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**Awareness, Knowledge, and Attitude regarding Corneal
Donation among Nursing Students in the Palestinian
territories.**

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This thesis was submitted in partial fulfillment of the
requirements for the Master's degree in **Ophthalmic Nursing**

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Approval form

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Declaration

This is to certify that the dissertation entitled (**Awareness, Knowledge, and Attitude regarding Corneal Donation among Nursing Students in the Palestinians territories**), is the original work of **Mustafa Mahmoud Ali Ajouli**, an ophthalmic nursing master's student at the Faculty of Graduate Studies at the Arab American. This study is according to the faculty's rules and regulations for the award of a Master of Science in Ophthalmic Nursing under the guidance and supervision of Dr. Ahmad Ayed & Dr. Liana Allabadi.

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Dedication

This research paper is dedicated to my family, (to the soul of my father and my brother, my dear mother Aziza, my brothers, my sisters, my beloved wife, my sons, and to my daughters).

Acknowledgment

First of all, let me Praise Allah the Almighty for unending love, care, and blessing especially during the tenure of this research. Praise goes to Him for helping me to overcome the difficulties experienced in my Master study, and for granting me the patience and perseverance to complete this thesis. Peace and blessings upon His beloved our prophet Mohammad (s.a.w.).

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Abstract

The cornea may be scarred through a wide range of infectious diseases, inflammatory diseases, traumatic incidents, malnutrition, congenital disorders, and failed medical interventions, all of which may ultimately lead to vision impairment and blindness. According to the World Health Organization 2010, corneal blindness is the fourth leading cause of blindness globally (5.1%), and it is considered the second cause of blindness in the developing world. Corneal transplantation is the gold standard treatment utilized to restore visual impairment when optical intervention fails, but the

worldwide ratio between demand and supply is 70:1, and only 37.5% of those who require corneal transplantation have adequate access to donated corneas. Most studies have indicated that the main reason for the large gap between corneal demand and supply is lack of awareness and sufficient knowledge about corneal donation.

Objectives: To investigate the knowledge, awareness, and attitudes regarding corneal donation among nursing university students in the Palestinian Territories.

Method of the study: A cross sectional study conducted among 904 undergraduates nursing students, the study involved students from five Palestinian universities, an online electronic semi-structured questionnaire was created based on the study's goals to assess awareness, knowledge, and attitudes of respondents regarding corneal donation.

Results:

The analysis of this study reported that the majority of the students 62.1% had low level knowledge regarding eye donation, 52.5% of respondents had awareness about corneal donation, and the main sources of information were from TV 31.97%. Only 29.6% of students had willingness to donate their cornea, the response of participants toward perceived reasons for donors willing to donate corneas the majority of them 67.3% believed that a corneal donation gives other people the gift of sight, and about Perceived reasons for donors not willing to donate their cornea corneas the majority of respondents believed that a lack of information about corneal donation process is the main reason.

There were no significant differences according to gender, religion, and university level with mean of knowledge of cornea donation ($P>0.05$), there were no significant differences according gender, religion, and university level with mean of reason for

unwillingness to donate the cornea ($P>0.05$), there was a significant difference between gender and the mean of reasons for willingness to donate the cornea ($p< 0.05$), However, there were no significant difference according religion and university level ($P>0.05$)

Conclusion:

The finding of our current study clarified that, the majority of nursing students lacked awareness, knowledge, and they had negative attitudes regarding corneal donation. So, nursing students need adequate level of education program that focus on corneal donation to raise the level of knowledge and awareness regarding corneal donation because these group of future health care providers in direct contact with clients and their families in hospitals and health centers, and they have the ability to positively influence and motivate them to donate organs in general and the cornea in particular.

Key words:

Corneal Donation, Awareness, Knowledge, Attitude, Nursing Student.

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List of Abbreviations

WHO: "World Health Organization"

MOH: Ministry of Health.

Pto: Palestine territories.

AAUP: Arab American University.

ICU: Intensive Care Unit.

HCP: Health Care Providers.

TV: Television

BZU: Birzeit University

SD: Standard Deviation.

M: Mean.

N: Number.

CI: Confidence interval.

SPSS: "Statistical Package of Social Science"

ANOVA: "Analysis of Variance"

1st: First.

2nd: Second

3rd: Third

4th: Fourth

Chapter One

Introduction

1.1 Background and context:

Cornea is an avascular, transparent tissue that provides the majority of optical power to refract the light entering the eye. It occupies a central position in the ocular surface and consists of several layers including epithelium, Bowman's layer, the Stroma, Descemet's membrane, and the Endothelium, to act its function it must be transparent and out of any cloudiness or scars (Sridhar, 2018)

The cornea may be scarred through a wide range of infectious diseases (bacterial, fungal, viral keratitis, or trachoma), inflammatory diseases, traumatic incidents, malnutrition (vitamin A deficiency), congenital disorders, and failed medical interventions, all of which may ultimately lead to vision impairment and blindness. According to the World Health Organization 2010, corneal blindness is the fourth leading cause of blindness globally (5.1%) after cataracts, glaucoma and age-related macular degeneration, and it is considered the second cause of blindness in the developing world (Pascolini & Mariotti, 2011; Prabhasawat et al., 2007).

Although specialty contact lenses may restore vision in many cases of corneal diseases, corneal transplantation is the gold standard treatment utilized to restore visual impairment when optical intervention fails. Corneal transplantation is the most frequently performed procedure among organ transplantations, with a success rate of more than 85%. The key factor for sustainability of corneal transplantation is corneal donation (Dube, 2018).

Corneal transplantation offers the potential for sight restoration to those who are blind for corneal diseases. Eye donation is an act of voluntary donation of one's eyes after his/her death. But there is a huge gap between demand and supply of cornea due to low awareness (Dube, 2018).

This study was therefore designed to assess the awareness, knowledge, and attitude among nursing students because these students well-informed and they can motivate the public for certain as they are the future health care providers. They spend considerable time with critically-ill patients and hence can play a major role in sensitizing them and their relatives to the important cause of eye donation. They can directly interact and counsel a large number of people, and hence influence eye donation rates.

1.2 Problem Statement.

Worldwide, the number of patients who need corneal transplantation is higher than the number of available donated corneas. According to a global survey done on corneal transplantation and eye banks, the worldwide ratio between demand and supply is 70:1, and only 37.5% of those who require corneal transplantation have adequate access to donated corneas (Gain et al., 2016). The deficit in corneal supply may be related to lack of knowledge and awareness regarding corneal transplantation. Factors affecting corneal donation and the public attitude towards eye donation has been extensively studied in developed nations, but there is lack of published work on the issue in the developing world, specifically in the Middle East. In Saudi Arabia, a cross-sectional study conducted on 350 paramedical and medical students, revealed that

students who were aware of eye transplant were 35%. The proportion of those who were aware that Saudi Arabia has an eye bank was less than 7% (Alruwaili et al., 2019).

According to systematic review study conducted by Andrew and their colleagues (2018) which included 55 studies from 13 countries, the most common reason for unwillingness to donate a cornea were lack of information about eye donation and lack of awareness about eye donation. Awareness of corneal donation ranges from 8.4% in Ghana to 100% in India. The percentage of those who are willing to donate corneas ranged from 7.3% in Pakistan and 90% in the United States of America. The actual number who pledged their eyes to donate only ranged from 0.1% to 11%, with an average of 5% among all studies (Williams & Muir, 2018).

Non-modifiable factors including religious beliefs, cultural values, and ethnicity, are among some of the factors relating to unwillingness to donate in general and the cornea in particular. One of the modifiable factors associated with increased willingness to corneal donation is awareness about corneal donation and transplantation. Several studies revealed that awareness about corneal donation and transplantation lead to increasing willingness for corneal donation worldwide (Williams & Muir, 2018).

Nurses play a pivotal role in health education and their role may have an impact on the rate of corneal donation by providing adequate advice to their surrounding community (Gupta et al., 2009). Lack of knowledge, awareness and negative perception about corneal donation and transplantation is the biggest reason for the lack of corneal donors.

1.3 Objective of the study

1.3.1 primary research objective:

The main purpose of this study is to investigate the knowledge, awareness, and attitudes regarding corneal donation among nursing university students in the Palestinian Territories.

1.3.2 Secondary objectives of the study:

- 1- To assess factors associated with lack of awareness and knowledge regarding corneal donation among nursing students.
- 2- To assess willingness of nursing students towards corneal donation.
- 3- To assess attitudes of nursing students towards corneal donation.
- 4- To assess the relationship between mean of knowledge scores and willingness towards corneal donation among Palestinian nursing students.

1.4 Significant of the study

Keratoconus is a prevalent disease among Palestinian youths, according to study that conducted among An-Najah National University student in 2015 the result reported that a prevalence of Keratoconus was 1.5%, and (8.4%) participants showed at least one abnormal pentacam index, and were considered as Keratoconus suspects (Shehadeh et al., 2015). Progressive Keratoconus may ultimately require corneal transplantation, especially when other medical or optical interventions are not successful. Due to limited access to local eye banks, Palestinians rely on international foreign corneal donors. This means that any Palestinian who require corneal donation has to wait a long time before receiving one. Cornea donation has received little attention from the Palestinian medical

community. Currently, there no legal guidelines or policies related to organ or corneal donation. Additionally, cultural and religious factors in the country have a tremendous impact on organ donation perceptions and beliefs.

1.5 Research Questions

To achieve the objectives of the study, the research questions were

1. What is the level of awareness regarding corneal donation among Palestinian nursing students?
2. What is the level of knowledge regarding corneal donation among Palestinian nursing students?
- 3-What is the attitude towards corneal donation among Palestinian nursing students?
4. Are there differences between mean of knowledge scores and willingness to corneal donation among Palestinian nursing students?

Chapter Two

Literature Review

2.1 Introduction

PubMed (MEDLINE), Cochrane, and Google Scholar database were utilized to search the literature for published studies in English language. Search keywords included the following: “corneal donation”, “eye donation”, “organ donation”, “knowledge”, “awareness”, “attitudes”, “willingness”, “students”, “nursing, and “nurses”.

The purpose of this literature review to develop an overall understanding the level of knowledge, awareness, and willingness towards corneal donation worldwide specially nursing students. Literature is organized and presented under the following headings

1. Studies related to awareness, knowledge, and attitude regarding corneal donation among university students (not a nursing students).
2. Studies related to the awareness, knowledge, and attitude regarding corneal donation among general societies.
3. Studies related to awareness, knowledge, and attitude regarding organ donation among nursing students.
4. Studies related to awareness, knowledge, and attitude regarding corneal donation among nursing students

2.2 Studies related to awareness, knowledge, and attitude regarding corneal donation among university students (not a nursing students).

