantitative part of this thesis included a survey utilizing the 15-item glaucoma Quality of Life scale as the outcome variable. The independent variables included sociodemographic factors and general health variables. Data were collected through a cross-sectional survey of 100 glaucoma patients in the West Bank of Palestine. Statistical analysis included means and frequencies. ANOVA's were used to compare means of continuous variables at a Statistically Significant P value $\leq$ to 0.05. Qualitative interviews were conducted with 10 glaucoma patients and included open ended questions about the symptoms, challenges, obstacles, and management of glaucoma from the perspective of the patients.

Results: The quantitative part revealed that the glaucoma quality of life is worse among older patients, patients who are less educated, and among patients who were treated at a private clinic not specialized in ophthalmology. Patients with no private care also tended to have a worse quality of life compared to patients who had private care. Patients with good health have a better glaucoma quality of life than patients with poor health. The duration from the diagnosis of glaucoma is also related to

quality of life. Patients who have been diagnosed with glaucoma for more than five years have worse quality of life than those who were diagnosed less than five years. Patients with longer duration of chronic diseases also have worse glaucoma quality of life compared to patients with shorter durations of chronic diseases. The qualitative part of this thesis revealed that glaucoma patients are facing several obstacles such as difficulties in managing daily activities especially driving at night. The qualitative interviews also revealed that patients are usually confused about their diagnosis and are in need of instruction and health education from professionals.

Conclusions: This research revealed numerous factors that can impact the quality of life of glaucoma patients in Palestine. Health professionals, specialists, ophthalmologists, and health educators should be aware of how various socioeconomic and general health factors impact the quality of life of glaucoma patients in order to better diagnose, manage, guide, and educate patients for better health outcomes.

Recommendations: Findings from this research will provide recommendations for health professionals, educators, and policy makers. Clinicians should be aware of the factors that influence the quality of life of glaucoma patients to explore them in clinical settings. This will allow clinicians to address and manage the factors that can negatively impact glaucoma patients' lives. Health educators should guide glaucoma patients on how to manage their symptoms and overcome the challenges and obstacles they face because of their disease. Policy makers should provide access to assistive technologies that can help glaucoma patients lead a productive and comfortable lives.

Key words: glaucoma, open-angle glaucoma, closed-angle glaucoma, quality of life, health related quality of life.

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List of Abbreviations

ANOVA: analysis of variance

ADVS : Activities of Daily Visual Scale

DALY: Disability adjusted life years

GQL-15: Glaucoma Quality of Life-15

GT: Grounded Theory

HRQOL: Health-Related Quality of Life

ICC: Intraclass Correlation Coefficient

IOP: Intra Ocular Pressure

NEI VFQ: National Eye Institute Visual Function Questionnaire

PACG : Primary Angle-Closure Glaucoma

POAG : Primary Open-Angle Glaucoma

QOL: Quality of Life

VAQ: Visual Activities Questionnaire

WHOQOL : World Health Organization Quality of Life

Operational Definitions

Quality of Life: the state of the physical, mental, psychological, economic, and social well-being of a person. QOLShort-Form 36 Health Survey (SF-36) questionnaires; measures 8 domains (General health, Emotional roles limitation, Physical functioning, social functioning, Physical roles limitation, Mental health, Vitality and Bodily pain). (Sencanic, 2018).

Glaucoma quality of life: is the effect of glaucoma on quality of life and is measured through the Glaucoma Quality of Life-15 (GQL-15) Questionnaire; which is a15 rating-scored questions to assess the degree of functional disability caused by glaucoma (Skalicky, Lamoureux, Crabb, & Ramulu, 2019).

Intraocular pressure (IOP): is the pressure produced by the fluids inside of the eye. It is measured by the difference between the air pressure and the pressure inside the eye (Gonzalez Castro, Fitt, & Sweeney, 2016).

I

INTRODUCTION AND AIM OF THE STUDY

Chapter One: Introduction

1.1 Background

Glaucoma is a group of ophthalmic disorders characterized by optic nerve degeneration(AC & SNN, 2020). The optic nerve injury is from increased intraocular pressure (IOP). Two forms of glaucoma are described. The first one is the open-angle glaucoma: in which the drainage cells between the iris and cornea are damaged impeding the drainage of intraocular fluids while the angle between the iris and cornea is still wide opened. This is the most common type of glaucoma occurring in 90% of cases as illustrated in Appendix I.

The second type is the angle-closure glaucoma which is also caused by obstructed fluid drainage but the angle between the iris and cornea is narrowed (Appendix II).

Glaucoma is slowly progressive. In the early stages, Glaucoma is a symptomatic but slowly progresses to complete blindness, which is why it has been referred to as “the silent thief of sight” (Soh et al. 2021). Early detection is therefore important to prevent future blindness. Globally, almost half of glaucoma cases are estimated to have been undetected previously. Most undetected glaucoma cases are in low (HDI) human development index countries, mostly Africa (Soh et al. 2021).

Symptoms of glaucoma include increased intra-ocular pressure which is a hallmark sign of glaucoma. Patients may experience blurred vision or see halos around lights at night. Sensations of burning and dryness are also common. In addition to being a sign of glaucoma, increased intraocular pressure also contributes to damaging the optic nerve (Sreng, Maneerat, Hamamoto, & Win 2020).

Risk factors include aging and family history(M. Z. Mushtaha & Eljedi, 2020). Other risk factors include increased intraocular pressure, female sex, higher levels of air pollution, and higher levels of exposure to ultraviolet radiation (Wang et al. 2019). One study that assessed socioeconomic levels through by the Scottish Index of Multiple Deprivation found that glaucoma risks increase among people with from disadvantaged backgrounds (Ng et al. 2010). Smoking, race, genetics and hypertension, steroids, also commonly identified risk factors of glaucoma (Allison et al. 2020).

The treatment of glaucoma has centered on reducing intraocular pressure (IOP) to prevent loss of vision and blindness (Kumar, et al., 2018).

Epidemiology of glaucoma clarified that about 10% of the estimated 67 million glaucoma patients worldwide are blind(Severn, Fraser, Finch, & May, 2008). Glaucoma is therefore the leading cause of blindness (Wang et al., 2019). By 2040, glaucoma cases are expected to rise to about 76 million mostly due to increased population ageing (Wang et al., 2019).

The burdens of glaucoma stress that it has a substantial economic impact due to the huge costs incurred by visits to hospital and expensive treatments(AC & SNN, 2020). Glaucoma also increases risks of falls and mortality and negatively impacts QOL (Abe et al. 2016; Ramulu et al., 2012).

Some studies examined the version of glaucoma using the disability adjusted life years (DALY) measures (Wang et al. 2019). These studies found that the glaucoma burdens have increased tremendously over the past two decades and that the burden is unevenly distributed among populations with people from lower socioeconomic backgrounds more affected (Wang et al., 2019).

The glaucoma impacts have been assessed by various measures. One such measure is the quality of life (QOL) which can be used as an indicator of the success of a medical treatment, as it provides insight into the nature of the condition and patients' experiences, as well as serving as a guide to treatment efficacy. Furthermore, QOL analyzes the impact of glaucoma on the patient as a whole and can be used to track progress in glaucoma patients. QOL reflects the individual's overall wellbeing and includes domains of physical, mental, general, and social health and functioning(S. Skalicky & Goldberg, 2012). In recent years, QOL measures have become increasingly used in health care and have become major goals of treatment(Riva et al., 2019).

The chief reason for worsening the QOL is losing visual functions resulting in difficulties in driving, walking, reading and side vision. The fear of blindness is itself debilitating. Following the demanding treatment regimens also affects QOL(Guedes, 2015). Social withdrawal is one aspect that affects QOL of glaucoma patients. The financial, medical, and social problems are not borne only by the patient but the family as well(Kumari et al., 2017b). QOL can vary among patients depending on cultural and environmental contexts or the individual patient's perspectives towards the disease(Pelčić, Perić, & Pelčić, 2017).

Assessing QOL in undiagnosed glaucoma patients can also be used to detect cases early and as a result

achieve better outcomes. Therefore, this study aims to assess the QOL of glaucoma patients in the West Bank. Other aims are to explore the factors that influence QOL of patients in order to educate them on how to improve their conditions and identify glaucoma patients' difficulties and obstacles.

1.2 Problem Statement

Visual impairment negatively affects physical and mental health. Visual impairment lies in the top ten disabilities in some countries. The visually disabled are at higher risk for accidents, depression, and social isolation. As the populations age, the number of people with impaired vision rises (L. Quaranta et al., 2016).

Globally, glaucoma is a major health problem. Its incidence is increasing, and it exerts tremendous social challenges for patients and can ultimately lead to blindness(M. Z. Mushtaha & Eljedi, 2020). Patients' quality of life is immensely impacted by glaucoma(Zuo, Zou, Zhang, Fei, & Xu, 2015).

Glaucoma usually occurs in both eyes and causes gradual loss of peripheral vision. If untreated, patient may become blind. This looming risk of blindness along with the financial costs and burden of treatments cause psychological stress and loss of different aspects of life quality(Kumari et al., 2017b).

The prevalence of glaucoma among adults above 40 is around 2% but this prevalence increases with age. Activities of daily living are adversely affected. These activities include reading, light adaptation, outdoor mobility, avoiding obstacles, etc.). Those challenges persist even when the central visual acuity is still preserved even early before symptoms appear(Labiris, Giarmoukakis, & Kozobolis, 2011).

As the populations are aging rapidly the prevalence of glaucoma is expected to reach 111.8 million by 2040(M. Z. Mushtaha & Eljedi, 2020).

As the glaucoma is usually without symptoms until advanced, detecting the disease early is crucial to prevent blindness(Severn et al., 2008). Preservation of QOL is a primary goal of treatments (Aspinall et al., 2008)

Data on the prevalence of glaucoma are not available in Palestine. One study examined the QOL of glaucoma patients in Gaza (Mushtaha & Aljedi, 2020) but the needs and obstacles of glaucoma patients in the West Bank have not been studied.

1.3 Study Justification:

In clinical practice, the QOL of a patient is vital for determining their overall health, visual health, and satisfaction with care. The QOL can be used to guide key therapeutic decisions. When clinicians analyze patients' quality of life, they can collaborate with them to set more realistic common goals, which leads to better outcomes. Assessment of QOL is becoming more significant in clinical research and practice(S. Skalicky & Goldberg, 2012).

QOL is important because: (i) it serves as an indicator of patients' well-being; (ii) it can be used to gauge the effectiveness of treatment; (iii) it assists policy makers on decisions regarding resource distribution and program developments(M. Z. Mushtaha & Eljedi, 2020).

QOL measures that are specific for glaucoma are important because (i) They can assist in 'decision making' regarding disease management; (ii) They can provide guidelines for patients' daily living and safety (e.g. how to adjust the home environment); (iii) They can assist in avoiding problems related to how to adapt to variable lighting conditions, how to avoid obstacles, and how to perform near and outdoor activities such as driving and walking.

In this regard, QOL studies can be used to educate patients, about their disease stressing the need to adhere to daily therapy, even if symptoms are not present in the early stages. This is the first study that will explore the needs of glaucoma patients in the West Bank. It will inform decision-makers about the QOL for patients with glaucoma to help them in solving problems, managing their problems, and in delivering of better treatment plans to glaucoma patients.

It will also raise awareness about those who are afflicted with this crippling disease, as they are in serious need of counseling, care, guidance, and continuous medical follow up.

1.4 Objectives

General Objective:

To evaluate the quality of life of glaucoma patients in the West Bank of Palestine.

Secondary Objectives

- To explore the social and demographic factors that influence patients' QOL.
- To determine the disease-related factors that influence QOL for glaucoma patients.
- To identify glaucoma patients' difficulties and obstacles.

1.5 Research Questions

- What are the socio-demographic factors that influence QOL for patients with glaucoma?
- What are the disease-related factors that influence QOL for patients with glaucoma?
- What are the difficulties and obstacles facing patients with glaucoma?

1.5 Hypotheses

First null hypothesis: There is no statistically significance difference at $\alpha \leq 0.05$ between socio-demographic factors and QOL for patients with glaucoma in West Bank.

Second null hypothesis: There is no statistically significance difference at $\alpha \leq 0.05$ between disease-related factors and QOL for patients with glaucoma in West Bank.

1.6 Variables

Independent Variables

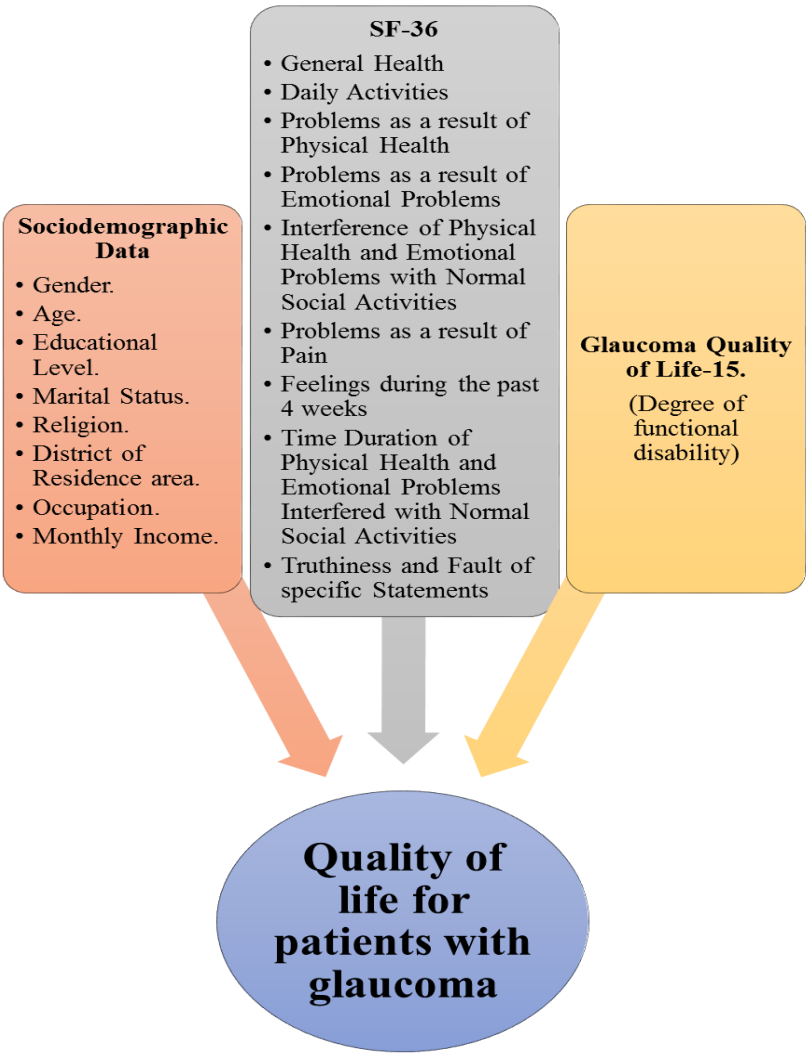
Predictor variables include Socio-demographic characteristics, general health information, information about daily activities, adaptation to glare and dark, limitations of physical and social activities, vitality, and pain.

Dependent Variables

The outcome variable is Quality of life.

1.7 Conceptual Framework:

Based on the review of the available literature, the researcher established a conceptual framework to summarize and clarify the study's variables and their interrelationships. The conceptual framework of the study as shown in Figure 1.1 shows how variables interact and influence the QOL among Glaucoma patients. The factors also interact among each other, consequently, affecting QOL either positively or



negatively.

Figure 1.1: Conceptual Framework of Quality of life for patients with glaucoma.

LITERATURE REVIEW

Chapter two: Literature Review

2.1 Introduction

Glaucoma is a very series condition that adversely affects QOL and can lead to blindness if left untreated. Early detection is a key factor in improving prognosis. Starting treatment and medical managements early can improve QOL. In this chapter I will review the epidemiology, management of glaucoma, and instruments used to measure QOL for glaucoma patients.

2.2 Epidemiology of Glaucoma

Primary Open-Angle Glaucoma (POAG) affects an estimated 57.5 million people worldwide, with a global prevalecne rate of 2.2 percent (Wiggs & Pasquale, 2017) . POAG has impacted 7.8 million persons in Europe, with a cumulative frequency of 2.51%(Kapetanakis et al., 2016; Kreft, Doblhammer, Guthoff, & Frech, 2019; Tham et al., 2014). POAG is the most frequent type of glaucoma in the UK, affecting 2% of persons over 40 and 10% of those over 75, primarily African-Caribbeans; Primary Angle-Closure Glaucoma (PACG) is less common, affecting 0.17 percent of people under 40, primarily East Asians(Imrie & Tatham, 2016).

According to one study, socioeconomic disparities or inequalities have influenced glaucoma services (Kapetanakis et al., 2016; Kreft et al., 2019; Wiggs & Pasquale, 2017). Genetic and may be environmental variables have been resposible for regional/racial variances in glaucoma prevalence. POAG is substantially related with susceptibility gene loci. Genes associated in IOP regulation have been investigated, and the Igbo tribe of Nigeria, which is a relatively homogeneous ethnic group, has the greatest frequency of glaucoma(Kapetanakis et al., 2016; Kreft et al., 2019; Kyari et al., 2015; Tham et al., 2014).

Furthermore, the high age-specific glaucoma occurance in Nigerian adults aged 40 and up shows that glaucoma severity starts earlier in blacks and progresses more aggressively than in Caucasians and some Asians(Kyari et al., 2015). This could be due to a lack of early detection and treatment options. As a result, black people acquire POAG earlier than people of other races (Weinreb et al., 2016). They are six times more likely than whites to be afflicted by POAG, while Mongolians and Burmese are six times more likely to be

impacted by PACG than POAG(Kapetanakis et al., 2016; Tham et al., 2014). The frequency of glaucoma varies by ethnicity and birthplace(Tham et al., 2014).

In a similar study, (Kelly, Wen, Haddad, & O'Banion, 2019) found that among people aged 40 and up, 2.2 percent of whites have glaucoma, compared to 5.7 percent of blacks. According to(Tham et al., 2014) , the number of inividuals with glaucoma aged 40-80 years would rise from 64.3 million in 2013 to 76 million by 2020, with a total prevalence of POAG of 3.54 percent for those aged 40 to 80 years. Glaucoma is more common as people become older, and it's linked to age-related disorders like macular degeneration, vascular disease, and obstructive sleep apnea(McMonnies, 2017). POAG is closely linked with age, with older Hispanic or Latino adults (18%), black individuals (15%), white individuals (7%), and Asian individuals (5%) having the highest occuranc (McMonnies, 2017).

Finally, (Kelly et al., 2019) estimated that there are gender variations in glaucoma among adults aged 40 years. Males were found to have a 36 percent higher frequency of glaucoma than females (Kreft et al., 2019; Tham et al., 2014). Men and women are both at increased risk for POAG and PACG(Kreft et al., 2019; Wiggs & Pasquale, 2017).

In addition, (Tham et al., 2014) forecasts is that the number of people with glaucoma aged 40 to 80 years will rise from 76 million in 2020 to 111.8 million by 2040. Persons from Europe, North America, and Oceania will only add a minor rise in the number of POAG and PACG cases between 2013 and 2040, with Asia and Africa accounting for the majority of the 47.1 percent increase. From 2013 to 2040, people from Asia will be accountable for a rise in 18.8 million (79.8%) POAG cases and 9 million (58.4%) PACG cases; from 2013 to 2040, people from Africa will be accountable for an increase of 10.9 million (130.8%) glaucoma cases (Tham et al., 2014).

2.3 Glaucoma management

Lowering intraocular eye pressure to prevent further progression of optic nerve neuropathy and vision loss is currently the only confirmed effective treatment for POAG and ocular hypertension (Weinreb, Liebmann, Martin, Kaufman, & Vittitow, 2018). Lowering intraocular pressure to a level that will limit disease

development and prevent functional impairment is recommended by the American Academy of Ophthalmology Preferred Practice Pattern(Feder et al., 2016).

Using pressure-reducing topical ocular treatment is the most powerful strategy to acheive this goal(Liu & Allingham, 2017). Prostaglandin analogues lower intraocular pressure by lowering outflow resistance, resulting in greater aqueous humor flow through the uveoscleral pathway, which is often the first line of treatment(Diaconita et al., 2018).

Topical ocular drugs are the most commonly used due to its simplicity, nono-invasiveness, easiniess of self-admistration by patients(Diaconita et al., 2018; Weinreb et al., 2018). However, these drugs might elicit local side effects such conjunctival hyperemia, eyelash elongation and darkening, orbital fat loss, and periocular skin discloration (Diaconita et al., 2018). Glaucoma drugs have a lot of side effects that can happen right away or later(Weinreb, Robinson, Dibas, & Stamer, 2020). Temprary stinging and burning are the most prevalent ocular side effects of these medicines(Davis et al., 2018; Farkouh, Frigo, & Czejka, 2016). Other common signs and symptoms include blurred vision, dry and irritated eyes, and retinal detachment(Weinreb et al., 2020). These symptoms are annoying, but they are usually bearable.