In a cross-sectional study that conducted in Saudi Arabia among 408 medical students in Medicine College in Taibah University that aimed to investigate the level of attitude and knowledge regarding corneal donation. The study reported that 35.8% of students had awareness toward corneal donation, 97.5% of respondents do not even know about the existence of an eye bank in Saudi Arabia, 63.5% of the respondents first learned about corneal donation through the questionnaire that was used in this study, and the most likely perceived reasons for unwillingness to donate a cornea were, 45.6% no reasons, 22.6% lack of knowledge, and 20.1% fear of the unknown. (Hameed & Jadidy, 2015).

Another cross-sectional study using the convenience sampling method was conducted among 500 Singaporean youth students aged 18 to 25 years. The study performed from the five tertiary institutions to assess the knowledge of Singaporean youth regarding corneal donation and gauge their willingness to donate their corneas. The results indicated that respondents had poor knowledge about corneal donation, 73.2 % of participants answered 3 or fewer questions (from 7 questions) correctly while 26.8 % who answered four or more questions correctly. Regarding willingness to donate corneas 31% of participants were willing to donate their corneas, 22.2% were not willing to donate their corneas, and 46.8 % were undecided. Those who have not decided and who are not willing to donate, the three most common reasons are the need for more information about donation and corneal transplantation, there is insufficient support from the family, and am worried about how to deal with my body after death. The study among Singaporean youth showed that students with good basic knowledge

of corneal donation had a 1.71 times greater desire to donate cornea compared to the others, and the older group of participants (21 to 25 years old) was 2.46 times more likely to be willing to donate corneas than the younger group of student's youths (Paraz et al., 2016).

Another a cross-sectional study conducted by Arya, Gupta, Malik (2014) in Nepal to evaluate the awareness, knowledge and willingness regarding corneal donation between 185 dental students of KIST medical college & teaching hospital, which 20% (37) males and 80% (148) females, the ages of students ranged from 18-25 years, according to academic years the study contains students from 1st year to 4th year with many religions. The results of the study Clearfield 95.1% of students aware about eye donation 44.8% knew from television, 24.3% by internet, 9.9% by friends and relatives, and 7.7% by newspaper. 94.1% (174) answered there is a shortage of corneal donation in Nepal and 5.9% (11) said there is no shortage. Only 10.8% (20) who know about any eye bank in Nepal but 89.2% (165) didn't know about any eye bank. Approximately 133(71.9%) of respondents had knowledge cornea is the part that removed from eye donor, 70(37.8%) had knowledge regarding Ideal time after death for eye donation. According to the willingness of students to donate their cornea 111 (60.0%) said "Yes" and 74(40.0%) said "No". Out of 111 respondents who were willing to donate cornea 68 (61.3%) felt happy helping the blind, 27 (24.3%) believe that eye donation is a noble cause, and 10 (9.0%) of the students said they were affected by the knowledge they received during their academic classes. out of 74 students who were not willing to donate cornea 29 (39.2%) have a lack of awareness, 25(33.8%) the cause is an objection by family members, and 10(13.5%) I am not sure of the correct use of the cornea after it has been extracted (Arya et al., 2014).

To evaluate the awareness and attitude toward corneal donation in Qassim University at Saudi Arabia, a cross-sectional study was conducted based on electronic questionnaire among 368 of Medical Student from 1st year to 5th year. The researchers relied on measuring the level of knowledge with ten questions. If a student answers five questions correctly or more is classified within (good knowledge), and whoever gets less than five (poor knowledge). The result of the study showed a good grade of knowledge among students 19.2% (95% CI 15.2; 23.1). The questions that measured the level of knowledge is "How much time, it takes to collect donated eye?" Only 43 students (11.1%) answered correctly, and 243 students (63%) answered incorrectly. Among respondents, attitude for willingness to donate their corneas 102 (26.4% [95% CI 22.0; 30.8]) positively, 105 (27.2% [95% CI 22.8; 31.6]) negatively, and 179 (46.5%) were undecided for donating their corneas. The researchers pointed to the cause of unwilling of students to donate their corneas is a lack of adequate knowledge regarding corneal donation. The results revealed that 74 students who had a good level of knowledge, 31 of them were willing to donate their corneas and their percentage was 41.9%, while the students who had poor knowledge, 234 students, only 71 from them (30.3%) were willing to donate their corneas. Reasons for unwillingness to donate a cornea among students 37% need more information to decide, 17.1% are worried about the condition of their body after removing the cornea, 13.1% are objection of the family, 10.1% Medical history makes one ineligible for eye donation, 5.7% Religion does not permit, and 10.9% other reasons (Alzuhairy et al., 2020)

In a Brazilian cross-sectional study of 335 undergraduate students from the Health Sciences Program at the University of São Paulo to assess knowledge and attitude regarding corneal donation. The researchers concluded in the results of their

study that 55.5% of students knew that corneal donation can only be done after the donor's death, Only 20.9% of participants knew that the cornea was the part that was removed in the donation process, not the entire eyeball . 67.2% had a willingness to donate their corneas (Bartolomeu et, al 2020).

In Nigeria, a descriptive cross-sectional study was conducted among 370 undergraduate biochemistry students at University of Science and Technology to evaluate the level of awareness and knowledge of university students toward corneal donation. The researchers viewed that 43.4% of students agreed that corneal donation is occurred after death, 85.4% of the participants did not know that an eye bank is located in Nigeria, 84.7% of respondents knew the ideal time to harvest cornea after death, only 21% of participants had willingness for corneal donation after death, and 46.6% of participants expressed their unwillingness to donate their eyes due to their religious belief (KF et al., 2020).

Furthermore, across sectional study was conducted using self-administrated survey on 182 Nigerian students of which 107 medical students, and 75 non-medical) students to study the knowledge and attitudes of students toward corneal donation. The finding reported that both medical and environmental sciences students had poor knowledge regarding corneal donation (medical student 47.7% and in environmental sciences 33.3%) (Eze et al., 2014).

2.3 Studies related to the awareness, knowledge, and attitude regarding corneal donation among general societies.

To assess the knowledge and attitude regarding corneal donation between Jordanian people, get to know the causes that will be affect their decisions, and their attitude about donation of the cornea, Haddad and colleagues conducted a cross-sectional study via structured questionnaire among 500 participants (218 males and 282 females) from the north of the Jordan aged >18 years. The study results indicated that 88% of participants had heard about corneal donation, 67.2% had willingness for corneal donation and 82.8% of participants would encourage other people to donate cornea, and 54.8% of participants agreed to register their willingness to donate a cornea with a driver's license. Responses of participants toward willingness or unwillingness toward corneal donation Was tested through statements Likert scale from (strongly disagree to strongly agree), toward willingness out of 336 participants: 171 (50.4%) strongly agree toward statement a corneal donation is a gift to help someone see again 149 (44.0%) agree, 8 (2.4%) neutral, 8 (2.4%) disagree, and 3 (0.9%) strongly disagree. toward unwillingness out of 159: poor awareness of the benefits of donating 11 (6.8) Strongly agree, 67 (41.4) agree, 42 (25.9%) neutral, 34 (21.0%) disagree, and 8 (4.9%) strongly disagree. The main reasons for unwillingness to donate a cornea is fear that the body may not be treated well after death and that an organ other than the cornea may be removed. But the main motivation for willing to donate is a good deed to help others regain their vision. The study emphasized, to increase the level of knowledge and awareness among Jordanians, we need to implement general educational programs to encourage the donation process (Haddad et al., 2018).

Tsigkos and colleagues were conducted a cross-sectional study among 1769 Greek residents through online semi structured questionnaire by Google Form platform to explore whether the lack of knowledge about corneal donation contributes to the low rate of procurement cornea per capita and to see how disseminating information helps change the mindset about donating sensitive organs. The demographics of study respondents according to gender and age were: 70.9% (1255) male, 28.7% (507) female, <18 years 6.2% (109), 18-30 years 80.1% (1417), 31–45 years 9.4% (166), 40-60 years 3.5% (63), and >60 were 0.8% (14). Profession and studies were: non-medical 67.9% (1201), medical, dental, and nursing students 23.7% (419), Medical doctors (other than ophthalmologists) 3.9% (70), ophthalmologists 1.4% (25), and Other medical field professions (e.g., nursing) were 3.1% (54). The researchers summarized their study results as follow, 77.3% (1365) of respondents aware that the causes of corneal blindness are corneal diseases, 58.6% (1036) aware of the term of corneal transplantation, only 37.9% (671) knew that corneal blindness could be treated with a corneal transplant, 32.7% (579) of the participants were aware that corneal transplant surgeries could be done in Greece, (13.4% or n=237) of participants believed that the whole eye is removed. There is a positive correlation between knowledge about corneal transplantation and willingness to become a corneal donor, Participants who answered no about awareness: what the cornea, corneal blindness, and corneal blindness is reversible after corneal transplantation, their willingness to donate cornea at the beginning of survey was 25% (56/224) but at the end of the survey was 45.5% (102/224), but the participants who answer yes about previous questions their willingness to donate cornea at the beginning of survey was 61.9% (309/498) and at the end of the survey was 68.7% (342/498) (Tsigkos et al., 2020a)

A systemic review that included 55 articles was conducted to assess awareness and attitudes toward cornea donation around the world across 13 countries (Asia, Africa, Europe, and South America). Half of the studies were conducted in India due to the scarcity of available corneas and high prevalence of corneal blindness. The findings of this review showed that the overall willingness average for corneal donation, among the results of all included studies, is 71%. The willingness rate ranged from the highest levels in the USA (90%) to the lowest rate in urban Pakistan's (7.3%). In general, the study found that approximately 52% showed willingness to donate their corneas after death but only 5% have signed a pledge to donate. The biggest reason for the lack of willingness and registration for corneal donation among respondents is the lack of awareness about corneal donation. Some studies have shown that there is a positive correlation between the availability of possessing knowledge about corneal donation and the willingness to donate (Williams & Muir, 2018).