If drugs are no longer effective and alternative treatment options are failing to keep intraocular pressure under control, laser or incisional surgery may be required(Elhofi & Lolah, 2017). Surgery is indicated for people who are severely non-compliant or have a serious illness(Sahoo et al., 2018). The most common incisional surgical treatment for minimizing intraocular pressure is trabeculectomy. This surgical glaucoma treatment compromises the integrity of the globe and causes a slew of consequences, the most of which are vision-threatening(Sahoo et al., 2018; Yook, Vinod, & Panarelli, 2018). As a result, the surgical success rates are low, with the potentail for a flat anterior chamber, infection, scarring, hemorrhage, and loss of sight(Yook et al., 2018).

2.4 Factors Leading to Glaucoma Treatment Non-adherence

Glaucoma can be controlled with medical pharmaceutical therapies (Mehuys et al., 2020; Souto et al., 2019). However, patient compliance with glaucoma therapy and medication is a constant struggle(Mehuys et

al., 2020). Regular follow-up of Glaucoma patients are necessary to check patients' reaction to ocular drugs as well as any negative side effects(Mehuys et al., 2020). This ongoing follow-up have hampered appropriate illness management(Lazcano-Gomez et al., 2016; Mehuys et al., 2020). Despite the significant advances in the glaucoma treatment such as ocular medicines and follow-up care to prevent glaucoma-related vision loss, up to 80% of patients do not follow their treatment plans(Robin & Muir, 2019). limited complaince and clinical results adversely affect society's most vulnerable individuals, such as culturally isolated, elderly, and minority communities(Hark et al., 2019; Newman-Casey et al., 2015).

Adherence is a complex multidimentional issue affected by a variety of elements such as the patient, the treatment, the illness, the healthcare system, and socioeconomic conditions and associated diseases(Robin & Muir, 2019) . According to the World Health Organization (2003), adherence is "*the degree to which a person's behavior when taking medication, following a diet, or making lifestyle changes aligns to agreed-upon advice from a health care practitioner"* (WorldHealthOrganization, 2003). Inadequate communication between patients and doctors, poor patient knowledge on the long-term consequences of glaucoma, inability to read instructions, inability to instill eye drops, difficulty to rememebr taking medicines, polypharmacy, treatment costs, and drugs side effects have all been identified as significant barriers to adherence(Tamrat, Gessesse, & Gelaw, 2015). Furthermore, not similar to oral medications, ocular drops necessitate precise technique for effective delivery(Lazcano-Gomez et al., 2016). Ineffective eye drops instillation and non-compliance result in decreased therapeutic effectiveness as well as raised chronic disease expenditures(Souto et al., 2019). More than 50% of POAG patients missed 10% of their doses, whereas 15% missed half(Gao et al., 2018; Souto et al., 2019) . Approximately 50% of those who fill glaucoma prescriptions stop taking their ocular hypotensive medications after six months(Newman-Casey et al., 2015). Overdosing or touching the eye with the eye drop container might cause eye infection and other damages (Gao et al., 2018). Poor eye medication tolerance and systemic side effects are key non-adherence difficulties, especially when the main condition is asymptomatic(Gao et al., 2018).

2.5 Poor Education and Patient Knowledge on Glaucoma

Poor compliance may be caused by a lack of understanding regarding glaucoma, glaucoma manangement, or the repercussions of poor treatment(Robin & Muir, 2019). In a cross-sectional study found that half of patients and their first-degree relatives indicated that knowledge regarding glaucoma was an impeding factor to treatment adherence. Patients with glaucoma, like those with other chronic conditions like hypertension, do not have identifiable indication that can suggest progress(Celebi, 2018).

Patients may not clearly aware of the implications of ocular pressure(Celebi, 2018). A previous study pointed out that a patient-centered strategy involving early instructions about glaucoma and the need of utilizing eye drops can boost inducement and adherence (Tse et al., 2016). Doctors who are pressed for time due to financial restrictions, spending long time dealing with electronic patient record, and tight work agenda due to a severe scarcity of glaucoma specialists confront substantial challenges in providing effective health education(Alkureishi et al., 2016).

The insufficient time produces a gap in the care system that makes doctors unable to to do all the tasks such as surgical intervention, medical treatment, health education, and counseling while he or she works in a complex system(Newman-Casey et al., 2018; Tse, Shah, Jamal, & Shaikh, 2016). Newman-Casey et al. (2018, 2020) developed a technology-based, individually personalized behavior change program to incentivize persons with glaucoma to improve their medication adherence in order to address the lack of time clinicians spend with patients(Newman-Casey et al., 2020; Newman-Casey et al., 2018).

The healthcare paramedicals provided brief counceling on glaucome instrcutions as part of the adopted program. The ability of patients' eye drop instillation or general health activation were not improved by the intervention. This is due to the short time spent with patients, aimless education, not culturely adpated education where non-English speaking patients could obtain information in their native tongue(Newman-Casey et al., 2020).

Lower socioeconomic , lower academic achievement, and a higher level of ainxiety associated with glaucoma all linked with poor adherence to glaucoma treatments. Patients were given booklets and electronic

materials to evaluate the efficiency of such methodology, but these tools did not ensure continuous compliance with treatment(Shah & Shaikh, 2018). Many patients respond well to discussion-based discourse and want a tailored, individauly appointment with their doctor, therefore Shah saw a need to transmit educational information demands orally.

2.6 Approaches to Improve Adherence and Persistence

Expansion the pool of persons who take their glaucoma medication as prescribed could help slow disease progression, visual impairment, and lower quality of life. Many studies were done on health promotion activities that could boost the compliance with glaucoma therpay(Wolfram, Stahlberg, & Pfeiffer, 2019). Educational and instructional movies about glaucoma and ocular drug instillation, eye drop administration monitors, automated prescription refills sent to the drugstore, phone calls and texts reminding patients on eye drops times, and inspirational counseling meetings focusing of behavioral change methods are just a few of the interventions(Newman-Casey et al., 2015).

In short peroid , many of these strategies had a significant influence on drug compliance(Slota et al., 2015). Phone counseling was not as successful as counseling provided in face to face. Furthermore, for busy ophthalmological activities, actions with appropriate time to interact with patients to meet each person's requirements were challenging and not durable. There are currently no well recognized techniques to enhancing glaucoma patient self-care and behavioral change based on well established establishing health promotion(Fudemberg et al., 2016; Slota et al., 2015; Wolfram et al., 2019).

2.7 Quality of Life (QOL) and Health-Related Quality of Life (HRQOL)

QOL and HRQOL are two main health outcome indicators that are frequently used mutually. While both QOL and HRQOL reflect the individual's participantive health self reporting, they provide distinct information. QOL is a wide constrcut that incorporates many elements of life, including family conditions, incomes, living situation, and job satisfaction(Rosenbaum, Livingston, Palisano, Galuppi, & Russell, 2007).

The patients' culture and values are used to determine QOL. The WHO define QOL as "*an individual's perspective of their position in life in the context of culture and value systems in which they live and in relation*

to their goals, expectations, standards, and concerns" (WorldHealthOrganiztion, 2014). The QOL could be defined as "*person's own estimation of physical, psychological or social well-being"*(Quaranta et al., 2016). The maintenance of glaucoma patients' quality of life is one of the most essential goals of glaucoma management(Hirooka, Sato, Nitta, & Tsujikawa, 2016; Quaranta et al., 2016).

The ophthalmologist's aim is to prevent the deterioration of HRQOL. The HRQOL, however, is a subset of QOL that focuses on people's opinions of their own health status and genraral functioning pertaining to their physical, social, and psychological characteristics (Quaranta et al., 2016). HRQOL is a self-reported health condition that shows how disease influences QOL or the benefits associated with various health sitautions(Rosenbaum et al., 2007).

Although the visual impairment caused by glaucoma is at first asymptomatic, the HRQOL might be impacted as ealry as the diagnosis is confiremd, and/or the early harm and therapy create side effects other than decreased central vision. It's crucial to conduct research across various HRQOL dimensions in order to gain understanding into the areas of daily life that are adversely impacted by glaucoma(Quaranta et al., 2016).

Low HRQOL in glaucoma patients can be caused by a variety of factors that vary among patients' groups. The anxiety due to diagnosis, severity of disease, impairment of functions loss due to visual dysfunction, lack self-reliance, frustration due to long term treatment and its side effects, cost of therapy, and frequent follow up appointments are all factors that contribute to a worsen HRQOL among glaucoma cases(Varma, Lee, Goldberg, & Kotak, 2011).

According to previous studies, even just being diagnoded with glaucoma might have a significant impact on HRQOL(Fauser, 2015). Glaucoma is a degenerative condition wher a lot of patients are astonished with the diagnosis of glaucoma, nevertheless they link their visual impairment to normal aging process(Fauser, 2015). Patients are frequently surprised to know that they already have they have advanced disease when they are diagnosed(Buys, Gaspo, & Kwok, 2012).

According to current studies, the way patients perceive their vision, rather than the objective appraisal of it, has a greater impact on HRQOL(Quaranta et al., 2016). POAG patients have lower HRQOL scores than

patients without final diagnosis of glaucoma (Quaranta et al., 2016). A different study, which adpoted the same HRQOL instrument but included a higher proportion of patients with early stage glaucoma, found that visual impairment had no significant imapct on HRQOL ratings(Quaranta et al., 2016). According to literature, the HRQOL scores have also been found to be lower in patients with progressive glaucoma and existing comorbidities (Lee & Wilson, 2000; Quaranta et al., 2016).

The visual acuity was the clinical feature that impacted HRQOL in a cross-sectional investigation of patients with POAG and ocular Hypertension(Yamazaki et al., 2019). The anlysis also revealed that loss of vision in the better eye has a greater impact on HRQOL than loss of vision in the worse eye(Quaranta et al., 2016; Yamazaki et al., 2019). The anaysis also showed that poor HRQOL is linked to more severe glaucoma, however there is evidence of poor HRQOL even in the intial stages of glaucoma(Paletta Guedes, 2015).

Visual dysfunction, eyesight level, time peroid after glaucoma diagnosis, are all linked to HRQOL ratings . Despite the variation of methodological design among studies, numerous studies have revealed substantial associations between visual dysfunction and HRQOL (Langelaan et al., 2007; Quaranta et al., 2016).

In a recently published study in 2020 aimd at assessing the QOL of Glaucoma patients in Gaza Governorates and the factors that influence their living situations using the Glaucoma Quality of Life-15 (GQL-15) and Short-Form 36 Health Survey (SF-36) questionnaires, found that the average score was GQL-15 was 59.2 ± 17.6. Additionally, the activities involving glare and dark adaption had the most difficulty (48.5±18.0), whereas outdoor movement had the least difficulty ((66.6±25.4). The total average of SF-36 domain scores was (61.7±13.5). The highest score (79.4) was given to the physical discomfort domain, followed by the social function area (72.22), and finally General Health (48.58).

According to the findings, participants with no ocular disorders and comorbidities had a higher quality of life. Patients with a higher educational level, a higher income, and an illness duration of less than 5 years also had higher QOL scores(Mushtaha & El-Jedi, 2020). Another newly publisded study from Egypt used the glaucoma quality of life-15 questionnaire (GQL-15) to assess the functional impairment in patients with

(POAG). The study findings were congruent with the study condcuted in Gaza, while it found that median GQL-15 score in the glaucoma cases was significantly higher than the controls(indicating more functional disability (Behery, 2022). There was also visual impairment in particular tasks involving glare and dark adaption, which appeared to be affected in the early stages of glaucoma.

In Brazil, a supported study result pointed out that the mean QOL score was 77.62 (± 18.007) points, and concluded that visual field impairment was related to poor quality of life among people with glaucoma(Picanço et al., 2018).Consistent finding from Slovakia in a study aimed assessing the QOL of patients with (POAG) based on their visual functioning, concluded that QOL of patients with visual impairment is significantly lower in comparison to that of patients without a visual impairment(Majerníková, Hudáková, Obročníková, Grešš Halász, & Kaščáková, 2021).

Another supprting evidenc from Ethoipea with a study amied at checking the effect of glaucoma on QOL among in Ethiopian patients. The study found the mean GQL-15 score in the glaucoma cases (46.3)was significantly higher (indicating poorer quality of life) than the controls (18.6) (Ayele et al., 2017).

Similarly, in a prospective study of the quality of life and burden of care in glaucoma patients and their families compared to cataract patients, 100 glaucoma patients and 50 patients with age -related cataract were compared. Patients were interviewed to obtain information on visual disability and vision-specific quality of life.

The results showed that the scores of WHOQOL-BREF questionnaire for patients with glaucoma were significantly lower than those with cataract in visual function, social function, mental health, and role difficulties.

General quality of life scores was significantly poor in glaucoma as compared to cataract patients in all domains of questionnaire including general well-being, physical health, psychological, social relationship and environment. There was more burden of care in glaucoma patients and their families as compared to cataract patients including financial burden, disruption of routine family activities, family leisure, family interaction, physical health and mental health(Kumari et al., 2017a).

A newly publsihed paper in 2022 is consistent with above findings, aimed at assessing the impact of glaucoma on HRQOL and mental health in the elderly Finnish individuals. The study found a significant declien in the HRQOL and overall mental health. The glaucoma-related visual impairment was the most common cause of poor HRQOL and mental wellbeing. The researchers also reveald that neither glaucoma medication nor glaucoma surgery had an effect on these measures(Purola et al., 2022).

2.8 Instruments for Assessing the QOL in Glaucoma Patients

HRQOL is one of the patient-reported outcomes instruments. If the patient is unable to self-report, they can be done by a surrogate(Jokstad, 2018). Using single instruement to assess the patient ourtcomes is misleading, as the patients' individual needs necessitates a multifaceted recognition of patient characteristics, social bonds and engagement, physical and psychological health status(Deshpande, Rajan, Sudeepthi, & Abdul Nazir, 2011).

Despite the patient-reported outcomes are an important approach being used is the patient care plan and are measured in a systematic manner in some clinical settings, they are infrequently used in ophthalmic practice for a variety of reasons, including uncertainty of which patient-reported outcome instrument to be used, a lack user guide on how to regularly deal with them, inability to interpret their findings, limitation of time, and resource constraints (De Lott & Ehrlich, 2021; Vandenbroeck, De Geest, Zeyen, Stalmans, & Dobbels, 2011).

The assessement of patient-reported outcomes in ophthalmic practice is now a priority, and a panel of ophthalmologists in Ontario is working with government officials to integrate them into usual practice. Generic, disease-specific, dimension-specific, and utility measures are examples of constucted patient-reported outcomes instruments (Berdeaux, Nordmann, Colin, & Arnould, 2005). Previous appraisals used generic, glaucoma-specific, vision-specific, medication-specific, and utilitarian tools to assess patient-reported outcomes in diagnosed and suspected individuals with glaucoma(Browne, Brazier, Carlton, Alavi, & Jofre-Bonet, 2012). A combination of one generic and one vision-specific instrument was frequently utilized in these research.

a- Generic Instruments

Generic instruments were created to provide total impact of a health condition for easy comparison with different health conditions and are used to appraise the patients' overall functional status(Casson, 2022). The Medical Outcomes Study Short Form-36 (SF-36) is the most prevalent generic tool used in glaucoma research among generic instruments such as the EuroQOl-5D (EQ-5D), the Sickness Impact Profile (SIP), and the World Health Organization Quality of Life (WHOQOL)(Paletta Guedes, 2015).

The generic tool's key trait is that it may be used to compare among different people , even those without the disease of interest(Krabbe, 2016). These measures generate a summary score over a variety of aspects, including physical and social well-being, emotional and physical difficulties, role restrictions, and mental health(Krabbe, 2016). Generic instruments, on the other hand, may not be as specifically related to individual groups and may be less responsive to clinically significant changes since they focus on broad elements(Krabbe, 2016). Individuals with glaucoma showed poorer scores in all dimensions than patients without glaucoma, according to studies employing the generic instrument(Sherwood et al., 1998).

b-Glaucoma - Specific Instruments

Glaucoma-specific instruments concentrate on certain condition and reflect topics that are essential to glaucoma patients (Che Hamzah, Burr, Ramsay, Azuara-Blanco, & Prior, 2011; Skalicky et al., 2019). They're commonly used to track changes in a population over time.

Glaucoma-specific measures evaluate symptoms, functional impairment, vision-related issues, and the degree to which glaucoma and treatment affect their health (Skalicky et al., 2019). They are therapeutically useful and disease-specific, although they are rarely employed in clinic and are primarily used for research. Generaly, when it comes to monitoring changes in health condition as a result of glaucoma care and therapy, disease-specific instruments are more relevant and sensitive than generic instruments(Skalicky et al., 2019; Vandenbroeck et al., 2011).

c-Vision - Specific Instruments

Vision-specific instruments are used to appraise the functional impairment among individuals with visison problems. They concentrate on the patient's visual skills, particular task performance, and the influence of visual dysfucntioninig on their everyday routine tasks (Shaarawy, Sherwood, Hitchings, & Crowston, 2015). The Visual Function Index (VF-14), National Eye Institute Visual Function Questionnaire (NEI VFQ), Activities of Daily Visual Scale (ADVS), and Visual Activities Questionnaire (VAQ) are some of the most often utilized vision-specific measures(Shaarawy et al., 2015).

When comparing patients with glaucoma to a control group, vision-specific equipment were found to be more sensitive than generic instruments. They were also found to be more closely linked to clinical evaluations (Kotowski, Wollstein, Ishikawa, & Schuman, 2014; Ronnie, Ve, Velumuri, Asokan, & Vijaya, 2011).

d-Dimension - Specific Instruments

Because dimension-specific instruments are rarely used in glaucoma research, their validity as an outcome measure must be carefully analyzed, and evidence on their trustworthiness is little. When a particular domain needs to be assessed, dimension-specific instruments are used (i.e., social and emotional well-being) (Krabbe, 2016). It is frequently more comprehensive than generic and disease-specific instruments.

e-Utility Measures

Utility assessments measure patient's personal preferences and values in relation to their existing disease. Rating scales, standard gamble, and time trade-off are common methods for calculating direct health utility values(Krabbe, 2016). Economic analyses such as cost-utility analysis benefit from utility values.

f-Vision-related Health-Related Quality of Life

The NEI VFQ-25 is the most extensively utilized instrument in vision-related functioning. It was created with 12 domains for clinical practice: "*general health, general vision, visual pain, near activities, distant activities, social functioning, mental health, role difficulties, dependency, driving, color vision, and peripheral vision*"(Georgios, Athanassios, & Vassilios, 2011). It was created to assess vision-specific

functionality as well as the impact of as well as the effect of impaired vision on HRQOL in a variety of ocular diseases.

In glaucoma patients, both the long version 51-item and the shorter 25-item version instruments were frequently used and shown to be internally consistent, relaible, and responsive(Quaranta et al., 2016). Because it includes items relating to activities of daily living, social functioning, and coping with vision loss, vision-specific measures have been proven to be more sensitive and relevant to glaucoma than generic QOL instruments(Nordmann, Auzanneau, Ricard, & Berdeaux, 2003).

In comparison with the generic instruments , the NEI VFQ-25 scores have a stronger link to clinical outcomes(Browne et al., 2012). Patients with newly diagnosed glaucoma were randomly assigned to either treatment or control group in the Early Manifest Glaucoma Trial. On the NEI VFQ-25 scale, patients had a high eighted average score of 88.8 out of 100(Hyman, Komaroff, Heijl, Bengtsson, & Leske, 2005).

Early treatment extremely improved glaucoma progression clinical outcomes but had little effect on VRQOL scores(Hyman et al., 2005). Furthermore, low visual acuity in the better-seeing eye, and lens opacities were associated with the NEI VFQ-25 scores, but no association was detected with age, sex, intraoccular pressure, cardiovascular illness, or systemic hypertension(Hyman et al., 2005). Visual field loss and NEI VFQ-25 subscale scores were found to be associated in the Los Angeles Latino Eye Study(Globe et al., 2002).

Previous research has shown that glaucoma patients with visual field loss have lower VRQOL scores (Georgios et al., 2011; Quaranta et al., 2016). Furthermore, another study indicated that patients with glaucoma had lower NEI VFQ-25 weighted average scores, which were linked to more severe visual acuity defects(Hirneiss, 2014).

METHODOLOGY

Chapter Three: Methodology

3.1 Introduction

The current study methodology is described in the following sections: study design, setting, population, sampling & sample size, inclusion & exclusion criteria, study instruments, validity of questionnaire, pilot study, reliability of questionnaire, data collection methods, data analysis and ethical considerations.