An observational cross-sectional study was conducted in Saudi Arabia that surveyed 1292 random residents to understand and investigate the knowledge, attitude, and practice toward corneal donation in Saudi to help in constructing healthcare policies and establishing a national eye bank via self-administered questionnaire (translated to Arabic). The results were showed 1236 (95.7%) of participants answered that they didn't have information about corneal donation, majority of the respondents didn't know how and where to register to be a corneal donor 1156 (89.5%), only 156 (12.1%) of the surveyed know the ideal time to have cornea removed after death for donation. The participants 737 (57.1%) reported that they had a lack of knowledge to where to register to donate, objection of the family 393 (30.4%), a corneal donation can distort the face of donors 374 (29%), and 98 (7.6%) said It is unlawful religiously, but when were asked

about Perceived motivations for donating their corneas 855 (66.2%) of respondents answered: Doing Good Acts (Getting Thawab) and 520 (40.2%) said: If I know more about cornea donation, I will donate. According to the attitude of respondents regarding corneal donation, the majority of respondents (95.4%) chose to restore the vision of the blind as the main reason for donating, and according to the willingness for corneal donation 209 (16.2%) of respondents, will register to donate their cornea, 226 (17.5%) unwillingness, and 857 (66.3%) uncertain for registration or donation (Alanazi et al., 2019).

In a cross-sectional study conducted on 341 young people (high- school students from 15-20 years old) and on 157 elderly persons (from 65 years or older) to assess the level of knowledge and awareness regarding corneal donation postmortem in Germany city. According to knowledge regarding eye donation between two groups the researchers pointed in their results that, 73.3% of young participants feel that they haven't sufficient knowledge about corneal donation and transplantation (compared to seniors 41.6%), 47.9% of young participants did not know that their cornea possible to donate after death (but elderly groups 29.9%), 61.2% did not know if there is different between organ donation and corneal donation (but elderly participants was 57.3%) , 29% of them didn't know the decision of donation depend on the will of the dead person(but seniors 26.8%). 88.8% were not aware that corneas could be donated until 72 hours after death (but elderly 73.7%). According to willingness for corneal donation Postmortem among two groups respondents 44.9% of young had willingness for donation but among elderly group the willingness was 72%, 76.9% of young respondent do not have a donor card compared to 45.3% of the elderly (Mihailovic et al., 2019).

A previous study regarding corneal donation among non-nursing university students showed that the level of knowledge among students ranged between average and low, most of the participants responded that the main reason for unwilling of their corneas are lack of knowledge about corneal donation, no reasons, family objection, and fear of disfigurements.

In the Palestinian territories , there is only one previous study conducted at 2018 by Al-Labadi et al., among students of An-Najah National University on the knowledge and awareness regarding corneal donation, in the Arab world there is no previous study conducted among nursing students who play a pivotal role in health education and their role may have an impact on the rate of corneal donation by providing adequate advice to their surrounding community are considered. This current study is considered the first in the Palestinian territories and Arab countries among nursing students, in addition to that it covered universities in the northern, central, and southern governorates.

2.4 Studies related to awareness, knowledge, and attitude regarding organ donation among nursing students.

A cross-sectional study was conducted on 676 (who completed survey from origin of 680) nursing students in five universities in UK to investigate the level of knowledge and attitude of organ donation among nursing students. The finding showed that 312 (46.8%) of students were registered before as an organ donor, but of those who are not registered, 58% are willing to register to donate their organs, while 28.2% have not decided yet, and 13.8% have not considered registration. Among the participants who are registered to donate their organs, the willingness for corneal tissue donation is the lowest percentage (57.4% willing to donate their cornea) compared with the donation of

the rest of the organs such as kidney (99.4%), liver (98.7%), lung (98.7%), and heart (93.3%). and from not registered students the willingness for organ donation, only 19.7% of participants who had the willingness to donate their corneal tissue but kidney 57.2%, liver 56.9%, lung 52.7%, and heart 49.9%. The main cause for the unwillingness of nursing students to donate their cornea that the eye carries “distinctive characteristics” in 62.4% of cases (n = 83), they “resembled a deeper meaning” in 48.9% of cases (n = 65) and/or because “the eye can be physically seen on another person” in 22.6% of cases (n = 30) (McGlade et al., 2014).

In a narrative review conducted between 2017-2020 in Japan to understand the attitude of undergraduates’ Japanese nursing students regarding organ donation to know and to get ideas to raise the number of organ donations. The results indicated that most common causes that affect nursing students’ attitude were knowledge level regarding organ donation, nursing education, nursing care for patients awaiting transplantation or for patients with hemodialysis, family members opinions (positively and negatively), religion and perspectives on life and death, and social background factors (age, gender, ethnicity, residency place, and place of birth) (Tsubaki et al., 2020).

Also, a cross-sectional study was conducted on 200 undergraduates and postgraduate nursing students in one of an Indian Institute. The results revealed that TV (31%) and Curriculum (24%) were sources of knowledge of organ donation. Only 3.5% of the participants possess good level of knowledge toward organ donation, 74% average knowledge, and 22% of them had poor knowledge. The perception and attitude regarding organ donation among students indicated that only 1% possess negative

perceptions and attitude, 43.5% positive, and 55% with neutral perceptions and attitude (Krishnan et al., 2015).

In addition, a cross sectional study was conducted among 362 nursing students (undergraduate and preregistration programs) in Hong Kong to assess level of knowledge, attitude, and nursing students' commitment regarding organ donation. The findings regarding knowledge showed that (71 %3) of the student completed 23.7 out of 33 questions correctly. The positive responses of participants attitude toward organ donation were 68%, 147 (40.6%) of the respondents had registered for organ donation. According to the source of knowledge, the majority of the student (87.6%) watched an advertisement on TV that encouraging organ donation, internet (41.1%), and newspaper (38.7%). Years of the study, religion, and attitude were significantly and strongly correlated to commitment to organ donation (Tam et al., 2012).

Previous studies about organ donation among nursing students showed that respondents had less knowledge about corneal donation compared to knowledge about other organ donation as kidneys, liver, or lung, and the students had willingness to donate their other organs more than willingness for corneal donation.

2.5 Studies related to awareness, knowledge, and attitude regarding corneal donation among nursing students.

Kumar and colleagues (2015) indicated in their cross-sectional study that conducted among 400 under graduated medical, nursing and paramedical students. One hundred and ninety were first-year nursing students at Bhopal University, (India). The study aimed to assess the awareness and knowledge of medical, paramedical and nursing

students towards eye donation. According to awareness regarding corneal donation 185 (97%) of nursing students were aware that eye can be donated but overall, 393 (98%) of participants students were aware, only 5 (2.6%) of nursing students they were able to name a bank for eyes in India and 24 (6%) from all students were named an eye bank. The results revealed that there was a lack of knowledge and motivation about corneal donation, Knowledge of the fact that the cornea was removed and grafted was found in 80 (42 %) of nursing students and 198 (48.5%) of all participants students, only 9 (31%) of nursing students knew that the eye should be removed within 6 hours after death and 159 (39.7%) from all student knew the correct answer. Most of the students didn't know how long the donated eyes can be stored before transplantation 34 (8.5%) of all students knew but 26 (13.6%) of nursing students knew. 88 (46.31%) of nursing student had a willingness to donate their cornea (Sanjeev et al., 2012).

Another, a cross-sectional study conducted in India using self-administrated questionnaire to assess the awareness and knowledge of eye donation among 140 Indian 1st year nursing student. The results showed that although most participants heard about eye donation, they knew less about the details of eye donations. 10% of the respondents knew that only the cornea could be donated from the eye, 45% of students are aware that the eye is being removed by an ophthalmologist, and only 15% of students agreed that a corneal removal should take place within 6 hours after death but no one knew about storing the donated cornea before transplantation and 2.1% of them heard about Hospital Corneal Retrieval Program. The main sources of information about corneal donation among respondents was mass media television 100%, magazine and newspapers 20%, radio,15%, friends and relative 12.8%, doctor 5%, and by pamphlets

and posters 1.4%. Students' response to causes of corneal donation support, 95% to help others, religious reasons 14%, and other reasons 35% (Jena et al., 2017).

Furthermore to assess the level of knowledge, awareness, and attitude regarding corneal donation among nursing students there is cross sectional study was conducted at nursing school in India (M and J Institute of Ophthalmology in Ahmedabad), the result of this study revealed that awareness among respondents for hearing about eye donation was 98.2% (n=275), and the major sources of awareness were mass media with television (39%), knowledge regarding corneal donation, if the cornea can be donated before death 60.71% of participants answered yes, about the ideal time for corneal donation after death 75.36% of students had correct answer (within 6- 8 hours), only 7.14% of respondents had the willingness to donate cornea, and 92.86% hadn't willing to donate cornea (Bhole, 2020).

Also, a cross-sectional study conducted among 400 medical, nursing, and paramedical Indian students to investigate the awareness and knowledge regarding corneal donation using standard predesigned and pretested closed self-administrated questionnaire. Researchers in their study depend on statistical issue to determine level of knowledge rather than a slandered measure for knowledge. Results of the study showed that there was lack of knowledge and motivation about corneal donation (Knowledge of the fact that the cornea was removed and grafted was found in 48.5% of them and 39.7% of respondent know that a cornea must be removed within 6 hours of death). Also, most of participants (94%) reported that they didn't know the name of any eye bank while only 3% knew how long the donated eyes can be stored before transplantation. High awareness about donation in general is high (Kumar et al., 2012a).

According to other cross-sectional study done in India on nursing, medical, and Allied Health Sciences (AHS) students attending to colleges in Goa, by using questionnaire to evaluate the awareness and knowledge among this groups of students regarding corneal donation, of 900 students, only 340 participated in the study (from 200 nursing students only 85 completed questionnaire).The result of the study pointed that the level of awareness and knowledge among nursing students toward corneal donation not satisfactory, the main sources of information about corneal donation are mass media (TV/radio) with rate 62.9%, according to awareness if the students were aware to eye bank in Goa? The awareness of all participants 189 (55.6%) (nursing students 41%), 60% of nursing students knew that the cornea is the part that donated from eye (AHS students 64.8% and medical 63.3%), As for knowing the appropriate time to remove the cornea from the donor, nursing students percentage their correct answers 50.6% (AHS 55.2% and medical 74.4%).According to willingness for corneal donation the rate of nursing students who willing to donate their cornea were 22.3% said: yes, 14% said: no, 7% said: I don't know, and 45% said : maybe or need time (Lal et al., 2018).

A study was carried out on knowledge and attitude of corneal donation in 400 nursing students attending to different nursing colleges in Belagavi region, using self-administrated questionnaire. The result of the study indicated that 98.5% of respondents were aware of the organ donation issue, whereas 100% of students were aware of the corneal donation issue,%75 of students know that a corneal removal takes place within 6 hours of the donor's death, 58% of the respondents had the correct answer about the organ that can be donated from the eye, 46.75% of students said: all age groups can donate cornea, 42.5% of students responded that the donor's face may be disfigured due to the donation of the cornea, according to the sources of knowledge about corneal

donation issue the students 34.35 were responded that the newspaper was the common source, TV 33.5%, from health worker 11.25%, eye specialist 7%, and the rest from other sources as journals and friends. About the participants' willingness to donate their corneas 64.25% of them are willing to donate, and 95% of respondents responded that, the eye is donated to restore the eyesight of the blind. The research team summarized the result of their study toward the level of knowledge and attitude among participants as follow: 13% had poor knowledge, 57% average knowledge, 30% with good knowledge, 14.25 poor attitude, 71.75% average attitude, and 14% with good attitude (Yadav et al., 2015).

A cross sectional study conducted in England among 100 nurses (aged from 21-50 years) who work in the Intensive Care Unit in a tertiary National Health Service center aimed to study the ICU nurses' knowledge and opinions on eye donation, and to assess the nurses' understanding of identifying and referring potential eye donors as well as exploring their perceptions of corneal donation. The research team used online questionnaire 'Survey Monkey reviewed by the Trust Clinical Team Leader in Organ Donation, with a response rate of 58%. The finding of this study indicated that the staff nurses who previously completed their university studies and have worked in hospitals seriously need to enrich their knowledge about corneal donation. Most nurses in the ICU had a lack of knowledge about corneal donation, lack of training, and confidence in communicating with patients and their families about corneal donation. Despite the powers they have from higher authorities about discussing organ donation and referral to organs bank with patients and their families, just one nurse from 100 Knows the procedures for referral to an eye bank, and only 4 nurses knew that cornea could be retrieved up to 24 hours after death. (Prous & Ponto, 2016).

Previous studies about corneal donation among nursing students showed that the level of knowledge among students ranged from average to few, and a few studies showed a high level of knowledge and awareness about corneal donation among participants, the opportunity to help the blind, the belief that eye donation is a noble act, and the belief that eyes are not required after death are the most popular reasons for being willing to donate, and the most prevalent causes for refusal to donate are a lack of sufficient knowledge about eye donation to make an informed decision or a lack of awareness regarding eye donation.

Chapter Three

Methodology

3.1 Research Design

This is a descriptive cross-sectional study designed to evaluate the awareness, knowledge, and attitude regarding corneal donation among nursing students in the Palestinian territories.

3.2 Study Setting

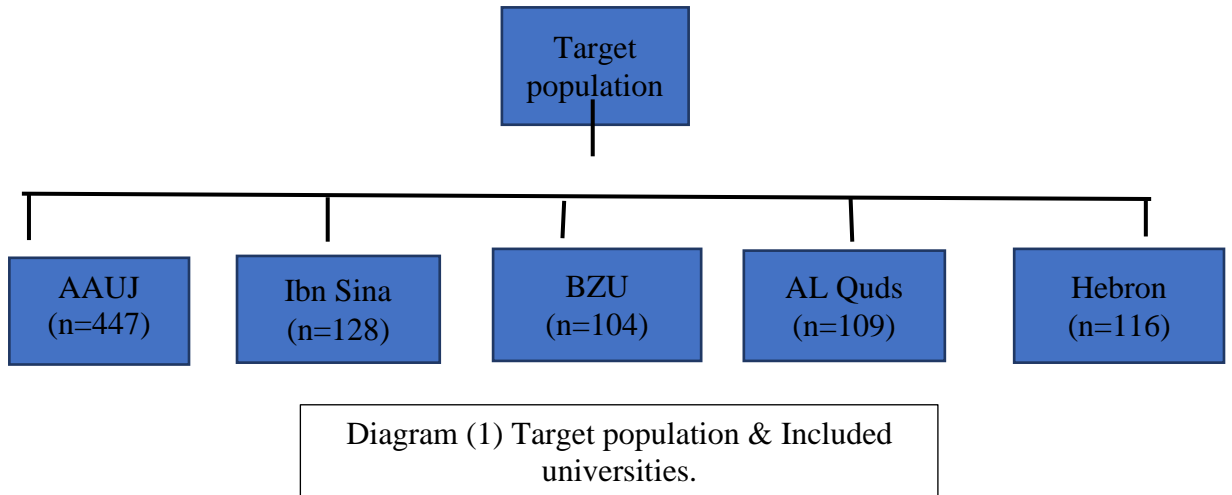
The current study was conducted between the months of March and May of 2021 at the nursing colleges and departments in the following Academic institutions in the opt: The Arab American University (AAUP), Al-Zababdeh – Jenin, Birzeit University (BZU), Birzeit-Ramallah, Ibn Sina College for Health Sciences, Hewara-Nablus, Al-Quds University, Abu Dies-Jerusalem, and Hebron University, Hebron.

3.3 Population & Sampling

In this study the research population refers to bachelor nursing students in Palestinian territories, while the target population refers to nursing students in first, second, third, and fourth year from Arab American University, Al-Quds University, Ibn Sina college, Beir Zeit University, and Hebron University.

The sample size of our study was calculated on the basis of Raosoft (2008) software in which the population size was kept as 6200 students, response distribution as 50%, while confidence interval and margin of error was set at 95% and 5% respectively. The recommended sample size was 362. A total of 904 students participated in this study.

All the participants were briefed about the purpose of the study. In this study a convenience sampling method was selected by researcher.



3.4 Inclusion & Exclusion Criteria

The target population in this current study was all full-time undergraduate nursing students enrolled in the Bachelor of Nursing programs in all universities selected in this study. Any bachelor student enrolled in the bridging nursing program at the selected universities was excluded from this study, as they are more likely to have experience working in the field of nursing.

3.5 Conceptual Framework

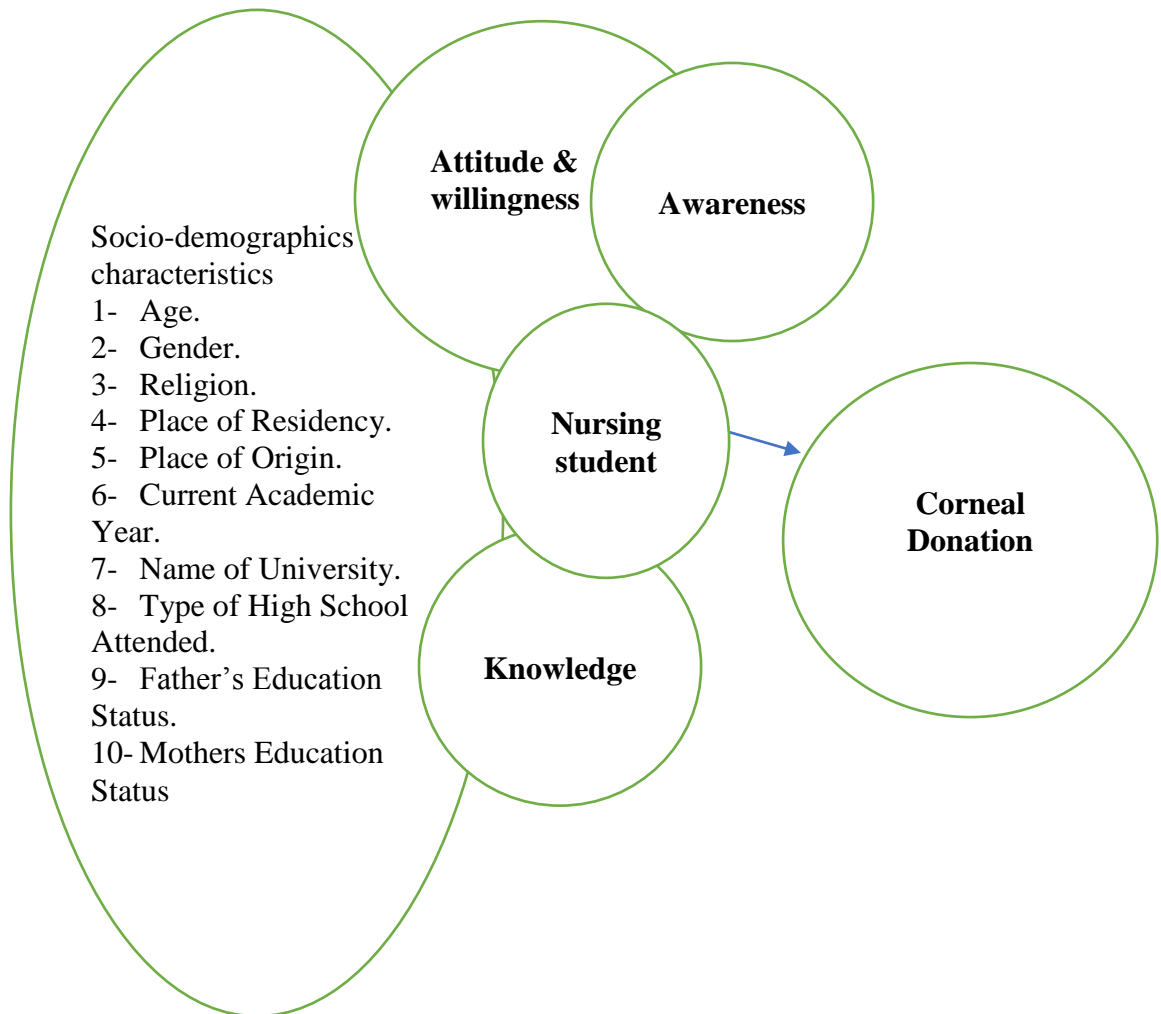


Figure 1-1 conceptual framework of the study

3.6 Data collection tool (study instrument)

After reviewing relevant literature, the data collection was conducted using an online **semi-structured questionnaire** was created based on the study's goals. In the current study, the investigator used a questionnaire to collect data from the respondents, the questionnaire was conducted in English and then translated into the local mother tongue language (Arabic language) by language experts, after referring to a computer and

networking expert, an online electronic questionnaire was performed as a data collection procedure.

3.7 Questionnaire Content

The questionnaire consists of 4 sections: **Section A:** It consists of the demographic characteristics of the study respondents (10 items): Age, Gender, Religion, Place of Residency, Place of Origin, Current Academic Year, Name of University, Type of High School Attended, Father's Education Status, and Mothers Education Status.

Section B: Knowledge of the respondents regarding corneal donation which consists of 8 items multiple choice questions (MCQ) developed by researcher after critical reviewing the literature. It included definition of cornea, part of the eye transplanted, ideal time for corneal removal, long time for corneal storage, who are not allowed to donate, alteration of donor facial appearance, if the financial dues are paid by the donor's family, and possibility of donor family to determine the recipient.

Section C: awareness toward corneal donation among respondents which consist of 4 items developed by researcher after critical reviewing the literature. Questions were answered "Yes" or "No".