3.2 Study Design

This study is a mixed methods study. A mixed methods research methodology was used to draw on strengths from quantitative and qualitative designs. As such a diverse perspective will be available regarding the research questions. Consequently, the research questions can be explored more comprehensively and profoundly. While the quantitative part will provide bread the qualitative part will provide depth. The quantitative part is a descriptive, cross-sectional study. Patients diagnosed with glaucoma and no other ocular comorbidity were included. A mixed method of qualitative and quantitative studies was used. Quantitative part gave depth and generalizability, while qualitative part provided depth and richness. The researcher started start with a few qualitative interviews to gain insights that will refine the quantitative questionnaire. The qualitative interviews continued to provide further enrichment to the qualitative findings. The results of the qualitative arm were integrated with the findings from the questionnaires to provide a more holistic view.

According to the classification of the McGill Mixed methods appraisal tool (MMAT) version 2018, the design of this study is of the convergent type (Hong et al., 2018). The purpose of this design is to bring the qualitative and quantitative data together by integrating both at the interpretation phase with the quantitative arm as the main part and the qualitative arm as the supplemental part.

3.3 Study Setting

The study was conducted at West bank in either governmental or private "non-governmental" ophthalmic clinics or hospitals. The study recruited glaucoma patients from 4 private hospitals and 4 governmental hospitals in West Bank. The private hospitals are An-Najah national university hospital, St John eye hospital, Surgi-Care center, and Alrazi hospital.

The governmental hospitals are Alia hospital, Hugo Chaves Ophthalmic hospital, Rafidia hospital, and Palestinian medical complex.

3.4 Study Population

The study population was all patients with glaucoma in West Bank. All glaucoma patients were estimated to be about (200). Through contacting staff working in ophthalmic clinics and hospitals, were recruited 100 patients to participate in filling questionnaires in the quantitative part of the study. The sample size was calculated through the G*Power software.

3.5 Sampling and Sample Size

Study sampling is a systematic random sample to select one from every two patients. Therefore, the sample size included 100 patients with glaucoma in West Bank. Data were collected by researcher face to face with glaucoma patients. The interview started by providing the participants with complete instructions and explanations about the study and its objectives and the importance of giving true answers. The interview was taking all ethical considerations in order not to be annoying.

For the qualitative part of the study, sample consisted of 10 patients from whom data was collected through in-depth interviews containing open ended questions. Patients were recruited from ophthalmology hospitals and clinics with the assistance of health professionals through purposive sampling. Saturation was achieved at 10 interviews. Each interview lasted for 15 to 30 minutes.

3.6 Inclusion Criteria

- Adult’s glaucoma patients (18 years old and above) who were able and willing to answer the questions in the questionnaire who were diagnosed of glaucoma more than 6 months of this study.
- Patients on medical therapy.
- Patients with no incisional glaucoma or cataract surgery

3.7 Exclusion Criteria

- Adult's glaucoma patients less than 18 years old.
- Patients who had recently diagnosed of glaucoma at less than 6 months of this study.
- Patients with any ocular condition that could impair vision such as cataract that is diagnosed clinically, macular degeneration, or any other ophthalmic condition).
- Patients who have incisional ocular surgery or laser treatment previously, except a glaucoma surgery and laser therapy.
- Patients who did not understand the questions or were not willing to answer them.

3.8 Study Instrument

To achieve the objectives of the study, the questionnaire was implemented (Appendix III). The questionnaire was developed after surveying previous studies dealing with the same participant. Some questions were gathered and modified from other questionnaires of similar published researches.

The questionnaire included questions about Socio-demographic data; General health information; Information about daily activities; Information about problems facing patients as a result of physical health; Information about problems facing patients as a result of emotional problems; Information about interference of physical health and emotional problems with normal social activities; Information about problems facing patients as a result of pain; Information about feelings and how things have been with patients during the past 4 weeks; Information about time duration of physical health and emotional problems interfered with normal social activities; Information about truthiness and fault of specific statements and Quality of Life data.

Quality of Life data were collected using:

(1) Short-Form 36 Health Survey (SF-36) questionnaires; which focuses on the participant's experiences, feelings, beliefs, perceptions and convictions concerning their health-related quality of life. It consists of closed-ended structured questions. These questions are related particularly to the eight quality of life indicators which are (General health, Emotional roles limitation, Physical functioning, social functioning, Physical roles limitation, Mental health, Vitality and Bodily pain). The validity and reliability of this

questionnaire was confirmed in numerous studies (Reulen et al., 2006; Sencanic, 2018; Walters et al., 2001; Anderson et al., 1996). The Cronbach's alpha in most studies was above 0.7.

(2) Glaucoma Quality of Life-15 (GQL-15) Questionnaire; which is concise, easy to administer and considered one of the better glaucoma-specific instruments, with good acceptability among clinicians and patients. It asks 15 rating-scored questions to assess the degree of functional disability caused by glaucoma. The questions include six questions relating to peripheral vision, six relating to dark adaptation and glare, two relating to central and near vision and one relating to outdoor mobility. Responses are coded on a 5-point Likert scale ranging from 1) no difficulty to 5) severe difficulty.

Several studies confirmed good psychometric properties of the GQL-15 scale. In a study of 117 glaucoma patients in Serbia, the Cronbach alpha (internal consistency index) of the whole scale was 0.89. The scale correlated significantly with other vision specific QOL measures such as the National Eye Institute Visual Function Questionnaire (NEI-VFQ 25) indicating good criterion validity. The construct validity was tested using factor analysis and confirmed a four-factor structure as in the original scale. The discriminant validity was tested by the scale's ability to discriminate between mild, moderate, and sever cases (Scencanic et al., 2018). The test-retest reliability was 0.96 as measured by the Spearman's correlation coefficient indicating good reproducibility (Scencanic et al., 2018).

In a study from China that tested the GQL-15 scale in a group of 508 glaucoma patients, the Cronbach alpha of the whole scale was 0.91 and ranged between 0.75 and 0.91 for the subscales. Test-retest correlation using the Intraclass Correlation Coefficient (ICC) was above 0.7 for all subscales indicating very good reproducibility or consistency (Zhou et al., 2013).

The Face validity was assessed with 5 experts evaluated the face validity Face Validity Index = 0.98. Discriminant or divergent validity was confirmed by showing significant differences between diseases categories (mild, moderate, severe). Patients with more severe diseases assessed by objective measures had worse GQL-15 scores even after adjusting for confounding variables. Construct validity was assessed with factor analysis and confirmed the 4 factors of the original scale. Several other studies confirmed the

psychometric properties of the scales for example in Germany (Khadka et al., 2011) and in Iran (Mahdaviazad et al., 2018).

For the qualitative part, open-ended questions were asking patients to talk about their background, their diagnosis, the challenges they face, and their experiences at the physical, emotional, and social levels. Probes and prompts were used to dig deeper into patients answers to provide depth that cannot be achieved in quantitative studies. Interviews were transcribed and translated to English language. Transcripts were analyzed by identifying major and sub-themes in an open coding technique. Finally, the core category and the story line was summarized.

3.9 Validity of Questionnaire

The investigator ensured the face validity twice. The first time was through experts who give their suggestions for improvement and judgment about the adequacy and accuracy of the questionnaire. The second, during the Pre-test of the questionnaire (pilot study) as the participants were asked about the structure of questions, its shape, and typing clearance and the average time to fill the questionnaire.

Content validity was done before data collection, by sent the questionnaire with covering letter concerning study and paper contain instruction about the study, main aim, objectives, and other relevant information to experts “arbitrates” who are experienced and expert in the field, they were asked to estimate and revised the items in the questionnaire in terms of sufficiency, the questionnaire in relation to study, accuracy, and its relevancy as well as to determine if the used questionnaire is statistically valid or not. Feedback was obtained from experts and modification accordingly was done by the researcher and supervisor; their opinion and recommendations were taken into consideration. The questionnaire was translated according to the language understood by the patients based on the work previously done by (Mushtaha & Aljedi, 2021) with the authors’ permission.

3.10 Pilot Study

Before applying the study, the researcher conducted a pilot study with 10 participants to know the problems; discover them early and find solutions to them; provide feedback on the questionnaire and verify the validity and reliability of questionnaire; identify areas of vagueness; determine the real time needed to fill the questionnaire; predict response rate; point out weaknesses in wording; and to get clear opinion about the questionnaire. The participants considered that it is a clear questionnaire, without comments, therefore, the participants were included to the actual study.

3.11 Reliability of Questionnaire

The questionnaires were shown to statistician to measure reliability (calculating the Cronbach's Alpha coefficient). The normal range of Cronbach's coefficient alpha value between 0.0 and + 1.0, and the higher values represent a higher degree of internal consistency. The reliability coefficient above 0.7 is considered to be satisfactory for most purposes.

Table 3.1 shows the values of Chronbach's Alpha for each questionnaire domain of participants. The table illustrated the reliability of domains; values of Chronbach's Alpha were in the range from 0.769 and 0.955. Cronbach's alpha equals 0.902 for the entire questionnaire in pilot sample, which indicates good reliability of the entire questionnaire.

Table 3. 1 Reliability of the research for each domain of the questionnaire

No.	Domains	No. of item	Cronbach's Alpha
1.	Information about daily activities	10	0.841
2.	Information about problems face you as a result of Physical Health	4	0.914
3.	Information about problems face as a result of Emotional Problems	3	0.948
4.	Information about feelings and how things have been with you during the past 4 weeks	9	0.796
5.	Information about truthiness and fault of specific statements	4	0.957

6.	Glaucoma quality of life	15	0.955
Total		45	0.902

3.12 Data Collection

Data collection started immediately after obtaining the approval to conduct the study from Arab American University-Palestine IRB, Ministry of health, and private clinics administration as attached in the appendix IV. Participants were asked to fill out the self-reported questionnaire.

The researcher was started data collection by introducing herself to the participants, and establish a trust relationship with them. Then the participants were presented to full directions and clarification about the study, its goals, and the significance of providing actual answers. An appropriate environment was created by providing a separate room for data collection. The data collection was taking place at suitable time, with adheres to all ethical considerations.

The researcher helped the patients and wrote down the answers of the patients who were unable to write down their answers due to their inability to see well. Data collection took place in the period between August, 2021 to December 2021.

3.13 Data Analysis

The researcher used Statistical Package of Social Science (SPSS- version 25) program for data entry and analysis. Cronbach's Alpha was used to measure of internal consistency ("reliability"), and it is most commonly used when you have multiple Likert questions. Frequency tables were used to describe the frequency of specific characters. Some statistical tests were used as appropriate such as percentage (%), means and standard deviation (SD), t-test to assess whether the means of two groups are statistically different from each other, One way analysis of variance (ANOVA) test to determine whether there are any significant differences among the means of more than two independent groups. As well as the researcher used Person correlation ® to test correlation between numerical data. Finally, Probability value (P-value) less than or equal to 0.05 was considered statistically significant.

3.14 Ethical Considerations

The researcher was committed to all research ethics and general ethical principles.

Ethical approval was obtained from the Arab American University-Palestine. Also, a permission letter (Research ethics committee approval) from the Palestinian Ministry of Health was also obtained to allow the researcher to collect data. Furthermore, each participant gave a written informed consent to the researcher in order to fill in the questionnaire (Appendix V).

Participation in the study was voluntarily; all obtained data and information were kept confidential and were not used by anybody else. Participants were given the right to withdraw from the study at any moment. The names of the participants were not mentioned. Respondents were informed of the research's objectives and its significant.

The data were collected in separate room around or next to the glaucoma clinics to maintain the participant’s privacy.

RESULTS

Chapter four: Results

Introduction

The present study is a cross-sectional study that included 100 participants. The study aimed at exploring the factors influencing QOL of glaucoma patients in the West Bank of Palestine. This chapter will present the results of the sociodemographic variables, the general health variables, the activities of daily living, the obstacles faced by glaucoma patients, and the relationship between glaucoma QOL and demographic variables and general health variables. The socio-demographic characteristics that were studied included age in years, educational level, marital status, religion, district (north, middle, and south), health facility, occupation, monthly income, and having private care.

Table 4. 1 Distribution of the study population according to Socio-demographic data (N= 100)

Variables	Categories	Count	%
1. Gender	Male	52	52.0
	Female	48	48.0
2. Years in age (years)	18 - 50	29	29.0
	51-60	35	35.0
	More than 60	36	36.0
3. Educational Level	Illiterate	24	24.0
	Primary level	14	14.0
	Preparatory level	9	9.0
	University level	25	25.0
	Higher education	28	28.0
4. Marital status	Unmarried	10	10.0
	Married	90	90.0
5. Religion	Muslim	93	93.0
	Christian	7	7.0
6. North districts	Nablus	12	21.8
	Tulkarem	10	18.2
	Jenin	12	21.8
	Tubas	7	12.7
	Salfit	9	16.4
	Qalqilya	5	9.1
6. Middle districts	Ramallah	10	55.6
	Al-Bireh	8	44.4
6. South districts	Hebron	14	51.9
	Beit Lahem	7	25.9
	Beit Jala	6	22.2
7. Health Facility of care	Hugo Chavez Ophthalmic Hospital	35	35.0
	St. Joseph Hospital	2	2.0
	Private Clinic	63	63.0
8. Occupation	Work	25	25.0
	Unemployed	75	75.0
9. Monthly income (NIS)	Less than 1000 NIS	18	18.0
	1000 – 2000 NIS	43	43.0
	More than 2000 NIS	39	39.0
10. Do have private care	Yes	55	55.0
	No	45	45.0

The present study is a cross-sectional study that included 100 participants. The socio-demographic characteristics that were studied included age, educational level, marital status, religion, district (north, middle, and south), health facility, occupation, monthly income, and having private care.

Table 4.1 shows that more than half of the study population were males (52.0%) while 48.0% were females. Most were above 60 years of age (36%) followed by 35% aged between 51 to 60 years. The lowest age groups of study populations was 50 years or less (26%). The average age was 56.1±13.3 years. About (28%) of participants completed higher education, followed by university level (25%) and illiteracy (24%).

The majority of the study population were married (90%) while 10% were unmarried. Regarding religion, most of the study population were Muslim (93%) while 7% were Christian. The table shows that the percentage of the study population from Nablus, Tulkarem, Jenin, Tubas, Salfit, and Qalqilya Governorates was 21.8%, 18.2%, 21.8%, 12.7%, 16.4%, and 9.1%, respectively while middle districts were 55.6% Ramallah and 44.0% from Al-Bireh. Finally, the south districts from Hebron, Beit Lahem, and Beit Jala, the percentage of the study population of these governorates were 51.9%, 25.9%, and 22.2, respectively. Health facilities of care were 35.0% Hugo Chavez Ophthalmic Hospital, 2.0% St. Joseph hospital, and 63.0% Private Clinic.

Regarding occupation, the results showed that only 25% have worked and 75.0% haven not. Monthly income in (NIS) was 18.0% of the population had income less than 1000 NIS, 43.0% between 1000 to 2000 NIS and 39% more than 2000 NIS. The table shows that 55.0% have private care.

Table 4. 2 Distribution of the study population according to their general health information (N= 100)

General Health Information	Categories	Count	%
A1 In general, would you say your health	Excellent	7	7.0
	Very good	10	10.0
	Good	71	71.0
	Fair	8	8.0
	Poor	4	4.0
A2 Compared to one year ago, how would you rate your health in general now?	Much better now than one year ago	1	1.0
	Somewhat better now than one year ago	10	10.0
	About the same	76	76.0
	Somewhat worse now than one year ago	11	11.0
	Much worse now than one year ago	2	2.0
A3 Did you check your eyes during the medical screening?	Yes	76	76.0
	No	24	24.0
A4 Type of Glaucoma	Open Angle	84	84.0
	Closed Glaucoma	15	15.0
	Congenital (since birth)	1	1.0
A5 Duration of Glaucoma disease	Less than 5 years	44	44.0
	5 - 10 years	45	45.0
	More than 10 years	11	11.0
A6.1 Have you ever been treated and for chronic disease conditions?	Yes	61	61.0
	No	39	39.0
A6.2 Specify	Asthma	3	4.9
	Sickle Cell disease	2	3.3
	Diabetes	34	55.7
	Hypertension	13	21.3
	Cancer	8	13.1
	Others	1	1.6
A7 Duration of Chronic Disease	Less than 5 years	8	13.1
	10 years	28	45.9
	More than 10 years	25	41.0
A8 Is there any family member with/ history of any of the diseases mentioned above?	Yes	28	28.0
	No	72	72.0

Table 4.2 shows that the majority of the study population have good health (71.0%) and compared to one year ago, 70% rated their health about the same. Also, 76.0% of the study population check their eyes during the medical screening and the majority have open-angle glaucoma. The results showed that 44.0% of them had a duration of Glaucoma disease less than 5 years while 45.0% of the 5 to 10 years and 11.0% more than 10 years. 61.0% of them were treated and for chronic disease conditions. Regarding specific of chronic diseases, the results showed that more than half of the study population have diabetes and 21.3%

Hypertension. Sixty percentage of the study population have compliance with a treatment plan of chronic disease and 28% have a family member with/ history of any of the diseases mentioned above.

Table 4. 3 Distribution of participants according to information about Daily Activities (N=100)

Information about Daily Activities items	**Yes, limited a lot (1) (%)**	**Yes, limited a little (2) (%)**	**No, not limited at all (3) (%)**	**Mean**	**SD**	**% Mean**	**Rank**
B.1 Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports	50	44	6	1.6	0.6	52.0	8
B.2 Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	34	50	16	1.8	0.7	60.7	6
B.3 Lifting or carrying groceries	26	53	21	2.0	0.7	65.0	5
B.4 Climbing several flights of stairs	52	42	6	1.5	0.6	51.3	9
B.5 Climbing one flight of stairs	20	51	29	2.1	0.7	69.7	3
B.6 Bending, kneeling, or stooping	21	55	24	2.0	0.7	67.7	4
B.7 Walking more than a mile	54	39	7	1.5	0.6	51.0	10
B.8 Walking several blocks	43	37	20	1.8	0.8	59.0	7
B.9 Walking one block	7	63	30	2.2	0.6	74.3	2
B.10 Bathing or dressing yourself	7	25	68	2.6	0.6	87.0	1
Total				**1.9**	**0.4**	**63.3**	

The distribution of the study participants according to their responses about the Information about Daily Activities is pointed out in Table (4.3). The table shows that the relative mean for Information about Daily Activities was 63.3%. According to the results, the highest item was item number (10) " *Bathing or dressing*

" with a relative mean of 87.0%, followed by the item number (9) " *Walking one block* " with a relative mean of 474.4%. While the lowest item (7) " *Walking more than a mile* " with a relative mean of 51.0% followed by item was the number (4) " *Climbing several flights of stairs "* with a relative mean of 51.3%.

Table 4. 4 Distribution of study population according to information about problems they face as a result of physical health (N= 100)

Information about problems you face as a result of physical health items	**Yes (%)**	**No (%)**	**Mean**	**SD**	**% Mean**	**Rank**
C.1 Cut down the amount of time you spent on work or other activities	76	24	0.76	0.43	76.0	4
C.2 Accomplished less than you would like	78	22	0.78	0.42	78.0	3
C.3 Were limited in the kind of work or other activities	80	20	0.80	0.40	80.0	1
C.4 Had difficulty performing the work or other activities (for example, it took extra effort)	79	21	0.79	0.41	79.0	2
Total			**0.78**	**0.4**	**78.0**	

The distribution of study population according to their responses about the information about problems face you as a result of physical health is pointed out in Table (4.4). The table shows that the relative mean for information about problems face you as a result of physical health items was 78.0%. According to the results, the highest item was item number (3) " Were limited in the kind of work or other activities " with a relative mean 80.0%, followed by the item number (4) " *Had difficulty performing the work or other activities (for example, it took extra effort)*" with a relative mean of 79.0%. While the lowest item (1) " *Cut down the amount of time you spent on work or other activities* " with a relative mean 76.0% followed by item was the number (2) *" Accomplished less than you would like "* with a relative mean 78.0%.

4.5 Distribution of study population according to problems they face as a result of emotional problems (N= 100)

Information about problems faces you as a result of emotional problems items	Yes (%)	No (%)	Mean	SD	% Mean	Rank
D.1 Cut down the amount of time you spent on work or other activities	78	22	0.78	0.42	78	3
D.2 Accomplished less than you would like	74	24	0.82	0.63	82	1
D.3 Didn't do work or other activities as carefully as usual	80	20	0.80	0.40	80	2
Total			**0.78**	**0.4**	**80**	

The distribution of the study participants according to their responses about the information about problems faces you as a result of emotional problems items is illustrated in Table (4.5). The table shows that the relative mean for information about problems faces you as a result of emotional problems was 80.0%. According to the results, the highest item was item number (2) " Accomplished less than you would like " with a relative mean 82.0%, followed by the item number (3) " Didn't do work or other activities as carefully as usual" with a relative mean of 80.0%. While the lowest item (1) " Cut down the amount of time you spent on work or other activities " with a relative mean 78.0%.