Section D the willingness and attitude regarding corneal donation among respondents, which consists of 2 items about the willingness of respondents to donate their cornea, and 12 statements about the attitude of nursing students for Perceived reasons for donors willing /not willing to donate their cornea corneas, by using Likert scale each statement in the attitude is rated on a five-point scale (Strongly agree, agree, neutral, disagree, strongly disagree).

3.8 Validity

Validated content of demographic variables, structured questions, awareness, knowledge and the attitude scale in consultation with mentoring and field experts are **(ophthalmic doctors, optometrist, statistician, academic nurses and ophthalmic nurse specialist)**. The tool has been modified according to the recommendations and suggestions of the experts.

3.9 Reliability

Cronbach's Alpha for piloting study was calculated for Perceived reasons for donors willing to donate corneas scale and was 78 and 0.74 for Perceived reasons for donors not willing to donate their cornea corneas scale.

Cronbach's Alpha was calculated for Perceived reasons for donors willing to donate corneas scale and was 82 and 0.78 for Perceived reasons for donors not willing to donate their cornea corneas scale.

3.10 Data Collection Procedures

Data were collected using an online web-based questionnaire over two months (March 4, 2021, to May 4, 2021). The questionnaire was generated on Google drive and the link was sent to the target nursing students by email through the universities learning portal. Also, the targeted students were encouraged to participate by Emails, WhatsApp and Facebook posts.

Nursing student participation was voluntary, and confidentiality was maintained. Before starting to fill out the questionnaire, there is a consent form that contains the

objectives of this study, in addition to an undertaking by the researcher to maintain strict confidentiality on the answers provided by the participant. On the other hand, the student cannot start filling in the questionnaire unless he/ she presses the accept button, and the time required for the student to fill out the questionnaire is 15 minutes.

3.11 Data Management

Knowledge, awareness and attitudes studies provide a mechanism for collecting information on what is known and believed. Knowledge in healthcare is defined as specific knowledge that is factual in nature and that consists of information, skills, or facts acquired from education or experience. In the context of corneal donation, one who has knowledge, would have in-depth factual understanding of the technical aspects of the procedure and its purposes (WHO, 2008). Awareness, in comparison to knowledge, does not imply a deep understanding of facts, but it applies to the state of being conscious of a specific topic or event. In the context of corneal donation, awareness is related to whether participants have general, and not factual information, regarding the process of corneal donation (Ulrich, 2012).. Attitudes refers to the personal beliefs or way of thinking about a specific topic or event (WHO, 2008).

The knowledge scores were converted into percentage scores by dividing the respondents' results by the potential maximum scores and multiplying by 100. The total score of each result was calculated using Bloom's cutoff point (Blooms, 1956). The degree of knowledge was categorized into three categories based on the aggregate scores: low level knowledge (less than 60%), moderate level knowledge (60-79%), and high-level knowledge (80-100%).

Corneal donation is the practice of donating cornea after death. Only corneal blinds, not other blinds, can profit from this procedure. It is a charitable act performed solely for the benefit of society and is entirely voluntary. It is completed after one's death. Even if the deceased did not agree to donate his or her eyes before death, the next of kin can authorize the donation of the deceased's corneas. Corneal donation and corneal transplantation are a thrilling blend of unselfish compassion and medical science. Eye removal takes approximately 20 minutes, and a surgical corneal transplant takes only half an hour (Vemparala, 2017).

3.12 Variables of the Study

In this current study, the dependent variable was the corneal donation, the independent variables were awareness, knowledge, and attitude regarding Corneal Donation.

3.13 Pilot Study

Pilot study was conducted on 30 participants to get clear questions and to avoid lengthy & ambiguity of questions; they are all from different gender and years levels. All of them were provided with a clear explanation about the study and its objectives. The pilot study done to ask them about the difficulties, the average time to fill out the questionnaire, and their opinion of the questionnaire. The questionnaire was modified regarding the participants' comments and the time range between 10-15 minutes to complete the questionnaire. The participants were excluded from the actual study.

3.14 Ethical consideration

This study followed the tents of the Declaration of Helsinki. Ethical approval to conduct this study was obtained from the Helsinki Institutional Review Board (IRB) in Gaza City, in addition to the Faculty of Graduate Studies at Arab American University of

Palestine. Also, approval was obtained from the administrations of universities and faculties of nursing which included in the study. Written informed consent was taken from all respondents who agreed to participate in the study, study objectives and significance were provided to participants in Arabic language to ensure they fully understand what their participation requires. (Appendix 3 show AAUP approval).

3.15 Statistical Analysis

Data entry/ storage/ cleaning

An excel sheet was created to ease transmitting data to SPSS program for data analysis. The data was coded and entered to the excel sheet. An analysis plan was prepared that consisted of research questions and their perspective descriptive statistical test that are required to answer the study question. Data cleaning was performed to ensure that there are no missing data, correct coding was entered, and to delete any duplication.

3.16 Data Analysis

Data were analyzed using the Statistical Package of Social Science (SPSS, Version 23; SPSS Inc., Chicago, Illinois). Descriptive statistics for all parameters included in this analysis were performed. These analyzes included distributions of frequencies, percentages, means, and standard deviations. Analysis of variance (ANOVA) was performed to verify if there is a significant difference between knowledge scores and sources of corneal donation awareness.

Chapter Four

Results

4.1 Demographical Characteristics:

Out of 904 students, 584 (64.6%) were females and 320 (35.4%) were males. The mean age of the nursing students participated in this study was 20.6 (1.7) years, and age varied from 17 to 25 years old. The majority of the students were Muslims (96.1%). Most of the participants lived in cities (33%) or villages (34.2%), and they were mainly originated from the West Bank (62.7%). As for their parent's educational level, 41.0% and 44.2% of participants reported that their father and mother had a secondary educational level respectively. Table 4-1 showed the demographical characteristics of undergraduate nursing students participating in this study.

Table 4-1: Distribution of the participants according to their demographical characteristics (N=904)

Variable	Group	N	(%)
Gender	Male	320	35.4
	Female	584	64.6
Religion	Muslim	869	96.1
	Christian	29	3.2
	Darazi	6	0.7
Place of residency	City	298	33.0
	Town	237	26.2
	Camp	76	8.4
	Village	293	32.4
Place of Origin	East Jerusalem	80	8.8
	West Bank	567	62.7
	Palestine 1948	257	28.4
Father's Education Status	Primary level education	79	8.7
	Secondary education level	371	41.0
	Diploma	106	11.7
	Bachelor's	263	29.1

	Postgraduate degree	74	8.2
	No formal education	11	1.2
Mother's Education Status	Primary level education	87	9.6
	Secondary education level	400	44.2
	Diploma	136	15.0
	Bachelor's	210	23.2
	Postgraduate degree	48	5.3
	No formal education	23	2.5
Type of High School Attended	Government	771	85.3
	Private	133	14.7

The analysis revealed that (259) 28.65% of the participants were in their final year of university, as shown in (figure 4-1), and 49.45% of them were enrolled in the Arab American University, as seen in figure (4-2).

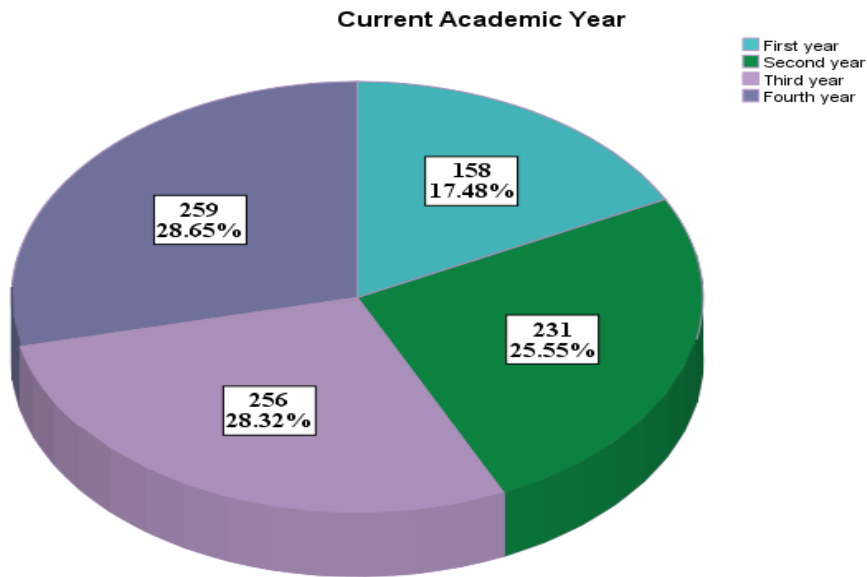


Figure 4-1: Distribution of the participants regarding current academic year

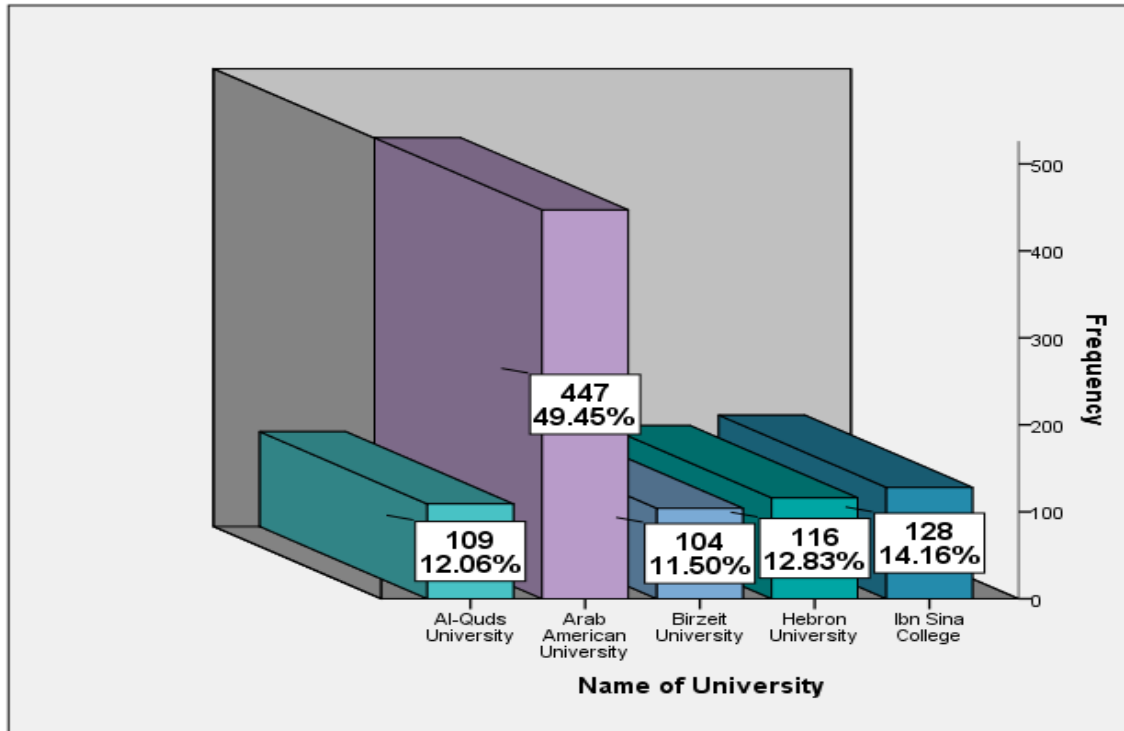


Figure 4-2: Distribution of the participants' regarding the university (N=904)