Table 4. 5 Distribution of study population according to interference of physical health and emotional problems with normal social activities (N= 100)

Information about the interference of physical health and emotional problems with your normal social activities' items	Frequency	%
Not at all	11	11.0
Slightly	28	28.0
Moderately	43	43.0
Quite a bit	18	18.0

The distribution of the study participants according to their responses about the interference of physical health and emotional problems with your normal social activities' is detected in Table (4.6). The table shows that 43.0% have moderately information about the interference of physical health and emotional problems with normal social activities 'while 11.0%, 28.0% and 18.0% have not at all, slightly and quite a bit information, respectively

Table 4. 6 Distribution of study population according to problems they face as a result of pain items (N= 100)

Information about problems face you as a result of pain items	Frequency	%
F1. How much bodily pain have you had during the past 4 weeks?		
None	17	17.0
Very mild	9	9.0
Mild	26	26.0
Moderate	37	37.0
Severe	11	11.0
F.2 During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?		
Not at all	14	14.0
Slightly	27	27.0
Moderately	44	44.0
Quite a bit	12	12.0
Extremely	3	3.0

The distribution of the study participants according to their responses about the Information about problems face you as a result of pain is detected in Table (4.7). The table shows that 37.0% have moderate bodily during the past 4 weeks while 17.0%, 9.0%, 26.0% and11.0 have none, very mild and mild and severe bodily pain during the past 4 weeks, respectively. Regarding the past 4 weeks, how much did pain interfere with the normal work (including both works outside the home and housework, the results showed that 44.0% have moderate

pain interfere with your normal work while 14.0%, 27.0%, 12.0%, and 3.0% had scale not at all, slightly and quite a bit and extremely pain interfere with your normal work, respectively.

Table 4. 7 Distribution of study population according to feelings and how things have been with you during the past 4 week (N= 100)

Information about Feelings and how things have been with you during the past 4 weeks items	**All of the time**	**Most of the time**	**A good bit of the time**	**Some of the time**	**A little of the time**	**None of the time**	**Mean**	**SD**	**% Mean**	**Rank**
	%									
G.1 Did you feel full of pep?	1	5	6	55	32	1	*4.2*	0.8	69.2	3
G.2 Have you been a very nervous person?	4	9	36	28	21	2	*3.6*	1.1	59.8	9
G.3 Have you felt so down in the dumps that nothing could cheer you up?	2	3	21	40	30	4	*4.1*	1.0	67.5	4
G.4 Have you felt calm and peaceful?	1	7	17	51	23	1	*3.9*	0.9	65.2	5
G.5 Did you have a lot of energy?	2	6	8	43	37	4	*4.2*	1.0	69.8	2
G.6 Have you felt downhearted and blue?	1	7	25	30	31	5	*4.3*	3.1	71.3	1
G.7 Did you feel worn out?	2	8	31	35	21	3	*3.7*	1.0	62.3	7
G.8 Have you been a happy person?	3	6	22	49	18	2	*3.8*	1.0	63.2	6
G9 Did you feel tired?	2	7	26	52	12	1	*3.7*	0.9	61.3	8
Total							**3.9**	**0.6**	**65**	

The distribution of the study participants according to their Information about Feelings and how things have been with you during the past 4 weeks items is pointed out in Table (4.8).

Responses were coded from 1 if the patients suffered from this condition all the time to 6 if the patients had this problem none of the times, therefore, higher numbers indicate better conditions. The worse

conditions was nervousness, *G.2 Have you been a very nervous person?* With an average of 3.6 while the condition that was least problematic was *G.6 Have you felt downhearted and blue?*

The table shows that the relative mean for Information about Feelings and how things have been with you during the past 4 weeks items was 65.0%. According to the results, the highest item was item number (6) " *Have you felt downhearted and blue*?" with a relative mean of 63.2%, followed by item number (5) " *Have you been a happy person?*" with a relative mean of 69.8%. While the lowest item (2) " *Have you been a very nervous person?*" with a relative mean 59.8 followed by item was the number (8) *" Did you feel tired?"* with a relative mean 61.3%.

Table 4. 8 Distribution of the participants according to responses about their interference of physical health and emotional problems with your normal social activities (N= 100)

Information about time duration of physical health and emotional problems interfered with your normal social activities' items	**Frequency**	**%**
All of the time	1	1.0
Most of the time	15	15.0
Some of the time	55	55.0
A little of the time	23	23.0
None of the time	6	6.0
Total	100	100.0

The distribution of the study participants according to their Information about the time duration of physical health and emotional problems interfered with your normal social activities' items is detected in Table (4.9). The table shows that 55.0% have Some of the time Information about the time duration of physical health and emotional problems interfered with your normal social activities' 'while only 1.0% all of the time information about the time duration of physical health and emotional problems interfered with your normal social activities.

Table 4. 9 Distribution of the participants according to information about Truthiness and

Fault of specific Statements items (N=100)

Information about Truthiness and Fault of specific Statements items	Definitely true	Mostly true	Don't know	Mostly false	Definitely false	**Mean**	**SD**	**% Mean**	**Rank**
	%								
I.1 I Seem to get sick a little easier than other people	6	18	67	7	2	2.8	0.7	56	4
I.2 I am as healthy as anybody I know	2	14	71	12	1	2.9	0.6	58	3
I.3 I expect my health to get worse	1	7	82	9	1	3.0	0.5	60	1
I.4 My health is excellent	1	23	60	12	4	3.0	0.7	59	2
Total						**2.9**	**0.4**	**58**	

The distribution of the study population according to their responses about the Information about Truthiness and Fault of specific Statements items is pointed out in Table (4.10). The table shows that the relative mean for Information about Truthiness and Fault of specific Statements items was 58.0%. According to the results, the highest item was item number (3) " *expect my health to get worse* " with a relative mean 60.0%, followed by item number (4) " *My health is excellent* " with a relative mean of 59.0%. While the lowest item (2) " *I seem to get sick a little easier than other people* " with a relative mean 56.0% followed by item was the number (2) *"I am as healthy as anybody I know Accomplished less than you would like "* with a relative mean 58.0%.

Table 4. 10 Distribution of the participants according to responses about glaucoma quality of life (N= 100)

Glaucoma Quality of Life	No difficulty	A little bit of difficulty	Some difficulty	Quite a lot of difficulty	Severe difficulty	Not done at all due to vision problems	Mean	SD	% Mean	Rank
	%									
Q.1 Reading newspapers	4	3	8	22	30	33	*3.7*	0.5	75	1
Q.2 Walking after dark	4	4	6	22	36	28	*3.7*	1.3	73	3
Q.3 Seeing at night	5	5	5	20	38	27	*3.6*	1.3	72	4
Q.4 Walking on uneven Ground	4	5	11	30	30	20	*3.4*	1.3	67	7
Q.5 Adjusting to bright Lights	3	0	4	31	43	19	*3.7*	1.0	74	2
Q.6 Adjusting to dim Lights	1	0	10	34	39	16	*3.6*	0.9	72	5
Q.7 Going from light to dark room or vice versa	2	2	7	32	42	15	*3.6*	1.0	71	6
Q.8 Tripping over objects	3	8	9	41	30	9	*3.1*	1.2	63	8
Q.9 Seeing objects coming from the side	5	6	13	35	29	12	*3.1*	1.3	63	9
Q.10 Crossing the road	3	9	19	41	18	10	*2.9*	1.1	58	13
Q.11Walking on steps /stairs	3	9	15	39	23	11	*3.0*	1.2	61	10
Q.12 Bumping into Objects	3	7	22	39	19	10	*2.9*	1.2	59	11
Q.13 Judging distance of foot to step/curb	2	9	30	30	19	10	*2.9*	1.2	57	15
Q.14 Finding dropped Objects	5	10	15	39	19	12	*2.9*	1.3	59	12
Q.15 Recognizing faces	3	10	21	36	18	12	*2.9*	1.2	58	13
Total							***3.3***	**0.9**	**66.0**	

The distribution of the study participants according to their responses about the Glaucoma Quality of Life items is pointed out in Table (4.11). The table shows that the worst QOL items are difficulties in reading newspaper, walking after dark, and adjusting to bright lights mean= 3.7. While the items with least difficulty are recognizing faces, finding dropped objects, and bumping into objects (mean = 2.9).

The table shows that the relative mean for glaucoma quality of life items was 66.0%. According to the results, the highest item was item number (1) " *Reading newspapers* " with a relative mean 75.0%, followed by item number (2) " *Walking on uneven Ground* " with a relative mean of 74.0%. While the lowest item (13) " Judging distance of foot to step/curb " with a relative mean 57.0%, followed by the item number (10) " Crossing the road " with a relative mean of 58.0%.

Table 4. 11 Correlation between glaucoma quality of life and the studied domains among the study population (N= 100)

	Glaucoma quality of life	
	r	**P-value**
Information about daily activities	-0.385	0.000
Information about problems face you as a result of Physical Health	0.289	0.004
Information about problems face you as a result of Emotional Problems	0.408	0.000
Information about feelings and how things have been with you during the past 4 weeks	0.257	0.010
Information about truthiness and fault of specific statements	0.319	0.001

Table 4.12 showed the correlation between glaucoma quality of life and the studied domains among the study population. Pearson correlation showed that there is a positive significant correlation between the glaucoma quality of life and studied domains as information about daily activities, information about problems facing you as a result of physical health, information about problems face you as a result of emotional problems, information about feelings and how things have been with you during the past 4 weeks, information about truthiness and fault of specific statements ($P < 0.05$). This indicates that better QOL is associated with better feelings.

Table 4. 12 The relation between glaucoma quality of life and sociodemographic data (N=100)

Variables	Categories	n	Mean±SD	t/F	P-value
1. Gender	Male Female	52 48	3.21±1.02 3.33±0.88	-0.645	0.520
2. Years in age (years)	50 or less 51-60 More than 60	29 35 36	2.97±1.1 3.22±1.03 3.55±0.64	3.164	0.047*
3. Educational Leve	Illiterate Primary level Preparatory level University level Higher education	24 14 9 25 28	3.91±0.77 3.41±0.89 2.9±0.88 2.91±0.94 3.08±0.92	4.965	0.001
4. Marital status	Unmarried Married	10 90	3.09±1.2 3.29±0.92	-0.635	0.527
5. Religion	Muslim Christian	93 7	3.23±0.97 3.72±0.48	-1.322	0.189
6. North districts	Nablus Tulkarem Jenin Tubas Salfit Qalqilya	12 10 12 7 9 5	3.3±1.02 2.99±0.79 3.62±0.7 4.03±0.78 3.5±1.11 3.3±1.02	1.317	0.272
6. Middle districts	Ramallah Al-Bireh Hebron	10 8	2.4±0.88 3.17±1.24	-1.536	0.144
6. South districts	Hebron Beit Lahem Beit Jala	14 7 6	3.11±1.08 3.1±0.46 3.71±0.45	1.163	0.330
7. Health Facility of care 8.	Hugo Chavez Ophthalmic Hospital St. Joseph hospital Private Clinic	35 2 63	2.81±0.89 1.9±2.5 3.57±0.8	11.323	0.000*
8. Occupation	Work Did not work	25 75	2.76±1.04 3.44±0.86	-3.232	0.002*
9. Monthly income (NIS)	Less than 1000 1000 – 2000 More than 2000	18 43 39	3.45±0.85 3.28±1.06 3.17±0.87	0.555	0.576
10. Do have private care	Yes No	55 45	3.02±0.99 3.57±0.81	-3.025	0.003*

The relation between glaucoma quality of life and sociodemographic data shown in table 4.13. Anova was used to compare the mean of the 15-item glaucoma QOL scale among background variables. The results shown in Table 4.14 reveal that socio-demographic factors that influence QOL for patients with glaucoma are age, educational level, health facility of care and occupation ($P<0.05$). Glaucoma QOL increases with age from 2.97 in the 50 or less age group to 3.55 in the more than 60 age group, $p = 0.047$. Glaucoma patients' QOL is

much better in St. Joseph hospital (1.9) compared to Hugo Chavez Ophthalmic Hospitals (2.81) and worst in private clinic (3.57) **indicating the importance of specialization in patients' care**.

The glaucoma QOL is better among patients who work than among patients who do not work (2.76 vs 3.44 respectively), probably because people who work are younger and in a better health status and better among the educated. In contrasts, the factors that not influence QOL for patients with glaucoma are gender, marital status, religion, north districts, middle districts and south districts ($P>0.05$).

Table 4. 13 The relation between glaucoma quality of life and general health variables data (N= 100)

General Health Information	Categories	Count	Mean±SD	t/F	P-value
A1 In general, would you say your health	Excellent	7	3.1±0.74	4.078	**0.004***
	Very good	10	2.48±0.94		
	Good	71	3.42±0.92		
	Fair	8	2.68±0.86		
	Poor	4	4.02±0.42		
A2 Compared to one year ago, how would you rate your health in general now?	Much better now than one year ago	1	2	3.912	**0.006***
	Somewhat better now than one year ago	10	2.35±1.26		
	About the same	76	3.43±0.8		
	Somewhat worse now than one year ago	11	3.19±1.18		
	Much worse now than one year ago	2	2.73±0.57		
A3 Did you check your eyes during the medical screening?	Yes	76	3.32±1.02	0.928	0.356
	No	24	3.11±0.67		
A4 Type of Glaucoma	Open Angle	84	3.31±0.91	6.138	**0.003***
	Closed Glaucoma	15	3.22±0.9		
	Congenital (since birth)	1	0.13		
A5 Duration of Glaucoma disease	Less than 5 years	44	2.88±1.13	7.568	**0.001***
	5 - 10 years	45	3.52±0.63		
	More than 10 years	11	3.76±0.72		
A6.1 Have you ever been treated and for chronic disease conditions?	Yes	61	3.3±0.79	0.470	0.639
	No	39	3.21±1.16		
A6.2 Specify	Asthma	3	3.67±1.05	0.455	0.808
	Sickle Cell disease	2	3.67±0.94		
	Diabetes	34	3.28±0.89		
	Hypertension	13	3.15±0.71		
	Cancer	8	3.5±0.34		
	Others	1	2.87		
A7 Duration of Chronic Disease	Less than 5 years	8	2.48±0.73	6.332	**0.003***
	10 years	28	3.33±0.68		
	More than 10 years	25	3.54±0.79		
A8 Is there any family member with/ history of any of the diseases mentioned above?	Yes	28	3.06±0.89	-1.359	0.177
	No	72	3.35±0.97		

*P-value<0.05 indicate significant differences

The relation between glaucoma quality of life and life and general health data shown in table 4.14. Anova test was used to compare the mean of the 15-item glaucoma QOL scale among general health variables. The results shown in Table 4.14 reveal that general health data factors that influence QOL for patients with glaucoma were general health, type of glaucoma, duration of glaucoma disease, and duration of chronic disease (P<0.05).

In contrast, The results showed that general health data factors that not influence QOL for patients with glaucoma are eyes during the medical screening, treated and for chronic disease conditions, specify, compliance with treatment plan of chronic disease and family member with/ history of any of the diseases mentioned above (P>0.05).

4.15 Qualitative questions about glaucoma quality of life

Justification for using a mixed method approach

The mixed methods approach was used to provide in-depth and more detailed analysis that can probe into the symptoms, obstacles and challenges, and strategies that glaucoma patients encounter and employ in their daily lives.

Data collection

A convenience sample of 10 glaucoma participants were recruited from ophthalmology clinics and interviewed. Those who participated in the qualitative interviews were different from those who were included in the quantitative part. This allowed for collecting additional information to enrich the study findings. Each interview lasted between 15 to 30 minutes. Open ended questions were asked to allow the patients to express themselves. Probes were used when needed to enrich the findings. The questions were constructed and worded in very general terms to allow the participants to freely express themselves verbally.

The interviews were semi-structured to include previously developed open-ended and general questions but to allow the researcher to ask further questions based on participants responses. The questions included:

- How the disease was diagnosed?
- What were the patients' feelings after the diagnosis?
- How do they manage their disease?
- What would you like to be changed in families, societies, or the health system to improve their lives?

Data analysis

The interviews were audio recorded then transcribed word by word in Arabic. The transcripts were translated to English and read line-by-line. Themes were identified and manually highlighted.

The qualitative data analysis was guided by the methodologies of the grounded theory **(GT)** approach. By providing standard and systematic guidelines of inquiry, grounded theory imparts systematic rigor to qualitative research that otherwise would have been lacking. Qualitative research prior to the introduction of Grounded Theory was haphazard, floating, biased, and lacking in direction (Thomas & James, 2006).

According to Miller and Fredericks (1999), the grounded theory approach has become the "paradigm of choice" for qualitative researchers in education and health, especially nursing disciplines. Grounded theory can validate the publication of a study's findings (Harry et al., 2005). Strauss and Corbin (1997) stated that grounded theory's methods are "… *now among the most influential and widely used modes of carrying out qualitative research when generating theory is the researcher's principal aim" (p. vii).*

Strengths of GT methods

1. Because themes are based on data (grounded in data), this approach buffers against confirmation bias of preconceived beliefs about the topic.
2. Unlike other descriptive qualitative methods such as ethnography and content analysis, GT is more analytic, explanatory, and creative than descriptive (Charmaz, 2008; LaRossa 2005). GT results are therefore more in-depth and generalizable

The analytic strategy followed guidelines in the scholarly literature. The steps of analyzing qualitative data were first described by Corbin and Strauss (1990) and elaborated by (Vollstedt and Rezat, 2019). The analysis proceeded as follows:

1. Open coding: data were broken down analytically. Line-by-line sentences and items were given descriptive codes. Then the codes were organized under major codes or themes by grouping conceptually similar categories together.

2. Axial coding: categories were related to subcategories and to other categories. Corbin and Strauss (2015) provided an axial coding paradigm of three features 1) "causal conditions", 2) "actions-interactions, strategies and tactics", and 3) "consequences
3. Selective coding occurs when all the categories are unified in a single framework. According to Vollstedt et al. (2015, P. 89) *"The goal of selective coding is to integrate the different categories that have been developed, elaborated, and related during axial coding into one cohesive theory.*"

Themes derived:

The themes derived from the data were: symptoms of glaucoma, the psychological impact of being diagnosed with glaucoma, obstacles facing patients, managing glaucoma, and improving glaucoma patients' quality of life.

Symptoms of glaucoma

The most common symptoms that patients experienced before their diagnosis were severe headache and pain in the eye. Other symptoms that were mentioned included lack of clear vision especially from the sides, blurred vision and redness in the eyes.

The headache and the fear that patients experienced as a result of their diagnosis were the most bothersome symptoms they had. One patient did not have symptoms but his glaucoma was detected during routine eye examinations.

The psychological impact of being diagnosed with glaucoma

After hearing that they have been diagnosed with glaucoma, participants expressed that the situation had an enormous impact on their psychological well-being. They mentioned being in a state of shock, fear, confusion, and sadness. One participant even felt very surprised.

The psychological distress that affected the patients' lives occurred mostly because patients did not know or have information about the disease, and the cause of their fear and uncertainty about the future progression of the disease and what might happen to them and how it can affect their lives.

<u>One participant said</u>

"I was very confused because I did not know what glaucoma is"

Another patient added

"I was surprised, stressed, and afraid about my future work on the computer"

Obstacles

Patients mentioned several obstacles, challenges, and difficulties that they encounter while carrying out activities of everyday living.

As one patient mentioned

"I face difficulties in managing daily activities especially house chores"

Another patient added

"I have difficulties especially driving at night"

Managing glaucoma

Patients mentioned several strategies they use to manage their glaucoma. These strategies include, adherence to medications, and eye drops, regular medical checkups, adherence to physicians' instructions, regular visits to the doctor, and adaptation to the disease.

Patients adapted to their glaucoma by changing their working habits, changing their driving habits, and accepting their new conditions as normal.

One patient explained

"I regularly take the prescribed medications and eye drops and I reduced the time I spend on my mobile phone and my laptop."

Improving glaucoma patients' quality of life

Patients mentioned several interventions at the family, community, and health institutional levels that can help them in improving their quality of life. These include raising awareness about the disease, providing information and instruction, and community support.

At the health institutional level, patients recommended building clinics specialized in glaucoma as well as making medications more available. They also stressed the need for specialized physicians and health professionals. Screening for the disease at the community level was also emphasized as one of the important strategies to detect the disease early and prevent the negative consequences of late diagnosis.

As one patient informed us

"There is an urgent need for hospitals and clinics specialized only in glaucoma and staffed with specialized physicians and health professional for treatments and there is a great need for early detection of the disease."