4.2 Assessment of Knowledge Regarding Corneal Donation

Knowledge level regarding corneal donation among participants was described in table 4-2, responses to the questionnaire regarding knowledge about corneal donation indicate that the majority of the students (62.1%) had low level knowledge regarding corneal donation,

Table 4-2: Description of the Students' Knowledge level of corneal donation (N=904)

Knowledge Level	Number (N)	Percentage (%)
Low level knowledge	561	62.1%
Moderate level knowledge	314	34.7%
High	29	3.2%

The analysis revealed that most questions were answered correctly were “People who are not allowed to donate their eyes are” 75.2%, “The donor’s family does not have to pay for the hospital and surgery costs related to removing” 61.9%, and “The facial appearance of the donor will be altered after corneal donation” 55.3%., as seen in table 4-3

Table 4-3: Participants’ responses to knowledge questions (N=904)

Questions	Correct N(%)	Incorrect N(%)	I don’t know N(%)
1. What is the cornea?	496 (54.9%)	385(42.6%)	23(2.5%)
2. During Corneal transplantation, which part of the eye is transplanted?	223(24.7%)	642(71.0%)	39(4.3%)
3. The facial appearance of the donor will be altered after corneal donation	500(55.3%)	283 (31.3%)	121(13.4%)
4. People who are not allowed to donate their eyes are:	680(75.2%)	157(17.4%)	67(7.4%)
5. Within how much time after death should the donor cornea be removed?	345(38.2%)	345(38.2%)	214(23.7%)
6. How long can the donated cornea be kept/stored before transplantation occur?	150(16.6%)	418 (46.2%)	336(37.2%)
7. The donor’s family does not have to pay for the hospital and surgery costs related to removing, preserving, and transporting the donor’s cornea	560(61.9%)	164(18.1%)	180(19.9%)
8. Donor family can specify who will receive the donated cornea	306(33.8%)	472 (52.2%)	126 (13.9%)

There were no significant differences according gender, religion, and university level with mean of knowledge of cornea donation ($P>0.05$) as seen in (Table 4-4)

Table 4-4: Differences between demographic data and knowledge mean scores of cornea donation

Variable		M	M(SD)	Statistical	
				test	<i>p</i> -value
Gender	Male	320	50.5(16.2)	t = -.765	.444
	Female	584	51.4(17.4)		
University year level	First year	158	48.7(16.9)	F=1.871	.133
	Second year	231	51.9(17.4)		
	Third year	256	50.5(17.3)		
	Fourth year	259	52.4(16.3)		
Religion	Muslim	869	50.9(17.1)	F= 0.826	.438
	Christian	29	54.3(15.4)		
	Durze	6	56.3(13.1)		

4.3 Students' awareness of the eye donation

The analysis indicated that the students who answered yes was 52.5% for question “Are you aware of corneal donation”, 74.8% for question “Are you aware that corneal blindness may be reversible after corneal donation”, and 39.7% for question “Are you aware of any corneal transplantation surgeries being conducted in Palestine”, as seen in table (4-5).

Table 4-5: Description of the participants' awareness regarding the eye donation (N=904)

	Yes N (%)	No (%)
Are you aware of corneal donation?	475 (52.5%)	429 (47.5%)
Are you aware that corneal blindness may be reversible after corneal donation?	676 (74.8%)	228 (25.2%)
Are you aware of any corneal transplantation surgeries being conducted in Palestine?	359 (39.7%)	545 (60.2%)

N= sample; %= percentage

Also, when we asked them “if you are aware about corneal donation, please state the source of your information”, most of the students 31.97% reported that television

was the main source, 26.22% reported other than mentioned, and 16.26% reported Social media (Facebook/ twitter/ Instagram), as seen in Table 4-6.

Table 4-6 Sources of students' information about corneal donation (N=904)

Source of information	n	%
Television	289	32.0
Newspapers& magazines	84	9.3
Social media (Facebook/ twitter/ Instagram)	147	16.3
Healthcare workers	38	4.2
Awareness campaigns	13	1.4
Through courses I learned at university	27	3.0
Family members &/or friends	26	2.9
From this questionnaire/study	43	4.8
Other	237	26.2
Total	904	100.0

4.4 Students' willingness toward eye donation

According to students' willingness toward eye donation, the analysis indicated that the students who answered yes was 29.6% for question "Are you willing to donate your cornea?" and 46.9% for question "Are you will to donate your cornea to your close relatives' eyes?", as seen in table (4-7).

Table 4-7: Description of the participants' willingness regarding the eye donation (N=904)

	Yes N (%)	No N (%)	Undecided N (%)
Are you willing to donate your cornea?	268 (29.6%)	319(35.3%)	317(35.1%)
Are you will to donate your cornea to your close relatives' eyes?	424 (46.9%)	211(23.3%)	269(29.8%)

N= sample; %= percentage

Also, according to students' responses regarding reasons for willingness to donate the cornea, the analysis revealed that the highest items of Strongly Agree reported by the students were 67.3% for "Corneal donations give other people the gift of sight", 54.3% for "Corneal donation is an act of doing good to humanity", 53.4% for "Hearing & reading about the great benefits of corneal donation", as seen in table 4-8.

Table 4-8: Participants' responses regarding Reasons for willingness to donate the cornea (N=904)

No.	Item	Strongly Agree N (%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly Disagree N (%)
1	Corneal donations give other people the gift of sight	608 (67.3%)	227 (25.1%)	52 (5.8%)	15 (1.7%)	2 (0.2%)
2	Corneal donation is an act of doing good to humanity	491 (54.3%)	334 (36.9%)	59 (6.5%)	20 (2.2%)	0 (0.0%)
3	Friends or relatives have benefited from corneal donation	469 (51.9%)	288 (31.9%)	114 (12.6%)	27 (3.0%)	6 (0.7%)
4	Friends or relatives have donated their cornea	294 (32.5%)	204 (22.6%)	173 (19.1%)	166 (18.4%)	67 (7.4%)
5	Hearing & reading about the great benefits of corneal donation	483 (53.4%)	290 (32.1%)	95 (10.5%)	28 (3.1%)	8 (0.9%)

There was a significant difference between gender and the mean of reasons for willingness to donate the cornea ($p < 0.05$). However, there were no significant differences according to religion and university level ($P > 0.05$) as seen in (Table 4-9)

Table 4-9: Differences between demographic data and mean of Reasons for willingness to donate the cornea (N=904)

Variable			M (SD)	Statistical	
				test	<i>p</i> -value
Gender	Male	320	4.3(0.62)	t=3.247	.001*
	Female	584	4.2(0.63)		
University year level	First year	158	4.3(0.65)	F= 0.731	.534
	Second year	231	4.2(0.62)		
	Third year	256	4.2(0.60)		
	Fourth year	259	4.2(0.65)		
Religion	Muslim	869	4.3(0.60)	F=2.478	.084
	Christian	29	4.0(0.80)		
	Druze	6	4.1(1.1)		

*Significant at 0.05

In addition, according students' responses regarding reasons for unwillingness to donate the cornea, the analysis revealed that the highest items of Strongly Agree reported by the students were 51.5 % for "Lack of information about corneal donation process", 47.7 % for "Unsuitability to donate eyes due to health issues", and 43.0% for "Fear of body disfigurement", as seen in table 4-10.

Table 4-10: Participants' responses regarding Reasons for unwillingness to donate the cornea (N=904)

No.	Item	Strongly Agree No. (%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly Disagree N (%)
1	Fear of body disfigurement	389 (43.0%)	343 (37.9%)	119 (13.2%)	46 (5.1%)	7 (0.8%)
2	Objection of family members	374 (41.4%)	377 (41.7%)	117 (12.9%)	31 (3.4%)	5 (0.6%)
3	Fear of pain during corneal retrieval process	390 (43.1%)	328 (36.3%)	123 (13.6%)	52 (5.8%)	11 (1.2%)
4	Unsuitability to donate eyes due to health issues	431 (47.7%)	336 (37.2%)	104 (11.5%)	27 (3.0%)	6 (0.7%)
5	Lack of information about corneal donation process	466 (51.5%)	295 (32.6%)	110 (12.2%)	25 (2.8%)	8 (0.9%)
6	Religious beliefs do not support corneal donations	279 (30.9%)	263 (29.1%)	213 (23.6%)	108 (11.9%)	41 (4.5%)
7	Eye donation is contrary to the laws of nature	238 (26.3%)	227 (25.1%)	238 (26.3%)	139 (15.4%)	62 (6.9%)

There were no significant differences according gender, religion, and university level with mean of reason for unwillingness to donate the cornea ($P>0.05$) as seen in (Table 4-11)

Table 4-11: Differences between demographic data and mean of reasons of unwillingness to donate the cornea (N=904)

Variable			M(SD)	Statistical	
				test	<i>p -value</i>
Gender	Male	320	4.1(0.70)	t=1.508	0.132
	Female	584	4.0(0.67)		
University year level	First year	158	4.2(0.67)	F=2.490	.059
	Second year	231	4.0(0.69)		
	Third year	256	4.0(0.67)		
	Fourth year	259	4.0(0.68)		
Religion	Muslim	869	4.1(0.68)	F=2.167	.115
	Christian	29	3.7(0.84)		
	Durze	6	4.0(0.67)		

4.5 knowledge and willingness to corneal donation

ANOVA test was performed to assess if there is differences between mean knowledge scores and willingness to corneal donation awareness. The analysis revealed that there was no significant difference between students' knowledge scores and willingness to corneal donation ($P > 0.05$), as seen in table 4-12.

Table 4-12: The differences between knowledge scores and willingness to corneal donation (N=904)

	N	M (SD)	F	P value
Yes	268	51.4 (16.9)	0.180	0.836
No	319	51.3 (17.3)		
Undecided	317	50.6 (16.8)		

Chapter Five

Discussion

5.1 Introduction

This chapter deals with the discussion that based on the result that obtained from the conceptual framework, statistical analysis and its relationship to the study objectives, and related literature. This study was done to assess awareness, knowledge, and attitude regarding corneal donation among universities nursing students in Palestinian terrorists.

The age range for student participants enrolled in our study is between 17-25 years old, with a mean age of 20 years, and two third of them were females. This differs from a study conducted in Bangalore, where the majority of student participants were males.

5.2 Objective (1): To assess the level of awareness and knowledge regarding corneal donation and transplantations among nursing students.

5.2.1 Knowledge Assessment

In this current study that was conducted among 904 nursing students the result showed that the majority of the students, 62.1%, had low level of knowledge this is a high percentage compared to the study that conducted in Belagavi (India) among nursing students found that 13% of participants had poor knowledge about corneal donation (Yadav et al., 2015), while a study that conducted among Singaporean youths to assess knowledge the results reported that 73.2% of participants had low level of knowledge in this study exceeds the percentage shown by our current study (Paraz et al., 2016), A study conducted in Saudi Arabia among residents found that only 4.3% of respondents believed they had sufficient knowledge about cornel donation (Alanazi et al., 2019),

additionally in the results of our study 34.7% had moderate level of knowledge, and 3.2% had

A previous study conducted among intensive care unit nurses in London concluded that there is a lack of knowledge regarding corneal donation among nurses (Prous and Ponto, 2016) . So, in the current situation, there is a need to raise awareness about eye donation among nursing students since they can directly contact with and counsel wider segments of the public, which can help improve eye donations in Palestine.

In this study, 54.9% of nursing students knew the correct definition of cornea, while 42.6% answered incorrectly. 71% of participants in our study did not know which part of the eye is transplanted during corneal transplantation. This is similar to other studies which reported that only 10% of Indian students and 29.7% of Saudi medical students knew that the cornea is the only part that can be donated (Hameed and Jadidy, 2015).

In comparison, a study conducted among 185 dental students in Nepal regarding corneal donation showed that 86.5% of participants knew that the cornea is the only part that can be removed for corneal transplantation, this difference in results may be due to the fact that the national eye banking system in Singapore is quite ready and there are corneal donation campaigns led by celebrities, but the national eye banking system in our country does not exist and there are no extensive and serious corneal donation campaigns. Our findings showed that 55.3% of participants knew there will be no facial alterations for donors following corneal donation (Paraz et al., 2016). This is also similar to other studies, where 70.3% of dental students in Nepal knew that corneal donation does not result in facial disfigurement or alterations. In a cross-sectional study that conducted in Greece to raise awareness about corneal donation, 91.6% of

participants responded that corneal donation did not change the appearance of the donor. (Arya et al., 2014).

On the other hand, the result of an Indian study conducted among medical students, 18% of respondents said that the corneal donation does not result in facial disfigurement (Gupta and Gupta, 2013). A study among nursing students in Belagavi showed 75.5% of the total nursing students answered corneal donation does not disfigure the face of donor, and 24.5% of students said corneal donation disfigure donor face (Yadav et al., 2015). In another previous study was conducted in Nigeria among undergraduate university students, 67.9% of students believed that corneal donation disfigures the face of donor, and 32.9% of students believed corneal donation does not disfigure face donor (KF et al., 2020). A study conducted among Singaporean youth showed 74.7% of them answered false about the alteration will be occurred for donor face after corneal removal, 6% true, and 2% don't know (Paraz et al., 2016).

The majority of students (75.2%) in the present study agreed that donors with infectious diseases are not candidates for corneal donation. Previous studies conducted among nursing students in Odisha found that 55% of students responded that HIV contraindication for corneal donation. A study among dental students in Nepal showed 60.5% of the participants knew that donors with communicable disease cannot donate their corneas. In a study conducted in Nigeria, 61.7% of respondents agreed that medical illness (hepatitis B and AIDS) is a contraindication for corneal donation (KF et al., 2020). In the study that was conducted among medical versus non-medical students in a developing country in Africa found that only 29.1% responded that a person with communicable disease cannot donate his or her cornea, and the majority of participants, 55.5% did not know whether persons with communicable diseases are candidates for

corneal donation (Eze, Okoye, and Eze, 2014). This similarity in the results between the participants may be due to the medical background of infectious diseases and the possibility of transmission from one person to another

In the current study, 38.2% of students knew the ideal time for corneal removal after time of death, while 23.7% did not know the ideal time. This is similar to other studies conducted among students in Odisha (India), Bangalore (India), and Saudi Arabia, where only 15%, 38.3% and 16.2% of participants respectively knew the ideal time of corneal donation after. In comparison, studies conducted in Belagavi city (India), Goa (India), Gujarat (India) reported that the majority of their participants knew the ideal time of corneal donation death (Jena et al., 2017)-(Gupta et al., 2009) (Bhole, 2020) (Hameed and Jadidy, 2015) . The difference in religions, races and socio-economic background present in India may play a major role in the difference in the percentage of knowledge among participants toward corneal donation from one city to another, in addition to the possibility that the education system and curriculum differ from one province to another. In the present study, only 16.6% of participants knew how long a donated cornea can be stored before transplantation. Our results were similar to other studies in Goa (India) and Saudi Arabia, where 41.2% and 82.6% of student participants respectively, did not know how long the cornea can be stored before transplantation (Hameed and Jadidy, 2015; Lal et al., 2018). This difference in results between these three countries could be due to the fact that India has many eye banks, extensive awareness campaigns for corneal donation due to the great need for corneas in light of the increase in corneal blindness, and existences of several studies that conducted on corneal donation in India more than in Saudi Arabia and Palestine.

In our current study, 61.9% of participants knew that the donor's family does not have to pay any extra hospital or surgical fees related to the cost of removing the cornea. Similar results were found in studies conducted in Gujarat (India) and Nepal (Arya et al., 2014; Bhole, 2020);

Regarding whether the donor family can specify who will receive the donated cornea, 33.8% of participants in our study answered the question correctly. In the study conducted among Singaporean's students, only 22% of participants answered this question correctly, while the majority of participant had did know whether the donor's family is able to specify who can receive the donated cornea (Paraz et al., 2016). In comparison, a study conducted in western of India among medical students found that only 29% of participants thought that the donor's family is able to determine who will receive the cornea (Gupta and Gupta 2013). The results indicated that the knowledge is low among participants in the most of the studies about if the donor family can specify who will receive the donated cornea , this may be due to the ineffective use of the eye bank well-established in the field and the poor integration of the topic of corneal donation into the curricula, especially medical and nursing schools.

5.2.2 Awareness assessment:

In this study, 52.5% of student participants were aware of corneal donation. Multiple studies conducted in India reported that more than 96% of student participants were aware of corneal donation. While in a study conducted in Saudi Arabia, only 35.8% of medical students were aware of corneal donation (Kumar, Shukla, & Agarwal, 2012) (Hameed and Jadidy, 2015). The difference in results between these three regions may be due to Gujarat (India) performed more corneal transplant surgeries each year than

any other city in Saudi or Palestine, and in India may be adopted public education programs through primary care physicians, the media, community and school-based health campaigns, and religious discussions to raise awareness and knowledge about corneal donation more than Saudi Arabia and Palestine. National Program for Control of Blindness (NPCBC) in India reports that corneal disease-related blindness is a major ophthalmic public health issue in India. There are an estimated 1.2 million people who are corneal blind in India, with an additional 25 000–30 000 people diagnosed each year, approximately 25,000 corneal transplants are performed annually in India (NPCB, 2017). This large number of people with corneal blindness and the number of corneal transplants and donations may be create awareness for Indian citizen relatively higher than that of the Palestinian and Saudi citizens.

The majority of students in our study received their information about corneal donation from television (Entertainment - an educational TV program through international documentary channels, more than it is from the Palestinian national TV) and social media. Similar results were found in Odisha (India), Belagavi (India) Gujarat (India) and Bangalore (India), where the majority of participants got their information about corneal donation from television and newspapers (Jena et al., 2017; Gupta et al., 2009; Yadav et al., 2015). In other study that conducted in Gujarat (India)–(Bhole, 2020). While the study conducted among medical students in Saudi Arabia found that 63.5% of participants received information about corneal donation through got source of information about corneal donation through the questionnaire that was used in this study, and 61% from mass media (Hameed and Jadidy, 2015). A previous study conducted in Nepal among dental students showed that the majority of participants got their information about corneal donation from television and from the internet (Anon,

2019). A study conducted in a developing country in Africa among medical and non-medical students also found that the television was the major source of where they received information about corneal donation (Eze et al., 2014).

A systemic review study that depended on 55 articles regarding corneal donation referred that the main source of awareness among participants was television (Williams and Muir, 2018). What our study and all these studies have in common, is the fact that the majority of student participants received their information from television, and not from university courses or from schools.

Our study results revealed that 74.8% of participants were aware that corneal blindness is reversible after corneal donation. A study conducted in Greece to raise awareness about corneal donation via an interactive survey showed that only 37.9% of participants were aware of the possibility of treating corneal blindness after corneal transplantation (Tsigkos et al., 2020). A study conducted in India among nursing students found that the majority of participants (95%) were aware of the fact that corneal donation can restore sight for blind person (Yadav et al., 2015).

Our present study showed that of all participants, only 39.7% were aware that corneal transplantation surgeries are being conducted in Palestine. A previous study conducted in Greece to raise awareness regarding corneal donation showed that 32.7% were aware that corneal transplant conducted in Greece (Tsigkos et al., 2020). Similarly, In Saudi Arabia, 97.5% of medical students were unaware of any eye bank in Saudi Arabia (Hameed and Jadidy, 2015) . A previous study conducted in the occupied Palestinian territory among An-Najah University students found that 93% of participants were unaware of the existence of an eye bank in the country (Al-Labadi et al., 2018). The lack of awareness that corneal transplantation surgeries are being

conducted in Palestine, the reason may be that the national eye banking system in our country does not exist, the lack of corneal transplants that conducted in Palestine and importing corneas from outside the country, and the scarcity of corneal donation campaigns.