Another patient added

"We need specialized computer screens to help us read better"

A third patient agreed and said

"To help us in driving, they should install special driving and pedestrian pathways "

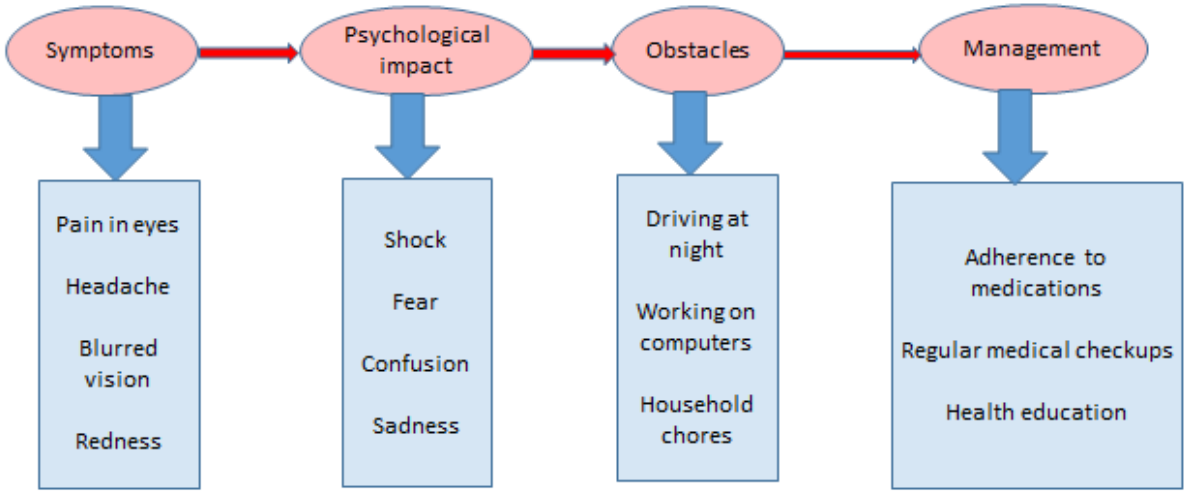


Figure: 4.1 Glaucoma patients' pathways from diagnosis to management

The overall conceptual framework summarizing the qualitative findings are presented in figure 4.1. The figure shows the four main themes derived from the qualitative interviews which include: the symptoms, the psychological impact of the diagnosis, obstacles, and management of the disease. The figure also shows the subthemes under each of the main theme. As illustrated in the figure, the story of the patient starts with experiencing symptoms in the eyes that lead to clinical diagnosis of glaucoma. The diagnosis causes the patient to become confused, shocked, afraid, sad and even surprised. The patient starts medications but obstacles in daily lives continue. The patient then tries to overcome the obstacles and challenges by adherence to medications, adapting their everyday life activities, and by learning more about the disease.

Connecting the quantitative and qualitative results (mixing)

The quantitative results showed that patients who received treatment at specialized eye clinics had better quality of life compared to patients who went to private clinics. This result was expanded on in the qualitative interviews when patients recommended providing clinics specialized in eye care during the qualitative interviews.

The quantitative results revealed that glaucoma patients' quality of life was influenced by age, education, duration of disease, and duration of preexisting symptomatic diseases. The qualitative findings further provided insights on strategies patients use to improve their QOL and overcome their challenges. These strategies include reducing time in front of computers and screens or using special screens, reducing driving at night, and regular medical checkups. Health education emerged as an important category in the qualitative data analysis highlighting the importance of this finding for health professionals.

DISCUSSION

Chapter Five: Discussion

To the best of our knowledge, this is the first study to be conducted among glaucoma patients assessing their QOL in the West bank using the GQL-15 and the SF-36 together. However, similar study was performed in the Gaza strip (Mushtaha & Aljedi, 2021). Many published studies, assessed QOL in glaucoma patients, have used various measurements, including SF-20 (Sherwood et al., 1998), WHOQOL-brief (Jain et al., 2015), GQL-15 (Goldbrg et al., 2009), SF-36 (Evans et al., 2009; Lin et al., 2010) or the EQ5D (Aspinall et al., 2008). Measuring QOL is internationally recognized as a significant outcome to understand effectiveness of such healthcare interventions and impact of diseases. Thus, it will be worthy to evaluate the relative symptoms and /or disabilities of diseases that have impact on patients' QOL. QOL was first examined twenty years ago, and later further researches have focused on effect of glaucoma on patient's lives. Some have followed population-based studies (McKean et al., 2007), and clinical trials (Mills et al., 2001).

Overall, the QOL measured by GQL-15 and dimensions of SF-36 are at medium and above level and are ranged between 58% - 80%. The general health dimension is at least good. The QOL of glaucoma patients was at medium level in Gaza strip (Mushtaha & Aljedi, 2020) and is supported by findings of Lin et al. (2010) and Evans et al. (2009) whom used SF-36. In another hand, Goldberg et al. (2009) and Naveen et al. (2014) used the GQL-15 and ended with similar findings. Jain and his colleagues (2015) have used the World Health Organization QOL Brief (WHOQOL-Brief) among 100 patients with glaucoma and the QOL was low. The quality of life could be attributed to many factors including, but not limited to, visual impairment, side effect of treatments, cost of therapies and inconvenience. Patients with peripheral and central visual impairment are unable to move around, practice daily activities or find objects, and adapting to light changing. Thus, they are potentially at higher risk for falls and accidents. It is also noticed that QOL, of glaucoma patients, follow longitudinal changes leading to reduction of visual field, as well as deterioration and loss of sensitivity of central vision field is associated with reduction in QOL (Medeiros et al., 2015)

Consistent with previous studies, the mean score of GQL-15 is low for central vision and adaptation to dark dimensions. This is exactly in line with findings of Mushtaha and Aljedi (2020), Mbadugha et al. (2012) and Naveen et al. (2014) whom revealed that visual impairment is linked to dark adaptation or glare,

like walking after dark, seeing at night and adjusting to different levels of illumination. Dhawan et al. (2019) found poor QOL among patients with mild, moderate and severe glaucoma compared to control healthy group and the QoL declined in patients who experienced severe visual loss. Similarly, Onakoya and his colleagues (2012) revealed QoL diminished in every stage of the diseases especially in patients with primary open angle glaucoma.

The QOL and activities requiring peripheral and central vision, outdoor mobility, and near vision are mainly determined by the severity of glaucoma. Studies have found differences between classification of glaucoma (mild, moderate and severe). Our results revealed impact of glaucoma on occurrence of emotional and physical health problems. This is in line with many studies for instance Sesar and his colleagues (2020). Lin and Yang (2004) conducted a cross-sectional study among 280 glaucoma patients using SF-36 and the National Eye Institute Visual Functioning Questionnaire-25 (NEIVFQ-25) and found physical activities are negatively affected by progression of glaucoma. This also had been proven by Wilson et al. (1998). Additionally, patients reported difficulties with activities are much affected by glare and dark adaptation in the GQL-15 questionnaire, whereas, driving and general vision were reported by patients in the study of Mbadugha et al. (2012). No matter what type of difficulties patient with glaucoma face, it is for sure that daily activities, tasks and mobility are highly affected.

Our results have shown males with better QOL than their counterparts, but differences were not significant. This is in line with findings reported by Sesar et al. (2020), Labiris et al. (2010) and Esteban et al. (2008). However, the study of Onakoya et al. (2012) provided opposite result. As a source of speculation, males would take care of themselves better than females do. They might seek healthcare whenever they feel the need for it. Moreover, it could depend on severity of glaucoma as revealed by Onakoya et al. (2012) who found females had mild glaucoma compared to their counterparts. It is noteworthy to mention that women outlive and outnumber men in glaucoma cases. Evidence suggest women at higher risk for glaucoma and glaucoma blindness and sex hormones could be the main attributing factor for optic nerve damage. It is hypothized that low level of estrogen is contributed to increasing risk of open angle glaucoma (Vajaranant et al., 2010). Moreover, the Rotterdam study provided clear evidence that women are at higher risk for

development of primary open angle glaucoma with early menopause (Hulsman, Westendorp and Ramrattan, 2001).

Participants in the age group above 60 years reported significant lower QOL. This finding is consistent with results of Gupta et al. (2011) and Béchetoille et al. (2008) whom reported negative correlation between age and quality of life in the general population. Similarly, Mushtaha and Aljedi (2020) revealed low QOL with progression of age. The most reported problems associated with aging are decreased vision, bad reading, walking on stairs and/or identifying persons. This finding has been also proven two decades ago (West et al., 1997). West et al. (1997), through Salisbury Eye Evaluation project, showed aging contributes to declining of functional status including the eye. Sesar et al. (2020) found contrary results. Indeed, age is linked to physical domain of QOL and human body is negatively affected by complexity of disease, nutritional and emotional status. Thus, our finding could be explained by variations of priorities determined the QOL by different age groups and differences of life perception between elder and middle age population. Lester and Zingirian (2002), however, found no significant relationship between GQL-15 scores and age.

Additionally, QOL is noticed to be better, although not significant, among patients with high income. This finding is in line with many studies (Sung et al., 2017) including the one conducted in Gaza strip (Mushtaha & Aljedi, 2020). Logically, patient lives in low income are unable get or buy necessary treatments, or perform requested surgical operations. Moreover, he/she will not be able to obtain modern and expensive anti-glaucoma medicines. A cross-sectional study in the United State revealed patients with low economic status have less perception about the disease because they do not frequently visit eye care provider (Zhang et al., 2013). Therefore, they are highly potential for increasing impairment of closed-angle glaucoma. Furthermore, less accessibility to eye care and medical services, because of poverty, influences not only early detection of glaucoma but also severity of the disease. Gogate et al. (2011) revealed increasing in proportion of severity of glaucoma among glaucoma patient with low income level. Although low income level associated with low QOL, quite two third reported receiving care from private ophthalmic clinics. As a source of speculation, those patients could have other sources for income from agriculture and thus some money earned are utilized for healthcare.

Patients who are illiterate or finished primary school showed to have significant low QOL compared to patients with higher education degree. This is consistent to results obtained by Sesar et al. (2020) who reported better QOL among patients completed higher education level. This is also confirmed by many studies which revealed significant impact and positive correlation with QOL (Gupta et al., 2011; Onakoya et al., 2012). Indeed, our finding is not surprising, however, because usually individuals with primary education are less committed and adhered to therapeutic regimen as well as less aware about the glaucoma and management practices. Indeed, educational level is an important and significant contributing factor that is positively linked to QOL in glaucoma patients (Gupta et al., 2011). Low educated patients demonstrated higher need for information related disease with regard to support for visual impairment, characteristics of the diseases, optimal management and practices (Salowe et al., 2015)

The study showed significant variation between patient with and without work. The QOL is significantly better in favor of working patients. This is consistent with results obtained by Khorrami-Nejad et al. (2016) and Lis and her colleagues (2017) whom reported significant correlation between employment status and QOL. In return, Amin, Haghani and Masoumi (2010) demonstrated no significant correlation. It could be argued that employed patients are at least able to buy necessary medicines that are not available in governmental or UNRWA clinics. Furthermore, it is also explained by percentage of patients whom sought private ophthalmic clinic. Financial protection and employment are shown to have a great impact on QOL. Therefore, government and other interested stakeholders have to work sincerely toward ensuring social and financial independency of glaucoma patients and ensure suitable work that maintain a respectful life with satisfactory QOL.

We found significant differences between patients having private care and with not having private care. Indeed, studies considering this factor are lacking, however, it was noticed that the QOL was moderate for insurance patients (Karyani et al., 2016). The study was conducted among Iranian with different types of private care using the EQ5D. Private care is crucial because it allows patients to have access to essential health services, including eye care, and affordable to low cost medicines and utilization of common available technologies which are covered by insurance scheme. Pahlevan Sharif and his colleagues (2021) found

positive correlation between satisfaction to private care and experience of health related quality of life (HRQOL) among cancer patients. In Ethiopia, HRQOL was better among people with community based private care than non-insured (Gebru & Lantiro, 2018). Our finding reflects necessity to adopt universal health coverage to ensure large population coverage to large health services with low cost and reduce financial burden of eye care services.

Glaucoma affects daily life activities through visual impairment. Ranjic, Novak-Laus and Vatavuk, (2018) have stressed upon understanding personal perception about disabilities and health in everyday activities. We found high to limited impact on daily living activities. Patients on anti-glaucoma treatment are shown to have higher score on the SF-36 and EQ5D utilized by Sesar et al. (2020). Similar finding was also seen from France and Brazil (Nordmann et al., 2003; Silva et al., 2010). Our finding could be attributed to poor communication between patient and their health care providers, including physicians and nurses. QOL is hardly to be quantified by medical staff, however, it is highly important to patients. Information should be well delivered taking into considerations all potential complications associated with glaucoma, treatment side effect. Information about adaptation to physical and emotional changes should be delivered once needed without information delay.

The study revealed glaucoma has negative influence on the emotional and psychological functioning. Finding from the Gaza strip reached similar results (Mushtaha & Aljedi, 2020). It has been found that anxiety, fear and stress are highly linked with glaucoma, because as visual acuity or clearance worse, individual' self-image, confidence to heath care and anxiety level get worsen (Chan et al., 2015). Similarly, it affected social functioning leaving uncertainty, less adaptation and poor self-image (Hang et al., 2020). Using the National Eye Institute Vision-Function Questionnaire (NEI VFQ-25), moderate correlations were seen between visual impairment and visual dependency, social and emotional well-being and role limitations (Parish et al., 1997).

The GQL-15 and SF-36 were used for assessment of QOL in patients suffered from glaucoma. The GQL-15 is valid and reliable instrument and has been translated and used worldwide. The GQL-15 is shorter simple tool, and is easily applied in clinical practices (Mbadugha et al., 2012). It was specifically developed to evaluate field vision loss. Although the GQL-15 focuses mainly on the physical effect and not considering

other QOL related factors such as psychological effect of disease progress, it was reliable instrument, when compared with NEIVFQ-25 and Viswanathan 10, in assessment of mild, moderate and sever glaucoma (Kumar et al., 2019). In return, the SF-36 is a self-reporting tool and is widely used for monitoring of routine care outcomes, for instance emotional distress. It is appropriate for anyone to use regardless demographics or diseases and the Arabic version showed satisfactory internal consistency exceeding 70% (Khader, Houroni & Al Akour, 2011)

Vision loss is highly challenging and thus its prevention remains crucial and sensitive. In low income countries, like Palestine, patients present with glaucoma in late stage. There is need to develop optometry services and find out cost effective strategies to tackle this irreversible disease. Patient education is a chance to empower them with adequate knowledge regarding treatment, importance of follow up, and lifestyles that contribute to prevention of visual loss.

In the qualitative study, numerous of information and life experiences of glaucoma patients have been generated. It has been mentioned that patients felt anxious, stressful and panic. Indeed, these feelings were shared by a doctor who used to treat glaucoma patients for several decades, but he was diagnosed with glaucoma in the 20s. He mentioned that “it may sound kind of crazy” “… glaucoma can be a frightened experience” and accordingly his life has dramatically changed (Sanchez, 2016). Cetenkaya et al. (2013) mentioned that patients usually used positive reinterpretation, in terms of emotional and religious coping strategies. In accordance to our findings, Emine and her colleagues (2017) conducted phenomenological study to explore experiences of glaucoma patients in Turkey. They found that acute symptoms were main reasons for visiting eye clinic and later diagnosis with glaucoma. They sought ophthalmic emergency department for symptoms of severe headache, ocular pain and visual reduction. Our study revealed patients’ need to much information regarding the disease. The information given by ophthalmologists, medical text and sources from internet were enough to guide patients to change their lifestyle and adapt to diseases and prevent progression (Emine et al., 2017). Similar to the study finding, patients regularly used eye drop once diagnosed with glaucoma, and reduced or discontinued some activities like watching TV, reading books or focusing on computer screen (Emine et al., 2017). This is also proved by Wu and his colleagues (2011) who presented

glaucoma effect on vision and social life activities. These findings are so much important for nurse's practices because nurse's practices are advised to be directed toward caring patients with glaucoma through information system care. Knowledge about glaucoma is significant to amend patient's behaviors and thus nurses would exist. Indeed, some countries have employed glaucoma nurse specialist who has experience in the assessment, diagnosis, management and prevention of the disease. Slight, Marsden & Raynel, (2009) highlighted the positive effect of having glaucoma nurse in improving optic outcomes.

Strengths and Limitations

This study has limitations and strength. Sample size is small and the researcher do recommend to replicate the study with a larger sample. The survey is also cross-sectional which limits causal inferences.

The strengths are triangulation of methods, using mixed method supports data generated from the study. Moreover, applying a combination of the GQL-15 and the SF-36 questionnaires covered areas of QOL and negative emotional and physical influence of glaucoma.

CONCLUSIONS AND RECOMMENDATIONS

Chapter Six: Conclusions

This research revealed numerous factors that can impact the quality of life of glaucoma patients in Palestine. These factors include age, type pf clinic where treatment is given (specialized or private), general health, and duration of glaucoma and co-morbidities. Health professionals, specialists, ophthalmologists, and health educators should be aware of how various socioeconomic and general health factors impact the quality of life of glaucoma patients in order to better diagnose, manage, guide, and educate patients for better health outcomes.

Recommendations

1. To reduce the negative psychological impact of glaucoma diagnosis, health professionals should provide psychological support in the form of education and counseling about the causes, consequences, and future prognosis of the disease
2. Nurses should play a critical role in educating patients about their disease and the importance of adherence to treatment to avoid worsening progression of the symptoms
3. At the community level, there is a need for campaigns to raise awareness about glaucoma, its symptoms, how to deal with it, how to support glaucoma patients, and to inform the public about the importance of early detection.
4. There is an urgent need to build more hospitals and clinics with specialized personnel to assist in the treatment and management of glaucoma patients.
5. Ministries responsible for road constructions should consider the needs of people with limited vision when designing roads and traffic lights.

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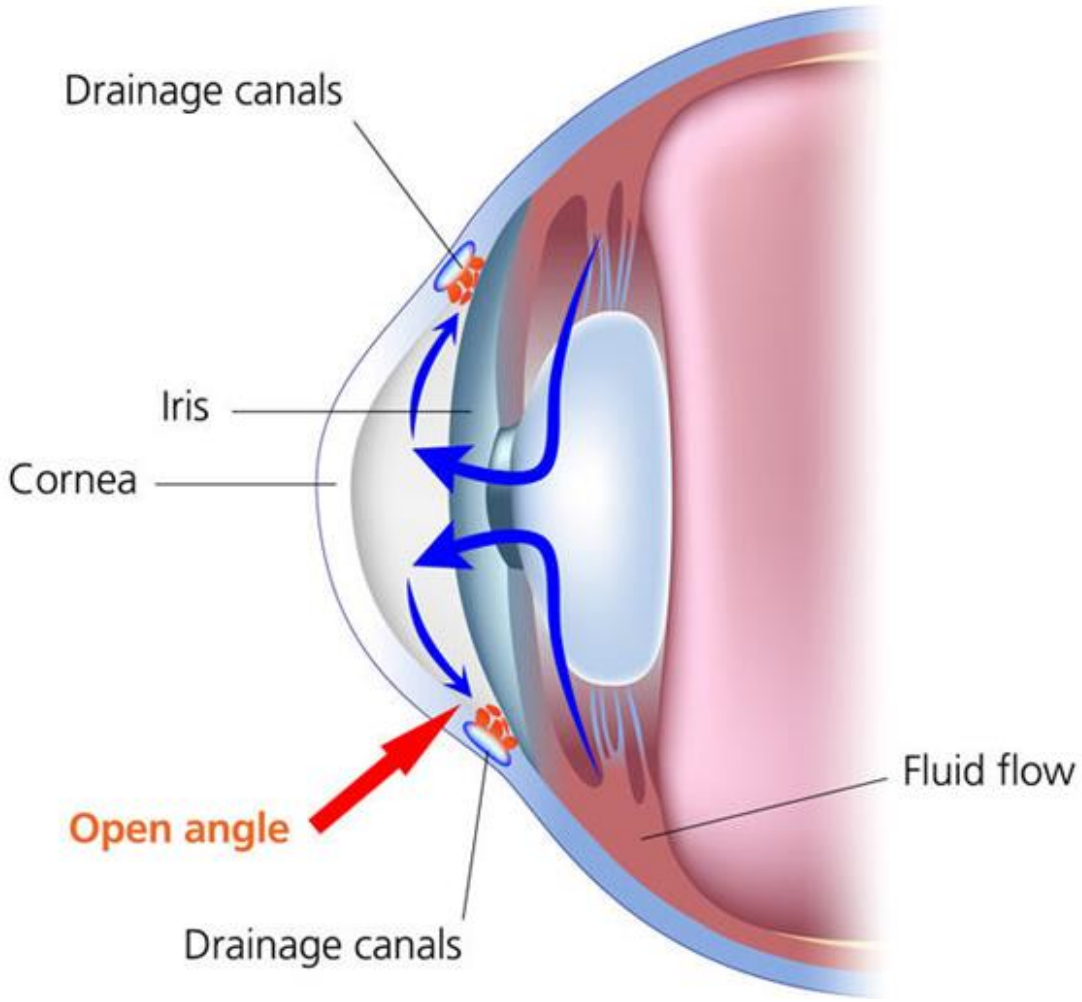
APPENDICES

Chapter Eight: Appendices

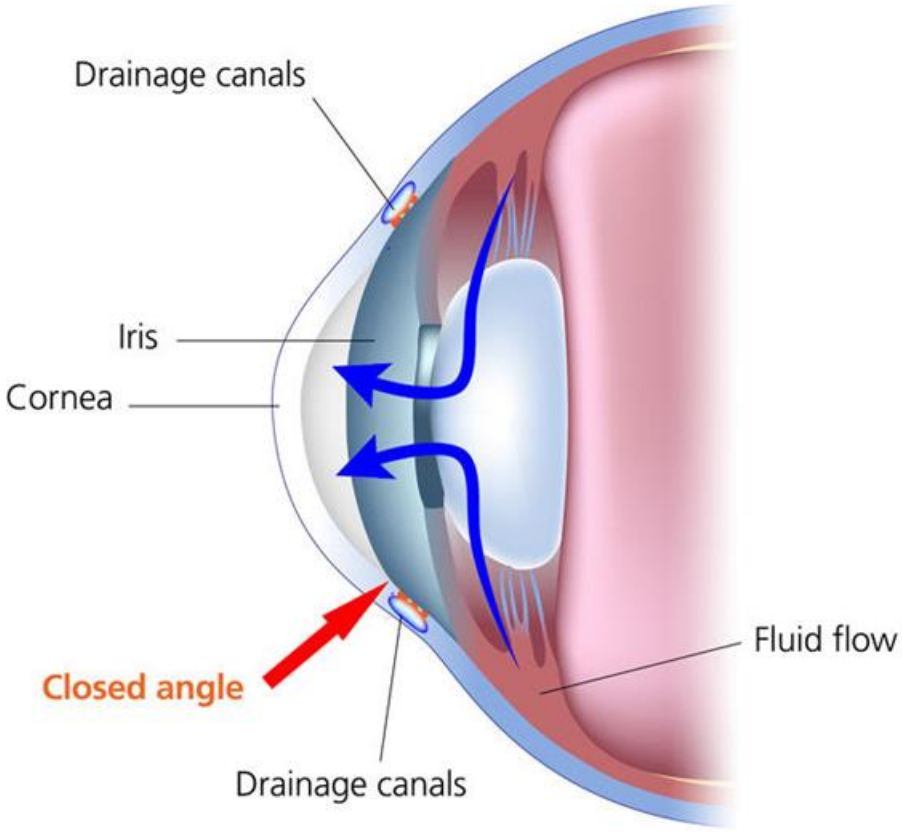
Appendix I :Open-angle glaucoma



Fluid pathway in open-angle glaucoma

Source: Types of Glaucoma | Glaucoma Research Foundation

Appendix 1I :Closed-angle glaucoma



Fluid pathway in angle-closure glaucoma

Source: Types of Glaucoma | Glaucoma Research Foundation

Appendix III :English questionnaire

Quality of life for patients with glaucoma in West Bank

Date of data collection:

CONSENT FORM

Dear Participant, Thanks for your time.

This questionnaire is to gather information/data for the study Quality of life for patients with glaucoma in West Bank. Please answer these questions as sincerely as you can. We assure that your confidentiality will be protected and information will be used only for the purposes of the study. You have the right to change your mind (i.e. withdraw from the research) even after you already have started this form.

Thank you.

Please answer every question by marking the answer as indicated. If you are unsure about how to answer a question please give the best answer you can.

Part I. Sociodemographic Data:

Please put a circle around correct answer

1- Gender: a. Male b. Female

2- Years in age: ……

3- Educational Level: a. Literacy b. Primary level c. Preparatory level
d. University level e. Higher education

4- Marital Status: a. Single b. Married c. Divorced
d. Others: specify: …….

5- Religion: a. Muslim b. Christian c. Others, specify:……..

6- District of Residence area:

a. North Districts : * Nablus * Tulkarem * Jenin * Tubas
* Salfit * Qalqilya

b. Middle Districts: * Ramallah * Al-Bireh

c. South Districts: * Hebron * Beit Lahem * Beit Jala * Beit Sahour

7- Health Facility of Care:

Ophthalmic Hospital b. European Hospital c. Private Clinic
d. Others, specify please: …….

8- Occupation: a. Work b. Did not Work
If working, please specify type of work:…….

9- Monthly Income: a. Less than 1000 NIS b. 1000 – 2000 NIS
c. More than 2000 NIS d. Others, specify:……

10- Do have Private care: a. Yes b. No

Second Part: SF-36 Questionnaire: General Health Survey

A) General Health Information

Kindly tick box [ ] or write where appropriate.

Nr.	Item	Condition
A-1	In general, would you say your health is:	☐ Excellent ☐ Very good ☐ Good ☐ Fair ☐ Poor
A-2	Compared to one year ago, how would you rate your health in general now?	☐ Much better now than one year ago ☐ Somewhat better now than one year ago ☐ About the same ☐ Somewhat worse now than one year ago ☐ Much worse now than one year ago
A-3	In general, how would you rate your eyes or vision?	☐ Excellent ☐ Very good ☐ Good ☐ Fair ☐ Poor
A-4	Did you check your eyes during the medical screening? If No kindly specify reason	1.Yes [ ] 2.No [ ] ……
A-5	Type of Glaucoma	a. Open Angle b. Closed Glaucoma c. Congenital (since birth)
A-6	Duration of Glaucoma disease	a. Less than 5 years b. 5 – 10 years c. More than 10 years
A-7	Compliance with Treatment Plan of Glaucoma	a. Compliance b. Not Compliance c. Others, please specify: ……
A-8	Do you have another Eye Disease	1.Yes [ ] 2.No [ ]
A-9	Have you ever been treated and for chronic disease conditions?	1.Asthma Yes[ ] No[ ] 2.Sickle Cell disease Yes[ ] No[ ] 3.Diabetes Yes[ ] No[ ] 4.Hypertension Yes[ ] No[ ] 5.Cancer Yes[ ] No[ ] 6. Others, specify:……..
A-10	Duration of Chronic Disease	a. Less than 5 years b. 5- 10 years c. More than 10 years
A-11	Compliance with Treatment Plan of Chronic Disease	a. Compliance b. Not Compliance c. Others, please specify: ……
A-12	Is there any family member with/ history any of the disease mentioned above?	1.Yes [ ] 2.No[ ]

B) Information about Daily Activities

The following items are about activities you might do during a typical day. Does **your health now limit you** in these activities? If so, how much? (**Please circle** one number of each line). Taking into consideration that (1: means yes, limited a lot), and (2: means yes, limited a little), and (3: means No, limited at all)

Activities	Yes, limited a lot (1)	Yes, limited a little (2)	No, not limited at all (3)
B.1- **Vigorous activities**, such as running, lifting heavy objects, participating in strenuous sports	1	2	3
B.2- **Moderate activities**, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	1	2	3
B.3- Lifting or carrying groceries	1	2	3
B.4- Climbing **several** flights of stairs	1	2	3
B.5- Climbing **one** flight of stairs	1	2	3
B.6- Bending, kneeling, or stooping	1	2	3
B.7- Walking **more than a mile**	1	2	3
B.8- Walking **several blocks**	1	2	3
B.9- Walking **one block**	1	2	3
B.10- Bathing or dressing yourself	1	2	3

C) Information about problems face you as a result of Physical Health

During the **past 4 weeks**, have you had any of the following problems with your work or other regular daily activities **as a result of your physical health**? (please circle one number of each line). Taking into consideration that 1 means Yes, and 2 means No.

	Yes	No
C.1- Cut down the **amount of time** you spent on work or other activities	1	2
C.2- **Accomplished less** than you would like	1	2
C.3- Were limited in the **kind** of work or other activities	1	2
C.4- Had **difficulty** performing the work or other activities (for example, it took extra effort)	1	2

D) Information about problems face you as a result of Emotional Problems

During the **past 4 weeks**, have you had any of the following problems with your work or other regular daily activities **as a result of any emotional problems** (such as feeling depressed or anxious)? (please circle one number of each line). Taking into consideration that 1 means Yes, and 2 means No.

	Yes	No
D.1- Cut down the **amount of time** you spent on work or other activities	1	2
D.2- **Accomplished less** than you would like	1	2
D.3- Didn't do work or other activities as **carefully** as usual	1	2

E) Information about Interference of Physical Health and Emotional Problems with your Normal Social Activities

During the **past 4 weeks**, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

- ☐ Not at all
- ☐ Slightly
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

F) Information about Problems face you as a result of Pain

F.1- How much **bodily** pain have you had during the **past 4 weeks**?

- ☐ None
- ☐ Very mild
- ☐ Mild
- ☐ Moderate
- ☐ Severe
- ☐ Very severe

F.2- During the **past 4 weeks**, how much did **pain** interfere with your normal work (including both work outside the home and housework)?

- ☐ Not at all
- ☐ A little bit
- ☐ Moderately
- ☐ Quite a bit
- ☐ Extremely

G) Information about Feelings and how things have been with you during the past 4 weeks

These questions are about how you feel and how things have been with you **during the past 4 weeks**. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the **past 4 weeks**? (please circle one number of each line). Taking into consideration that 1: means all of the time, 2: means most of the time, 3: means a good bit of the time, 4: means some of the time, 5: means a little of the time, 6: means none of the time.

	All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
G-1- Did you feel full of pep?	1	2	3	4	5	6
G-2- Have you been a very nervous person?	1	2	3	4	5	6
G-3- Have you felt so down in the dumps that nothing could cheer you up?	1	2	3	4	5	6
G-4- Have you felt calm and peaceful?	1	2	3	4	5	6
G-5- Did you have a lot of energy?	1	2	3	4	5	6
G-6- Have you felt downhearted and blue?	1	2	3	4	5	6
G-7- Did you feel worn out?	1	2	3	4	5	6
G-8- Have you been a happy person?	1	2	3	4	5	6
G-9- Did you feel tired?	1	2	3	4	5	6

H) Information about Time Duration of Physical Health and Emotional Problems Interfered with your Normal Social Activities

H-1- During the **past 4 weeks**, **how much of the time** has **your physical health or emotional problems** interfered with your social activities (like visiting with friends, relatives, etc.)?

- ☐ All of the time
- ☐ Most of the time
- ☐ Some of the time
- ☐ A little of the time
- ☐ None of the time

I) Information about Truthiness and Fault of specific Statements

How TRUE or FALSE is **each** of the following statements for you. (Please circle one number of each line). Taking into consideration that 1: means definitely true, 2: means mostly true, 3: means don't know, 4: means mostly false, 5: means definitely false.

	Definitely true	Mostly true	Don't know	Mostly false	Definitely false
I.1- I seem to get sick a little easier than other people	1	2	3	4	5
I.2- I am as healthy as anybody I know	1	2	3	4	5
I.3- I expect my health to get worse	1	2	3	4	5
I.4- My health is excellent	1	2	3	4	5

Part Three: Glaucoma Quality of Life-15 Questionnaire

"Does your vision give you any difficulty, even with glasses, with the following activities?" (1= no difficulty, 2 = a little bit of difficulty, 3 some difficulty, 4 quite a lot of difficulty, 5 severe difficulty, zero = not done at all due to vision problems).

Activity	No difficulty	A little bit of difficulty	Some difficulty	Quite a lot of difficulty	Severe difficulty	Not done at all due to vision problems
1. Reading newspapers	1	2	3	4	5	0
2. Walking after dark	1	2	3	4	5	0
3. Seeing at night	1	2	3	4	5	0
4. Walking on uneven ground	1	2	3	4	5	0
5. Adjusting to bright lights	1	2	3	4	5	0
6. Adjusting to dim lights	1	2	3	4	5	0
7. Going from light to dark room or vice versa	1	2	3	4	5	0
8. Tripping over objects	1	2	3	4	5	0
9. Seeing objects coming from the side	1	2	3	4	5	0

10. Crossing the road	1	2	3	4	5	0
11. Walking on steps /stairs	1	2	3	4	5	0
12. Bumping into objects	1	2	3	4	5	0
13. Judging distance of foot to step/curb	1	2	3	4	5	0
14. Finding dropped objects	1	2	3	4	5	0
15. Recognizing faces	1	2	3	4	5	0

Appendix IV :Arabic questionnaire

استبيان لتقييم جودة الحياة لدى مرضى الجلوكوما في الضفة الغربية: دراسة ميدانية

نموذج الموافقة

عزيزي المشارك , شكرا على وقتك
يهدف هذا الاستبيان الى جمع معلومات – بيانات لدراسة نوعية الحياة لمرضى الجلوكوما في الضفة الغربية. الرجاء الاجابة على هذه الاسئلة بأكبر قدر ممكن من الصدق . نؤكد أن سريتك ستتم حمايتها ولن يتم استخدام هذه المعلومات الا لأغراض الدراسة. لديك الحق في تغيير رأيك (أي الانسحاب من البحث) حتى بعد هذا النموذج بالفعل . شكرا لك ولتعاونك معنا

هذه المجموعة من الاسئلة تطلب وجهات نظرك حول صحتك . ستساعد هذه المعلومات في تتبع ما تشعر به ومدى قدرتك على القيام بأنشطتك المعتادة. اجب عن كل سؤال بوضع علامة على الاجابة كما هو محدد . اذا لم تكن متأكدا من كيفية الاجابة على سؤال , فيرجى تقديم أفضل اجابة ممكنة.

الجزء الاول: الأحوال الشخصية والاجتماعية:

نود منك الإجابة على بعض الأسئلة العامة عن نفسك:

1- **الجنس:**
   - □ ذكر
   - □ أنثى
2- **العمر:**اذكر العمر بالسنوات : **.....**
3- **الدرجة العلمية:**
   - □ أمي
   - □ المرحلة الأساسية
   - □ المرحلة الاعدادية
   - □ المرحلة الثانوية
   - □ جامعي
   - □ دراسات عليا
4- **الحالة الاجتماعية:**
   - □ أعزب
   - □ متزوج

□ مطلق
□ غير ذلك

5- الديانة :
□ مسلم
□ مسيحي
□ غير ذلك: الرجاء التوضيح .....

6- المحافظة:
□ الشمال 1. نابلس 2. طولكرم 3. جنين 4. طوباس 5. سلفيت 6. قلقيلية
□ الوسط 1.رام الله 2. البيرة
□ الجنوب 1. الخليل 2. بيت لحم 3. بيت ساحور 4. بيت جالا

7- مكان تلقي الخدمة:
□ مستشفى العيون
□ مستشفى الأوروبي
□ عيادة خاصة
□ غير ذلك: الرجاء ان تذكر .....

8- العمل:
□ يعمل: الرجاء ذكر طبيعة العمل:.....
□ لا يعمل

9- الدخل الشهري:
□ أقل من 1000 شيكل
□ 1000-2000 شيكل
□ أكثر من 2000 شيكل

10- هل انت مشترك بالتامين الصحي :
□ نعم
□ لا

اذا كانت الاجابة نعم , الرجاء ذكر نوع التامين الصحي : .....

الجزء الثاني: استمارة 36 سؤال المتعلقة بالمسح الشامل للصحة العامة- النسخة العربية

1) معلومات تتعلق بالصحة العامة:

من فضلك أجب على كل الأسئلة في هذا الاستبيان. في حالة عدم وضوح أي سؤال، أرجو اختيار أقرب إجابة لمفهومك للسؤال. (اختر إجابة واحدة صحيحة بوضع علامة دائرة على الإجابة الصحيحة)

الرقم	الصفة	الحالة
1	بصورة عامة، كيف ترى حالتك الصحية؟	1.1- ممتازة 1.2- جيدة جدا 1.3 جيدة 1.4 لا بأس بها 1.5 سيئة
2	مقارنة بعام مضى، كيف تقيم حالتك الصحية الآن بصورة عامة:	1) أفضل بكثير مما كانت عليه قبل عام 2) أفضل نوعا ما من العام الماضي 3) تقريبا على ما هي عليه 4) أسوء نوعا ما من العام الماضي 5) أسوء بكثير مما كانت عليه قبل عام
3	بشكل عام, كيف تقيم عينيك أورؤيتك؟	ممتاز □ جيد جدا □ جيد □ عادل □ ضعيف □
4	هل قمت بفحص عينيك أثناء الفحص الطبي؟ اذا كانت الاجابة لا, يرجى تحديد السبب؟	□ نعم □ لا .....
5	نوع مرض الجلوكوما	□ مفتوح الزاوية □ مغلق الزاوية

		□ خلقية (منذ الولادة)
6	مدة مرض الجلوكوما	□ أقل من 5 سنوات □ 5-10 سنوات □ 10 سنوات فأكثر
7	مدى الالتزام بالعلاج بمرض الجلوكوما	□ ملتزم □ قليل الالتزام □ غير ملتزم □ غير ذلك: وضح.....
8	هل أنت مصاب بأي مرض عيون آخر	□ نعم □ لا
9	هل أنت مصاب بأي مرض مزمن	□ نعم □ لا
9.1	اذا كانت الاجابة نعم الرجاء تحديد المرض:	□ الازمة الصدرية □ Sickle Cell disease □ السكري □ الضغط □ السرطان □ امراض اخرى, حدد.....
10	مدة المرض المزمن	□ أقل من 5 سنوات □ 5-10 سنوات □ 10 سنوات فأكثر
11	مدى الالتزام بالعلاج للمرض المزمن	□ ملتزم □ قليل الالتزام □ غير ملتزم
12	هل يوجد احد من افراد عائلتك مصاب باي من الامراض المزمنة؟	□ نعم □ لا
12.1	اذا كانت الاجابة نعم, الرجاء ذكر اسم المرض	□ .....

2) معلومات تتعلق بانشطة تقوم بها خلال اليوم:

الرجاء وضع دائرة حول الاجابة المناسبة. ان الاجابة تتراوح بين 1: نعم تقيدني كثيرا, 2: نعم تقيدني قليلا, 3: لا تقيدني على الاطلاق

2. تتعلق البنود التالية بأنشطة يمكن أن تقوم بها خلال يومك العادي. في الوقت الحالي، إلى أي مدى تقيدك حالتك الصحية؟ (اختر إجابة واحدة صحيحة بوضع علامة دائرة على الرقم الصحيح)	**نعم تقيدني كثيرا**	**نعم تقيدني قليلا**	**لا تقيدني اطلاقا**
2-1- من ممارسة **الأنشطة الشاقة** مثل: الجري، حمل الأشياء الثقيلة أو مزاولة الأنشطة الرياضية المجهدة جدا	1	2	3
2-2- من ممارسة الأنشطة متوسطة الجهد، كتحريك الطاولة أو التنظيف باستخدام المكنسة الكهربائية أو تنظيف حديقة المنزل والعناية بها؟	1	2	3
2-3- من حمل المشتريات من البقالة أو السوق المركزي (السوبرماركت)؟	1	2	3
2-4- من صعود الدرج لعدة أدوار؟	1	2	3
2-5- من صعود الدرج لدور واحد فقط؟	1	2	3
2-6- من الانحناء أو الركوع أو السجود؟-3	1	2	3
2-7- من المشي لأكثر من كيلو متر ونصف؟	1	2	3
2-8- من المشي لمسافة نصف كيلو متر؟	1	2	3
2-9- من المشي لمسافة مئة متر؟	1	2	3
2-10- من الاستحمام أو ارتداء الملابس بنفسك؟	1	2	3

3) معلومات تتعلق بالمشاكل التي تواجهك نتيجة حالتك الصحية الجسمية:

تتعلق البنود التالية بالمشاكل التي يمكن أن تواجهك خلال تأديتك لعملك أو الانشطة اليومية المعتادة نتيجة لحالتك الصحية الجسمية. خلال الأسابيع الأربعة الماضية، هل تسببت حالتك الصحية الجسمية في: (اختر اجابة واحدة صحيحة بوضع علامة دائرة على الرقم الصحيح)		
	نعم	**لا**
3-1-التقليل من الوقت الذي تقضيه في العمل أو أي أنشطة أخرى؟	1	2
3-2- التقليل مما تود إنجازه من العمل أو من أي أنشطة أخرى؟	1	2
3-3- تقيدك في أداء نوع معين من الأعمال أو أي أنشطة أخرى؟	1	2
3-4- أن تجد صعوبة في تأدية العمل أو أي أنشطة أخرى: (على سبيل المثال احتجت إلى جهد إضافي لتأديتها)	1	2

4) معلومات تتعلق بالمشاكل التي تواجهك نتيجة حالتك الصحية النفسية:

تتعلق البنود التالية بالمشاكل التي يمكن أن تواجهك خلال تأديتك لعملك أو الانشطة اليومية المعتادة نتيجة لحالتك الصحية النفسية. خلال الأسابيع الأربعة الماضية، هل تسببت حالتك الصحية الجسمية في: (اختر اجابة واحدة صحيحة بوضع علامة دائرة على الرقم الصحيح)		
	نعم	**لا**
4-1- التقليل من الوقت الذي تقضيه في العمل أو أي أنشطة أخرى؟	1	2
4-2- التقليل مما تود إنجازه من العمل أو من أي انشطة أخرى؟	1	2
4-3- عدم إنجاز العمل أو أي أنشطة أخرى بالحرص المعتاد؟	1	2

5) معلومات تتعلق بالتداخل بين الحالة الصحية الجسمية والنفسية وتأديتك للنشاطات الاجتماعية المعتادة:

5- خلال الأسابيع الأربعة الماضية، إلى أي مدى تعارضت حالتك الجسمية أو النفسية مع تأديتك لنشاطاتك الاجتماعية المعتادة مع عائلتك او اصدقائك او جيرانك أو أي من المناسبات الاجتماعية الأخرى؟ (اختر اجابة واحدة صحيحة بوضع علامة دائرة على الرقم الصحيح)
5-1- لم يكن هناك أي تعارض اطلاقاً
5-2- كان هناك تعارض قليل
5-3- كان هناك تعارض متوسط
5-4- كان هناك تعارض كبير
5-5- كان هناك تعارض كبير جدا

6) معلومات تتعلق بالمشاكل التي تواجهك نتيجة الشعور بالالم وشدته:

6-1- ما شدة الألم الجسمي الذي عانيت منه خلال الأسابيع الأربعة الماضية؟ (اختر اجابة واحدة صحيحة بوضع علامة دائرة على الرقم الصحيح)
7-1-1- لم يكن هناك أي ألم
7-1-2- كان هناك ألم خفيف جدا
7-1-3- كان هناك ألم حفيف
7-1-4- كان هناك ألم متوسط
7-1-5- كان هناك ألم شديد
7-1-6- كان هناك الم شديد جدا
6-2- خلال الأسابيع الأربعة الماضية، إلى أي مدى أدى الألم الجسمي إلى التعارض مع تأديتك لأعمالك (سواء داخل المنزل أو خارجه)؟ (اختر اجابة واحدة صحيحة بوضع علامة دائرة على الرقم الصحيح)
7-2-1 م يكن هناك أي تعارض
7-2-2- كان هناك تعارض قليل جدا
7-2-3- كان هناك تعارض متوسط
7-2-4- كان هناك تعارض كبير
7-2-5- كان هناك تعارض كبير جدا

7) معلومات تتعلق بكيفية شعورك وطبيعة سير الأمور معك خلال الأسابيع الأربعة الماضية

7- الأسئلة التالية تتعلق بكيفية شعورك وطبيعة سير الأمور معك خلال الأسابيع الأربعة الماضية، الرجاء عطاء إجابة واحدة لكل سؤال بحيث تكون الإجابة هي الأقرب إلى الحالة التي كنت تشعر بها. (اختر اجابة واحدة صحيحة بوضع علامة دائرة على الرقم الصحيح). اخذا بعين الاعتبار ان 1: تعني في كل الاوقات, 2: تعني في معظم الاوقات, 3: تعني في كثير من الاوقات, 4: تعني في بعض الاوقات, 5: تعني في قليل من الاوقات, 6: تعني لم اشعر في اي وقت من الاوقات **خلال الأسابيع الأربعة الماضية، كم من الوقت:**						
	في كل الأوقات	في معظم الاوقات	في كثير من الاوقات	في بعض الاوقات	في قليل من الاوقات	لم أشعر في أي وقت من الأوقات
7-1- شعرت بأنك مليء بالحيوية والنشاط؟	1	2	3	4	5	6
7-2- كنت شخصا عصبيا جدا؟	1	2	3	4	5	6
7-3- شعرت بأنك في حالة من الاكتئاب إلى درجة لم يكن معها إدخال السرور إليك؟	1	2	3	4	5	6
7-4- شعرت بالهدوء والطمأنينة؟	1	2	3	4	5	6
7-5- كان لديك طاقة كبيرة؟	1	2	3	4	5	6
7-6- شعرت بالإحباط واليأس ؟	1	2	3	4	5	6
7-7- شعرت بأنك منهك (استنفذت قواك)؟	1	2	3	4	5	6
7-8- شعرت بأنك شخص سعيد؟	1	2	3	4	5	6
7-9- شعرت بأنك متعب؟	1	2	3	4	5	6

8) معلومات تتعلق بالتداخل بين الحالة الصحية الجسمية والنفسية ومقدار الوقت اللازم تأديتك للنشاطات الاجتماعية المعتادة:

8- خلال الأسابيع الأربعة الماضية، ما مقدار الوقت الذي تعارضت فيه صحتك الجسمية أو مشاكلك النفسية مع نشاطاتك الاجتماعية (مثل زيارة الأقارب والأصدقاء وغير ذلك) ؟ (اختر اجابة واحدة صحيحة بوضع علامة دائرة على الرقم الصحيح).
9-1- كان التعارض في كل الأوقات.
9-2- ان التعارض في معظم الأوقات.
9-3- كان التعارض في بعض الأوقات.
9-4- كان التعارض في قليل من الأوقات.
9-5- لم يكن هناك تعارض في أي وقت من الأوقات.

9) معلومات تتعلق بمدى صحة وخطأ العبارات التالية بالنسبة لحالتك الصحية:

9- ما مدى صحة أو خطأ كل من العبارات التالية بالنسبة إلى حالتك الصحية؟ (اختر اجابة واحدة صحيحة بوضع علامة دائرة على الرقم الصحيح). تتراوح الاجابة بين 1 يعني صحيحة بلا شك, 2 يعني صحيحة غالبا, 3 يعني لا اعلم, 4 يعني خطأ غالبا, 5 يعني خطأ بلا شك					
	صحيحة بلا شك	صحيحة غالبا	لا أعلم	خطأ غالبا	خطأ بلا شك
9-1- يبدو أنني أصاب بالمرض أسهل من الآخرين.	1	2	3	4	5
9-2- حالتي الصحية مساوية لأي شخص أعرفه.	1	2	3	4	5
9-3- أتوقع أن تسوء حالتي الصحية.	1	2	3	4	5
9-4- حالتي الصحية ممتازة	1	2	3	4	5

الجزء الثالث : استبيان جودة الحياة عند مرضى الجلوكوما 15 – النسخة العربية

1الرجاء وضع دائرة حول الاجابةالمناسبة اخذا بعين الاعتبار ان 1 يعني لا صعوبات, 2 يعنيي صعوبات قليلة, 3 يعني صعوبات متوسطة, 4 يعني الكثير من الصعوبات, 5 يعني صعوبات شديدة, صفر يعني لا يؤديها لاسباب لا تتعلق بالنظر

	لا صعوبات	صعوبات قليلة	صعوبات متوسطة	الكثير من الصعوبات	صعوبات شديدة	لا يؤديها لأسباب لا تتعلق بالنظر
1. قراءة الصحف	1	2	3	4	5	0
2. السير بعد حلول الظلام	1	2	3	4	5	0
3. الرؤية في الليل	1	2	3	4	5	0
4. السير على ارض غير مستوية	1	2	3	4	5	0
5. التأقلم مع الضوء المشع	1	2	3	4	5	0
6. التأقلم مع الضوء الخافت	1	2	3	4	5	0
7. الانتقال من غرفة مضيئة الى غرفة معتمة أو العكس	1	2	3	4	5	0
8. التعثر بالأجسام	1	2	3	4	5	0
9. رؤية الاجسام القادمة من الجانب	1	2	3	4	5	0
10. عبور الطريق	1	2	3	4	5	0
11. السير على الدرج	1	2	3	4	5	0
12. الارتطام بالأجسام	1	2	3	4	5	0
13. تقدير المسافة بين القدم والدرج أو حافة الرصيف	1	2	3	4	5	0
14. إيجاد الاجسام التي أوقعتها	1	2	3	4	5	0
15. تمييز الوجوه	1	2	3	4	5	0

Appendix V Qualitative questions

عزيزي المشارك , شكرا على وقتك
يهدف هذا الاستبيان الى جمع معلومات – بيانات لدراسة نوعية الحياة لمرضى الجلوكوما في الضفة الغربية. الرجاء الاجابة على هذه الاسئلة بأكبر قدر ممكن من الصدق . نؤكد أن سريتك ستتم حمايتها ولن يتم استخدام هذه المعلومات الا لأغراض الدراسة. لديك الحق في تغيير رأيك (أي الانسحاب من البحث) اذا لم ترغب . شكرا لك ولتعاونك معنا

هذه المجموعة من الاسئلة تطلب وجهات نظرك حول صحتك . ستساعد هذه المعلومات في تتبع ما تشعر به ومدى قدرتك على القيام بأنشطتك المعتادة.

Qualitative Questions

1. How were you diagnosed with glaucoma?

2. what did you feel when you were diagnosed?

3. how do you manage your life?

4. what are your most bothersome symptoms?

5. what do you wish could change to make your life with glaucoma better?

a: in the community

b: in your family

d: in your health care

كيف تم تشخيص المرض؟

ما هو شعورك عند معرفة تشخيصك بالمرض؟

كيف تدير حياتك مع المرض؟

ما هو اكتر الاعراض خطورة عليك؟

ما الشيء الذي تتمنى تغييره لجعل حياتك أفضل مع المرض؟

للمجتمع

للعائلة

لرعايتك الصحية

Appendix VI Data collection approval

Arab American University
Faculty of Graduate Studies

الجامعـــة العربيـــة الأمريكيـــة
كلية الدراسات العليا

2021-1-31

الى من يهمه الأمر،

تسهيل مهمة بحثية

تحية طيبة وبعد،

تهديكم كلية الدراسات العليا في الجامعة العربية الامريكية اطيب التحيات، وبالإشارة الى الموضوع أعلاه، تشهد كلية الدراسات العليا في الجامعة أن الطالبة وجدان محمود سليم خطيب والتي تحمل الرقم الجامعي20182030012 هي طالبة ماجستير في الجامعة العربية الامريكية تخصص تمريض عيون، وتعمل على اعداد رسالة الماجستير بعنوان:

" جودة الحياة لدى مرضى ضغط العين في الضفة الغربية"

تحت اشراف الدكتور رجا نايف زيود، نأمل من حضرتكم الابعاز لمن يلزم لمساعدتها للحصول على المعلومات اللازمة للدراسة، علماً ان المعلومات ستستخدم لغاية البحث فقط وقد اعطيت هذه الرسالة بناءً على طلبها.

وتفضلوا بقبول فائق الاحترام،،،

د. اشرف الميمي

عميد كلية الدراسات العليا

كلية الدراسات العليا
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Research Proposal

Program: Ophthalmic Nursing

Title of thesis: Quality of life for patients with glaucoma in West Bank: A field study.

Student's Name: wejdan Mahmoud khatib

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Date: 23l11l2020

Supervisor: Dr. Raj'a Nayef Zyoud
Co-Advisor (if applicable):

Instructions:
1- Use the boxes given below for each item to include your text.
2- Please keep the text which describes the task (given in blue)
3- Try your best to be precise and just include what has been requested in the box
4- Do not change the layout or the font size, just use the template as is

SUMMARY

Please summarize your research proposal by briefly clarifying the various components of you research idea. **The whole executive summary should not exceed 1 page.**

Define the topic in general terms

Glaucoma is a cluster of ophthalmic disorders characterized by progressive degeneration of the optic nerve in both eyes(AC & SNN, 2020). The major risk factors are aging and family history(M. Z. Mushtaha & Eljedi, 2020). The mainstay of glaucoma treatment has centered on reducing intraocular pressure (IOP) to prevent loss of vision and blindness (Kumar, et al., 2018)

Of the estimated 67 million patients suffering from glaucoma, about 10% are blind(Severn et al., 2008). Glaucoma has a huge impact on QOL because it results in reduction of visual acuity; causes fear of blindness, treatments have side effects, it incurs huge financial cost of hospital visits and therapy(AC & SNN, 2020).

The loss of the visual function is the chief reason for worsening the QoL resulting in difficulties in reading, driving, walking, and seeing objects from the side. The psychological impact of the fear of blindness is itself debilitating. Following the demanding treatment regimens also affects QOL(Guedes, 2015). Social withdrawal is one aspect that affects QOL of glaucoma patients. The medical, social and financial difficulties affect not only the patient but the whole family(Kumari et al., 2017b).

QOL reflects the individual's overall wellbeing and their ability to follow a happy life. QOL includes domains of physical health, mental health, general health perceptions, and social functioning(S. Skalicky & Goldberg, 2012).

QoL can vary in one patient over time or between two persons of the same diagnosis. Different factors can affect QoL, such as culture, social environment, or the patients' prospects in life(Pelčić et al., 2017).

In recent years, QoL measures have become increasingly used in health care and have become major goals of treatment(Riva et al., 2019).

Clearly state the research problem

Visual impairment negatively affects physical and mental health. Visual impairment lies in the top ten disabilities in some countries. The visually disabled are at higher risk for accidents, depression, and social isolation. As the populations age, the number of people with visual impairment rises (L. Quaranta et al., 2016).

Globally, glaucoma is a major health problem. Its incidence and social impact are increasing and it is the second leading cause of blindness(M. Z. Mushtaha & Eljedi, 2020). It can impact hugely patient quality of life(Zuo et al., 2015).

Glaucoma usually occurs in both eyes and causes gradual loss of peripheral vision. If untreated, patient may become blind. This looming risk of blindness along with the financial costs and burden of treatments cause psychological stress and loss of different aspects of life quality(Kumari et al., 2017b).

The prevalence of glaucoma among adults above 40 is around 2% but this prevalence increase with age. Activities of daily living are adversely affected. These activities include: reading, light adaptation, outdoor mobility, avoiding obstacles, etc.). Those challenges persist even when the central visual acuity is still preserved during the early stages of the disease(Labiris et al., 2011).

As the populations are aging rapidly in the 21st century, the prevalence of glaucoma is also expected to rise. It is projected that by the end of 2020, 79,6 million of people will have glaucoma and 11,2 million of them

will become blind(Pelčić et al., 2017). By 2040, the number of people with glaucoma worldwide will rise to 111.8 million (M. Z. Mushtaha & Eljedi, 2020)

As the glaucoma group of diseases is usually asymptomatic until they are very advanced, attempts have been made to develop quality of life scales for the disease(Severn et al., 2008). Preservation of Quality of Life (QOL) is a primary goal of treatments. (Aspinall et al., 2008)

It is worth mentioning that despite the importance of topic in West Bank, the QOL and other obstacles and needs of patients with glaucoma in the West Bank have not been studied.

~~the large number of glaucoma patients in~~

Define the objectives of the study

The study over all aim is: ~~to evaluate Quality of life, knowledge, attitudes, obstacles for patients with glaucoma in West Bank.~~ To assess quality of life for patients with glaucoma in west bank

Secondary specific objectives of the study:

1- To recognize the factors influencing quality of life for patients with glaucoma.

2- To determine the most prominent socio-demographic factors that influence QOL For glaucoma patients.

3- To determine the most prominent disease-related factors that influence QOL. For glaucoma patients.

~~4- To assess the patients' knowledge and attitudes regarding glaucoma disease~~

5- ~~To identify the difficulties and obstacles facing glaucoma patients~~.

4- To assess the impact of systemic disease and compliance with treatment for glaucoma patients on quality of life.

Describe the method to be used

It is a descriptive, cross-sectional study. Patients diagnosed with glaucoma and no other ocular comorbidity will be included. It will be conducted at West bank. Each patient will be asked a series of questions according to the questionnaires. Socio-demographic and disease-related characteristics in addition to QOL data will be collected using the Glaucoma Quality of Life-15 (GQL-15) and Short-Form 36 Health Survey (SF-36) questionnaires. The questions will be translated according to the language understood by the patient.

A mixed method of qualitative and quantitative studies will be used. Quantitative part will give depth and generalizability, while qualitative part will provide depth and richness.

Describe the expected outcomes

The results of this study are expected to enrich the various awareness-raising programs and activities aimed to improve QOL for patients with glaucoma and to address the problems and difficulties they face them.

State the significance of the study

~~Assessment of~~ Quality of life (QoL) is important in the management of glaucoma patients because QOL reflects the burden of disease experienced by the patient. ~~In addition, QOL holistically assesses the impact of glaucoma on the patient.~~ Furthermore, QOL can also be used to monitor progress in patients with glaucoma.

~~In clinical practice, QOL is important for assessing a patient's wellbeing, visual function and level of satisfaction with care.~~ QOL can be used to make important therapeutic decisions. When clinicians assess QOL, they can work with their patients towards more realistic common goals leading to better treatment outcomes. Therefore, the assessment of QoL is becoming more important in clinical research and practice(S. Skalicky & Goldberg, 2012).

The interest of clinicians and researchers in QOL assessment in chronic diseases is growing constantly. QOL is an important for several reasons:

1. QOL is an important indicator of health and well-being;

2. QOL determines the effectiveness of treatment,

3. QOL assists policy makers on decisions regarding resource distribution and program developments(M. Z. Mushtaha & Eljedi, 2020).

QOL that are specific for glaucoma are important because

1. They can help 'decision making' concerning customized disease management

2. They can provide guidelines for patients' daily living and safety (e.g. adjustment of home environment),

3. They can help in avoiding problems regarding adaptation to variable lighting conditions, avoiding obstacles, near activities, outdoor activities (e.g. walking, driving) .

Towards this direction, information gained from QoL studies could improve the education of newly diagnosed patients and help them realize the severity of the disease and the importance of the adherence to daily treatment, despite the fact that symptoms are absent in early stages.

On the other hand, assessing QoL (health related or vision related) instruments in undiagnosed glaucoma patients could also serve as a diagnostic tool to detect cases early and as a result achieve better outcomes. Researchers in Gaza studied the impact of glaucoma over various aspects of life of patients and found that glaucoma has significant impact on the physical, mental, and social health of patients

1. THE TOPIC / LITERATURE REVIEW

Define the research topic and research and how your research topic is related to existing literature and current trends in the research topic.

Briefly describe the research topic:
~~Evaluating,~~ Assessing the Quality of life for patients with glaucoma in West Bank, and identifying the influences of glaucoma on the quality of life.

State the key ideas, theories. Concepts and findings in the current literature related to your research topic; especially those linked with the research problem under investigation
Many papers started with the sentence that ‘‘Glaucoma is the second leading cause of vision loss in the world’’ that actually could represent awareness of researchers worldwide regarding the seriousness of glaucoma’s consequences(Pelčić et al., 2017).

Several studies have evaluated QoL in glaucoma and the association with its clinical aspects ,

The (Embase, PubMed, Medline, OVID, CINAHL and the Google Scholar) database were used for the literature search of this review. Although every effort was made to use references as recent as possible, articles irrespective of the year of publication were used if deemed appropriate.

The keywords searched included glaucoma, ocular hypertension, quality of life, health-related quality of life, vision-related quality of life, mental health status, visual field damage, quality of life questionnaire, medical therapy, and surgical therapy.

Combinations of these terms with appropriate Boolean operators were also used. After relevant articles were retrieved using these keywords, a search was conducted through the literature cited in these articles and additional papers were identified. Abstracts of papers in languages other than English were surveyed, too .

Through a review of previous studies that dealt with the Quality of life for patients with glaucoma, the researcher reviewed the studies that dealt with the participant, and it became clear that the majority of studies agree on a group of Results including:

- The review of literature suggests that advanced glaucoma degrades the patient’s general health, Quality of life (QoL), and vision related to quality of life and it has negative impact on patients’ physical, emotional and social aspects of life.
- There is evidence in the literature that the more advanced glaucoma is, the worst the QoL. However, impairment may occur even at early stages of the disease .
- Patients with impaired QoL present severe burden on health-care resources.
- Despite substantial differences in methodological approach of several studies, all concluded that visual impairment significantly affects QoL.

Therefore, we should keep in mind that:

- Glaucoma has a major impact in the QoL;
- The type of treatment can interfere for better or worse in the QoL.
- The doctor has a key role in maintaining and improving the QoL using the appropriate and personalized treatment, noting that one way to try to alleviate the burden of disease is to establish a good doctor-patient relationship.

Previous studies have investigated the life quality of glaucoma patients, suggesting a relationship between visual field defects and impaired quality of life in patients with glaucoma. Furthermore, the association between rates of binocular visual field loss and vision-related quality of life in glaucoma was observed; special attention was paid to the quality of life of young patients with glaucoma.

Since the first research efforts that tried to examine QoL in glaucoma, serious advancement has been accomplished in this field, offering a better understanding of how and to what extent ~~extend~~ glaucoma influences QoL of individuals suffering from the disease. In addition, glaucoma QoL research yielded important insights with regard to the domains of daily living that are mostly affected by the disease(Labiris et al., 2011).

A study by Mohammed Z. Mushtaha and Ashraf Eljedi in 2017; aimed to assess QOL among Glaucoma patients in Gaza Governorates and the factors influencing their life conditions. The findings of this study demonstrated that patients with Glaucoma had a medium level of QOL scores. Quality of life measures used such as life dynamics, vision and compliance to treatment should be measured in details in future studies. The researchers from Gaza used a 36-tem scale which included sub scales such as physical health, role limitations, social health, night vision adaptation, outdoor mobility, central vision, and peripheral vision. The study showed that glaucoma has significant impact on patients QOL and greatly affects the physical, mental, and social life of the patients

This study identified common problems encountered by patients. Also, a study has proved that Glaucoma has wide effects on people's ability to function independently in every field of their lives. It affects the physical, mental and social wellbeing of people(M. Z. Mushtaha & Eljedi, 2020).

Spaeth et al, in 2005, studied the impact of glaucoma on ability to function and on quality of life to guide therapeutic choices and strategies for improved adherence to therapeutic regimens and to suggest alterations to environments to help the patient to cope better with the effects of the disease. Information about the impact of glaucoma were taken from the general health questionnaires and from vision and glaucoma-specific questionnaires. Responses to glaucoma-specific questionnaires correlated best with visual field measurements and other objective measures of disease progression. This indicates that such responses are due to the effects of glaucoma rather than of other health problems. Recent advances in the design of glaucoma-specific instruments have revealed valuable insights. For example, patients who with significant peripheral visual field loss value their central vision to a greater extent than do patients with less-advanced disease. Moreover, these patients appear to have accepted their limitations and adapted to their problems with outdoor mobility(Spaeth, Walt, & Keener, 2006).

In a prospective study of the quality of life and burden of care in glaucoma patients and their families compared to cataract patients, 100 glaucoma patients and 50 patients with age -related cataract were compared. Patients were interviewed to obtain information on visual disability and vision-specific quality of life. The results showed that the scores for patients with glaucoma were significantly lower than those with cataract in visual function, social function, mental health, and role difficulties. General quality of life scores was significantly poor in glaucoma as compared to cataract patients in all domains of questionnaire including general well-being, physical health, psychological, social relationship and environment. There was more burden of care in glaucoma patients and their families as compared to cataract patients including financial burden, disruption of routine family activities, family leisure, family interaction, physical health and mental health(Kumari et al., 2017b).

Another cross-sectional study in 2015 evaluated VRQOL in Chinese glaucoma patients and the potential factors influencing VRQOL. This study showed that visual acuity correlated linearly with VRQOL, and VF loss might reach a certain level, correlating with abnormal VRQOL scores. Stroke was significantly associated with abnormal VRQOL(Zuo et al., 2015).

In a large sample of 3169 Italian patients with primary open-angle glaucoma (POAG) from 2012 to 2013, limited disease severity and HR QoL scores were high. Advancing disease severity also decreased QoL. Findings of this study assert the vision loss role in impairing QoL in POAG, underlying the significance of timely detection and accurate treatment(Floriani et al., 2016).

A study to assess the vision-related quality of life (VRQoL) in glaucoma patients and its correlations with psychological disturbances and visual function components, the 25-item National Eye Institute Visual Functioning Questionnaire (NEI VFQ-25) and Hospital Anxiety and Depression Scale (HADS) questionnaires were administered to 428 Chinese glaucoma patients to evaluate their VR-QoL and anxiety and depression disorders. Sociodemographic and clinical factors were collected at the same time. Visual function indices, including best-corrected visual acuity and mean deviation of both eyes in addition to psychological symptoms including anxiety and depression were both correlated with VR-QoL significantly, even after adjusting for sociodemographic and clinical factors. It concluded that deterioration of vision impairment and visual field defects in addition to increased recognition of psychological disturbances reduce the VR-QoL of glaucoma patients significantly. Alleviating psychological symptoms, especially anxiety, perhaps have a greater influence on the improvement of VR-QoL(Kong & Sun, 2019).

Define the knowledge gap in the literature that is linked with the research with the justification of the study

Since there are no previous studies were done in the West Bank about the quality of life for glaucoma patients. The study will be applied for all patients who are treated in either private or governmental Palestinian ophthalmic hospitals in West Bank, unlike only one previous study in Palestine that were being applied just in governmental hospitals at Gaza Strip.

Also this is the first study to use mixed methods where qualitative data (interviews) will be combined with quantitative data (questionnaire) to give us greater insights into the relationships between quality of life and important aspects of glaucoma patients' lives such as treatments, compliance with treatment, presence of chronic co-morbidities such as diabetes and hypertension, and socio-demographic factors. In addition, the impact of glaucoma characteristics such as duration of the disease, stage, and severity on QOL will be investigated.

Describe how your research will add and contribute to the existing body of knowledge of the participant matter and why it is interesting and relevant to your field of study

The study is unique and will be done for the first time in West Bank. In view to the fact that there is no study conducted the quality of life among the glaucoma patient's in our society.

Quality of life assessment is very important indicator of outcome of medical service and provides understanding of nature of disease and experiences of patients, and work as guide of efficiency of treatment.

This study will give decision-makers a valuable picture– about the quality of life for patients with glaucoma to help them to develop solutions for glaucoma disease management. and assist health care providers through successful delivery of treatment plans to glaucoma patients.

Also, it will direct a great attention toward those who are suffering from this threatening and disabling disease because those people are in desperate need of healthcare, Rehabilitation follow- up, health education, advising and ongoing medical treatment.

2. RESEARCH QUESTIONS AND HYPOTHESES

List the main research question(s) you want to answer.

Research Hypothesis OR study objectives: formulate the hypotheses/ study objectives of your research, which are to be tested by the research project; please clearly state the research specific and secondary objectives of your research:

Research questions:
1- What are the factors influencing quality of life for patients with glaucoma?
2- What are the most prominent socio-demographic factors that influence QOL for patients with glaucoma?
3- What are the most prominent disease-related factors that influence QOL. for patients with glaucoma?
4- What is the effect of systemic disease and compliance with treatment on quality of life for glaucoma patients?

Research Null hypothesis:
First hypothesis:
There is no significance difference between factors influencing quality of life for patients with glaucoma in West Bank at the level p ≤0.05.

Second hypothesis:
There is no significance difference between socio-demographic factors and quality of life for patients with glaucoma in West Bank at the level p ≤0.05.

Third hypothesis:
There is no significance difference between disease-related factors and quality of life for patients with glaucoma in West Bank at the level p ≤0.05.

Fourth hypothesis:
There is no significance impact of the systemic disease and compliance with treatment on quality of life for glaucoma patients in West Bank at the level p ≤0.05.?

3. METHODOLOGY

In this section you need to give details about how you will answer the research questions formulated above.

Indicate what kind of research methodology you will follow; whether it is quantitative, qualitative, or both

I will use a mixed methods methodology employing both quantitative and qualitative methods. The quantitative arm will ensure breadth and generalizability while the qualitative part will provide depth and richness. I will start with a few qualitative interviews to gain insights that will refine the quantitative questionnaire. The qualitative interviews will continue to provide further enrichment to the qualitative findings. The results of the qualitative arm will be integrated with the findings from the questionnaires to provide a more holistic view.

Describe the methods that you will be using to achieve the study objectives

To achieve the objectives of the study, the questionnaire will be implemented, which include questions about Socio-demographic characteristics, disease-related characteristics, and Quality of Life data.

Data will be collected by researcher face to face with glaucoma patients. The interview will be started by providing the participants with complete instructions and explanations about the study and its objectives and the importance of giving true answers. The interview will be taking all ethical considerations in order not to be annoying.

Quality of Life data will be collected by using:

(1) Glaucoma Quality of Life-15 (GQL-15) Questionnaire; which is concise, easy to administer and considered one of the better glaucoma-specific instruments, with good acceptability among clinicians and patients. It asks 15 rating-scored questions to assess the degree of functional disability caused by glaucoma. The questions used were the 15 most significant predictors of visual field loss derived from an original 62-point questionnaire. They include six questions relating to actions demanding functional peripheral vision, six relating to dark adaptation and glare, two relating to central and near vision and one relating to outdoor mobility.

(2) Short-Form 36 Health Survey (SF-36) questionnaires; which focuses on the participant's experiences, feelings, beliefs, perceptions and convictions concerning their health-related quality of life. It consists of closed-ended structured questions. These questions are related particularly to the eight quality of life indicators which are (General health, Emotional roles limitation, Physical functioning, Social functioning, Physical roles limitation, Mental health, Vitality and Bodily pain.

Patients' responses are ranked on a 4 or 5 ordered Likert scale. Scoring will follow descriptions in the literature (e.g. Bechetoille et al. 2008). Scores will be summed for items in each domain and for the overall questionnaire. Then scores will be transformed to a scale from 0 to 100 where 0 indicates the poorest quality of life and 100 the best.

Since the main outcome or dependent variable is continuous, I will use means and standard deviations to compare results. In the bivariate analyses, I will compare means among the independent variables (e.g. sex, age, education, treatment compliance, etc.) using t tests and anova. To adjust for confounding variables, I will utilize linear regression which will include multiple variables in the same equation.

For knowledge and attitudes which will include dichotomous variables (yes and no), I will compare frequencies among the independent variables using Chi square statistics. Multivariable logistic regression will control for potential confounding.

I will check model assumptions in terms of normality, linearity, and equality of variances (homosckedasticity). In case of violations, I will employ transformation techniques or non-parametric tests. Significance level will be set at a p of 0.05.

For the qualitative part, open-ended questions will ask patients to talk about ~~their background, their diagnosis,~~ the challenges they face, and their experiences at the physical, emotional, and social levels. Probes and prompts will dig deeper into patients answers to provide depth that cannot be achieved in quantitative studies. Interviews will be transcribed and translated to English language. Transcripts will be analyzed by identifying major and sub-themes in an open coding technique. The relationship between the themes will them be examined through axial coding and presented in a coding tree. Finally the core category and the story line will be summarized.

Patients will be recruited from ophthalmology hospitals and clinics with the assistance of health professionals through purposive sampling. Saturation is expected at a number of interviews suggested about 8 to 10 interviews, (of this is only expectation since in qualitative research statistical justification

and sample size calculations are flexible). Each interview will include one patient or a focus group of up to 5 patients and will last for 30 to 45 minutes.

(If applicable) Describe the study area, study participant, sample size, sampling techniques

Study area:

The study will be conducted at West bank in either governmental or private "non-governmental" ophthalmic clinics or hospitals.

Study participant:

The study participant will be all patients with glaucoma in West Bank, it is estimated to be about: (200-300 glaucoma patients) according to data assessed through contacting ophthalmic clinics

The inclusion criteria:

1- Adults glaucoma patients (18 years old and above) who were able and willing to answer the questions in the questionnaire.
2- Patients who diagnosed of glaucoma within 6 months of this study.
3- Patients on medical therapy.
4- Patients with no incisional glaucoma or cataract surgery

The exclusion criteria:

1- Adults glaucoma patients less than 18 years old.
2- Patients who had recently diagnosed of glaucoma at less than 6 months of this study.
3- Patients with any ocular condition that could impair vision such as cataract that is diagnosed clinically, macular degeneration, or any other ophthalmic condition).
4- Patients who have incisional ocular surgery or laser treatment previously, except a glaucoma surgery and laser therapy.
5- Patients who did not understand the questions or were not willing to answer them

Sample size:

~~The study sample population will be all patients with glaucoma who were admitted to ophthalmic clinic or hospital and diagnosed.~~

We called ophthalmic clinics and reported to us total number of patients is around 200-300 patients per month

Sampling techniques:

All glaucoma patients were estimated to be about (200-300), through contacting staff working in ophthalmic clinics and hospitals, will be recruited to participate in filling questionnaires in the quantative part of the study. For the qualitative part of the study, purposeful sample will be taken of about 10 patients from whom data will be collected through in depth interviews containing open ended questions.

What specific provisions have been made to protect the confidentiality of sensitive information about individuals participating in the research?

The researcher will take approval letters from Arab American University IRB, and the Palestinian Ministry of health.

The researcher will get informed consent from each participant. Explanatory letter will be attached to the questionnaire and provides to participants who are conducting to the study which includes the study title, objectives and other information needed to make clarification to the participants. Such as their right to participate or not, their right not to answer any question they feel uncomfortable with, and their right to ask questions anytime.

The researcher will keep all information confidential for the questioned persons. All identifying information will be deleted from the records. Questionnaires will be kept in a safe place and will not be shared with anyone outside of the researchers. The researcher declares that there is no conflict of interest from achieving this research study.

4. POTENTIAL OBSTACLES

In this section you need to mention any potential limitation that might hinder your study. Include the following;

Are there any practical limitation that might hinder?

Expected limitations for this study may be as following:

1- Limitations on time

2- The scarcity of resources and previous literature of data base and updated articles published regarding the topic.

3- Limitation in response rate.

4- Financial limitations

5- Transportation difficulties and access limitation to participants

6- Political limitations, closure, and curfew

7- Lack of credibility or refusal for some of the participants included in the study to continue or participate.

8- Missing data may be found about glaucoma patients

How will you attempt to control for potential confusing variables and errors:?

1. Cleaning data will be applied to control errors or missing data.
2. Pilot study will be conducted prior staring data collection to test if there is any potential or confusing variables and will be excluded from the actual study.
3. Control by statistics.

The study variables include: Socio- demographic characteristics; Central vision; Peripheral vision; Outdoor mobility; Glare and dark adaptation; General health; Emotional roles limitation; Physical functioning; Social functioning; Physical roles limitation; Mental health; Vitality; and Bodily pain.

Validity of questionnaire:

Questionnaire for collecting information will be developed after surveying some previous studies dealing with the same participant. Some questions will be gathered and modified from other questionnaires of similar published researches.

Validity of the questionnaire will be tested by send the questionnaires to experts "arbitrates" in the field to determine if the used questionnaire is statistically valid or not; to ask them to write down their recommendations, modifications and alterations and to assess and determine whether the questions relevant to the objectives of the study. Also questionnaires used previously will be added.

Reliability of questionnaire:

The questionnaires will be displaying to statistician to measure reliability (calculating the Cronbach's Alpha coefficient).

The normal range of Cronbach's coefficient alpha value between 0.0 and + 1.0, and the higher values represent a higher degree of internal consistency. The reliability coefficient above 0.7 is considered to be satisfactory for most purposes.

Statistical analysis:

The obtained data will be typed into the computer and analyzed by using the Statistical Package for Social Sciences (SPSS) programs that can be used for data analysis and interpretation

Pre-test of the questionnaire:

A pilot study will be done before data collection. 10% of sample size were included to get clear question and to avoid length & ambiguity of questions; they are all from different age, educational level, and residency. All of them will be provided a clear explanation about the study and its objectives before application, to ask them about difficulties and their opinion in questionnaire.

If your methodology may lead to problems you can anticipate, state this openly and show why pursuing this methodology outweighs the risk of these problems:

Before applying the study, the researcher will conduct a pilot study to know the problems; discover them early and find solutions to them; provide feedback on the questionnaire and verify the validity and reliability of questionnaire; identify areas of vagueness; determine the real time needed to fill the questionnaire; predict response rate; point out weaknesses in wording; and to get clear opinion about the questionnaire.

5. TENTATIVE THESIS OUTLINE

What is the planned outline of your thesis? Please explain what sections your thesis will have, and what will be addressed in those sections.
Chapter one: Introduction.
Chapter tow: Theoretical framework and literature review.
Chapter three: Research methodology.
Chapter four: Results and discussion.
Chapter five: Conclusion and Recommendations.

6. RESEARCH PLAN / TIMETABLE / budget

The research plan, timetable of your plan of actions. It can be formatted as a list or a table of concrete tasks, activities and deadlines:

Table 1: Research Activities Schedule.

Research Activities	Month					
	Nov. 2020	Dec. 2020	Jan. 2020	Feb. 2020	March. 2020	May. 2020
Writing proposal	X					
Development of research tool		X				
Sample selection		X				
Pilot study			X			
Data collection			X	X	X	
Data entry and analysis					X	X
Writing thesis			X	X	X	X

(if applicable) The research budget. It can be formatted as a list or a table of equipment/ consumables

Table 2: Total cost for study.

Expense description	Total cost
Transportation.	1500 NIS
Sample analysis.	1000 NIS
Questionnaire printing and copying.	0000 NIS
Thesis copying and printing.	1000 NIS
Miscellaneous.	2000 NIS
Total cost = 0000 NIS. ≈ 00000 $	

7. BIBLIOGRAPHY

Please list the literature and sources you have used for producing this thesis proposal.

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1. APPENDICES

Optional: Please attach any supplementary material you wish to add to the proposal (Data collection instruments(s), data collection form(s), elaboration on methods and procedures to be used..etc..)

ARABIC SUMMARY

الملخص العربي

ملخص الدراسة

خلفية البحث: الجلوكوما هو مرض خطير يصيب العين ويضعف البصر ويؤثر سلبًا على نوعية الحياة. إذا بقي المرض دون علاج ، يمكن أن يؤدي إلى العمى. لذلك ، من المهم دراسة نوعية حياة المرضى المصابين من أجل المساعدة في التشخيص المبكر والمعالجة السليمة.

أهداف الدراسة: تهدف هذه الرسالة إلى تحديد العوامل التي تؤثر على نوعية الحياة لمرضى الجلوكوما في الضفة الغربية في فلسطين. تشمل هذه العوامل المتغيرات الاجتماعية والاقتصادية مثل الجنس ، والعمر ، والمستوى التعليمي ، ومكان الإقامة ، والمهنة ، والدخل ، والتأمين الصحي ، والمرفق الصحي للرعاية. تهدف هذه الأطروحة أيضًا إلى استكشاف كيفية تأثير متغيرات الصحة العامة على جودة حياة مرضى الجلوكوما. تشمل هذه المتغيرات الصحية العامة، الفحص الطبي للعين ، ونوع الجلوكوما ، والأمراض المزمنة الأخرى ، ومدة الأمراض المزمنة، والتاريخ العائلي للجلوكوما.

طريقة البحث: هذا بحث يتضمن أجزاء كمية ونوعية. يتضمن الجزء الكمي من هذه الأطروحة مسحًا يستخدم مقياس جودة الحياة لمرضى الجلوكوما وهو مكون من خمسة عشر سؤالا. تضمنت الأسئلة العوامل الاجتماعية والديموغرافية ومتغيرات الصحة العامة. تم جمع البيانات من خلال مسح مقطعي لمئة مصاب بمرض الجلوكوما في الضفة الغربية من فلسطين.

تضمنت الجزء النوعي من البحث إجراء مقابلات نوعية مع 10 مرضى الجلوكوما حيث كانت الأسئلة مفتوحة وعامة حول الأعراض والتحديات والعقبات وعلاج الجلوكوما من وجهة نظر المرضى.

النتائج: تبين من الجزء الكمي أن نوعية حياة الجلوكوما تزداد سوءا بين المرضى الأكبر سنا والمرضى الأقل تعليما وبين المرضى الذين عولجوا في عيادة خاصة غير متخصصة في طب العيون. وكذلك المرضى الذين ليس لديهم تأمين صحي يعانون من نوعية حياة أسوأ مقارنة بالمرضى الذين لديهم تأمين صحي..

أما المرضى الذين يتمتعون بصحة جيدة بشكل عام فان معاناتهم من الجلوكوما أقل مقارنة بالمرضى الذين يعانون من سوء الحالة الصحية. ترتبط مدة المرض من وقت تشخيص الجلوكوما أيضًا بنوعية الحياة. فالمرضى الذين تم تشخيص إصابتهم بالجلوكوما لأكثر من خمس سنوات لديهم نوعية حياة أسوأ من أولئك الذين تم تشخيصهم قبل أقل من خمس سنوات. المرضى الذين يعانون من أمراض مزمنة طويلة الأمد لديهم

أيضًا نوعية حياة أسوأ من الجلوكوما مقارنة بالمرضى الذين يعانون من فترات أقصر من الأمراض المزمنة.

أظهر الجزء النوعي من هذه الرسالة أن مرضى الجلوكوما يواجهون عدة عقبات مثل الصعوبات في إدارة الأنشطة اليومية وخاصة القيادة في الليل. كشفت المقابلات النوعية أيضًا أن المرضى عادة ما يكونون مرتبكين بشأن تشخيصهم ويحتاجون إلى تعليمات وتثقيف صحي من المتخصصين.

الاستنتاجات: كشف هذا البحث عن العديد من العوامل التي يمكن أن تؤثر على نوعية حياة مرضى الجلوكوما في فلسطين. يجب أن يكون المهنيون الصحيون والمتخصصون وأطباء العيون والمعلمون الصحيون على دراية بكيفية تأثير العوامل الاجتماعية والاقتصادية والصحية العامة المختلفة على جودة حياة مرضى الجلوكوما من أجل تشخيص وإدارة وتوجيه وتثقيف المرضى بشكل أفضل لتحقيق نتائج صحية أفضل.

التوصيات: ستوفر نتائج هذا البحث توصيات للمهنيين الصحيين والمرشدين الصحيين وصانعي السياسات. يجب أن يكون الأطباء على دراية بالعوامل التي تؤثر على جودة حياة مرضى الجلوكوما لاستكشافها في الفحوصات السريرية. سيتيح هذا للأطباء معالجة أفضل للمرض والعوامل التي يمكن أن تؤثر سلبًا على حياة مرضى الجلوكوما. يجب على اختصاصيي التوعية الصحية توجيه مرضى الجلوكوما حول كيفية إدارة أعراضهم والتغلب على التحديات والعقبات التي يواجهونها بسبب مرضهم. يجب على صانعي السياسات توفير الوصول إلى التقنيات المساعدة التي يمكن أن تساعد مرضى الجلوكوما على أن يعيشوا حياة منتجة ومريحة.