5.3 Objective (2) To assess willingness of nursing students towards corneal donation.

Only 29.6% of participants in our study were willing to donate their corneas, while the rest of participants were either not willing (35.3%) or are undecided (35.1%). On the other hand, 46.9% of participants in our study were willing to donate their cornea to their close relatives. Similar results were found in other studies conducted in Palestine, where 31% of participants were willing to donate their cornea (Al-Labadi et al., 2018), and in the Saudi study where only 21.1% of student participants were willing to donate their cornea, and in Nigeria where only 14.3% of students were willing to donate their cornea. (Eze et al. 2014) (Hameed and Jadidy, 2015). In comparison, the study conducted in Goa (India) among nursing students found that 68.8% were willing to donate their cornea (Lal et al., 2018). The difference of willingness for corneal donation between previous studies could be, the urgent need for corneas in India due to the increase in corneal blindness with the lack of donors, awareness campaigns, the presence of a national eye bank, satisfied outcomes of corneal transplants, which led to an increase in knowledge and awareness, an increase in altruism and a positive attitude towards corneal donation, which led to an increase in the desire (willingness) to donate

5.4 Objective (3) to assess attitudes of nursing students towards corneal donation.

Giving people the gift of sight, the act of do in well to humanity, and hearing or reading about the benefits of corneal donation were among the perceived reasons for willingness

to corneal donation among participants in this study. The Bangalore study in India found that the perceived reasons for donors willing to donate corneas included blindness restoration and the nobility of the act (Gupta et al., 2009) . A study conducted among in Northern Jordan on the general public found that 50.4% of participants were willing to donate their cornea as it helps to restore vision (Haddad et al., 2018; KF et al., 2020). As for the study conducted in Nepal among dental students, perceived reasons for willingness to donate corneas among participants were the ability to help the blind and the nobility of the act. In Odisha (India), 95% of participants reported that the act of helping others is the perceived reason for willingness to donate their cornea. (Jena et al., 2017)

As for unwillingness towards corneal donation, the perceived reasons reported by our participants included lack of information about corneal donation process (51.5%) unsuitability to donate eyes due to health issues (47.7%), fear of body disfigurement (43%), fear of pain during corneal retrieval process (43.1%), objection of family members (41.4%), and the fact that religious beliefs do not support corneal donations (30.9%).

Fear of body disfigurement was also reported in the Bangalore (India) study, where 25% of nursing students reported that the fear of ill-treatment of body is the main reason for unwillingness to donate their cornea (Gupta et al., 2009), in a study in Africa where the fear of the unknown was reported among 7.1% of participants among the reasons of unwillingness towards corneal donation (Eze et al., 2014), and in a study in Singapore, where 13.6% worried about the way their body would be treated in case of corneal donation (Paraz et al., 2016).

A study conducted among medical students in Saudi Arabia reported that only 2.9% of participants reported that family members objection is one perceived reason for unwilling to donate cornea (Hameed and Jadidy, 2015). A study conducted among dental students in Nepal found that 38.9% of participants believed objection of family members to be

a reason for unwillingness toward corneal donation (Anon, 2019). Another previous study conducted in Bangalore (India) among nursing students reported that 28.5% of participants believed objection of family members is one of perceived reasons for unwillingness towards corneal donation (Gupta et al., 2009)

A previously mentioned study that was conducted in a developing African country found that 14.8% of participants believed that there is no reason for unwilling to donate cornea (Eze et al., 2014). Another study which was conducted among the general public in Jordan showed that 15.5% feared that the donor will not be treated to the maximum if they know that he or she is a donor (Haddad et al., 2018).

A study conducted in Bangalore (India) among nursing students found that only 10.7% of them believed that unsuitability to donate eyes due to health issues is one of the perceived reasons for unwillingness to donate cornea (Gupta et al., 2009).

A study which was conducted among nursing students in Bangalore showed that 42.8% of participants believed lack of awareness to be the main cause for unwillingness of corneal donation (Gupta et al., 2009). A previous study conducted among Saudi medical students at Taibah University showed that 22.6% of the students said that lack of awareness is a major reason for not wanting to donate cornea (Hameed and Jadidy, 2015). Another study was conducted in Nepal among dental students found that the majority of participants (44.4%) believed that a lack of awareness is the main cause for

unwillingness to donate their cornea (Anon, 2019)) A study that was conducted among Singaporean youth also found that 44.4% of participants do not want to donate their corneas, because they want to know more information about corneal donation and transplantation (Paraz et al. 2016)

Only 5% of Saudi students believed religious reasons is one of perceived reasons for unwilling to donate cornea (Hameed & Jadidy, 2015), 15.9% of African students believed that religious reason is one of perceived reasons for unwilling to donate cornea (Eze et al. 2014), and 10.7% of Bangaloring nursing students believed that religious beliefs is one of the perceived reasons for unwillingness to donate cornea (Gupta et al., 2009), while in our current study the analysis reported that there were no significant differences according religion with mean of reason for unwillingness to donate the cornea ($P>0.05$), and 30.9% of participants responded religious beliefs do not support corneal donations, the reason may be that the issue of corneal donation in the Palestinian territories is not as clear as it is religiously, as well as medically and socially, while in Saudi Arabia and India there is great interest from the religious point of view.

5.5 Objective (4) To determine whether there are differences between mean of knowledge scores and willingness to corneal donation among Palestinian nursing students

There was no significant difference between students' knowledge scores and willingness towards corneal donation ($P> 0.05$). Similarly, a study conducted among nursing, medical and allied health sciences students in India (Goa) showed that knowledge and awareness about corneal donation did not elucidate willingness to donate cornea. (Lal et al., 2018). Another study conducted in Africa among medical

versus non-medical students showed that was no significant difference between students' knowledge scores and willingness towards corneal donation ($P > 0.05$) (Eze et al., 2014).

5.6 Summary

Based on the comparison between the results of our current study and previous studies, it was found that there are many points of similarity and points of difference, and one of the most prominent points of similarity is the lack of sufficient knowledge among respondents about corneal donation, doing well and restore vision for blind person are the main reasons of perceived reasons for willing to donate their cornea, and lack of knowledge and awareness are the most perceived reasons for the participants' for unwillingness to donate their cornea (Williams & Muir, 2018).

As for the difference between the results of our current study and other studies, the percentage of willingness to donate cornea among the respondents in our study is lower than the respondents in the other studies, but results for the level of awareness about corneal donation have fluctuated from study to study (Lal et al., 2018).

5.7 Conclusion

This study assessed awareness, knowledge and attitudes regarding corneal donation among nursing students in the Palestinian Territories. The current study confirmed that the majority of the nursing students have low level knowledge regarding eye donation, have moderate level of awareness, and the majority are not willing to donate their cornea. The main perceived reasons for willingness to donate cornea were the ability to give people the gift of sight and the act of doing good to humanity. However, the

perceived reasons for unwillingness toward corneal donation were lack of information about corneal donation process and objection of family members

5.8 Recommendation

- Due to a lack of local eye banks, Palestinians rely on international foreign corneal donors. This means that any Palestinian who require corneal donation has to wait a long time before receiving one. Cornea donation has received little attention from the Palestinian medical community. Currently, there no legal guidelines or policies related to organ or corneal donation.
- We need to work with Ministry of Health, relevant government agencies and local higher education institutions to deliver specific and tailored program to increase community knowledge and awareness of corneal donation and thus increase rate of local donors.
- The results of our study survey that conducted among nursing students support the finding of previous that conducted among students of nursing, medical, non-medical, dental, and in the general public, that the level of awareness and knowledge fluctuated from low to moderate level. Nursing students need adequate level of education program that focus on corneal donation, by involving them in appropriate training in counseling techniques and to be volunteers in eye donation campaigns to raise the level of knowledge and awareness regarding corneal donation because these group of care providers in direct contact with clients and their families in hospitals and health centers, and they have the ability to positively influence and motivate them to donate organs in general and the cornea in particular. Which will ultimately lead to

strengthening the local eye bank system and eventually increase in local availability of donated corneas.

- Focusing on the subject of ophthalmology in the nursing curricula at the Palestinians universities.
- Encourage nursing students to be involved with corneal donation campaigns.
- Prepare nursing students to be a counsellor for corneal donation.
- Enhanced use of mass media and social media to raise public awareness about corneal donation.
- Encourage physician, nurses, and all health care providers to spread awareness among people.

5.9 Limitation

- The process of responding to the questionnaire took a long time according to the plan for data collection due to the use of the electronic questionnaire.
- It was planned to include nursing colleges in the Gaza Strip, but the difficulty of communicating with college officials and student representatives due to the recent war on the Strip.

5.10 Strengths

This is the first study included Palestinian universities students from the north, center and south of Palestinian territories, where the study was conducted on nursing students, considering them to be future nurses, and they are a pivotal and important element in the Palestinian health system.

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Appendix

1- Questionnaire

Awareness, Knowledge, and Attitude regarding Corneal Donation among Nursing Students in the Palestinians territories.

Part 1: Demographics (Validation: 2 eyes + 3 academics) +	
Participant Code	
Age :	
Gender	<input type="checkbox"/> Male <input type="checkbox"/> Female
Religion	<input type="checkbox"/> Muslim <input type="checkbox"/> Christian <input type="checkbox"/> Other (specify)
Place of residency	<input type="checkbox"/> City <input type="checkbox"/> Town <input type="checkbox"/> Village <input type="checkbox"/> Camp
Place of Origin	<input type="checkbox"/> West Bank <input type="checkbox"/> East Jerusalem <input type="checkbox"/> Palestine 1948
Current Academic Year	<input type="checkbox"/> First year student <input type="checkbox"/> Second Year student <input type="checkbox"/> Third year student <input type="checkbox"/> Fourth Year student
Name of University	<input type="checkbox"/> BZU <input type="checkbox"/> Hebron <input type="checkbox"/> Al-Quds <input type="checkbox"/> ANNU <input type="checkbox"/> Ibn Sina
Type of High School Attended	<input type="checkbox"/> Government

	<input type="checkbox"/> Private
Father's Education Status	<input type="checkbox"/> No formal education <input type="checkbox"/> Primary level education (1 st -6 th grade) <input type="checkbox"/> Secondary level education (7 th - 12 th grade) <input type="checkbox"/> Higher level non-university education (vocational, diploma) <input type="checkbox"/> Higher level university education (Bachelor, master, PhD)
Mother's Education Status	<input type="checkbox"/> No formal education <input type="checkbox"/> Primary level education (1 st -6 th grade) <input type="checkbox"/> Secondary level education (7 th - 12 th grade) <input type="checkbox"/> Higher level non-university education (vocational, diploma) <input type="checkbox"/> Higher level university education (Bachelor, master, PhD)
Part 2: Knowledge (One answer is correct only)	
1. What is the cornea?	<input type="checkbox"/> The clear outer layer of the eye <input type="checkbox"/> The clear inner layer of the eye <input type="checkbox"/> I do not know
2. During Corneal transplantation, which part of the eye is transplanted?	<input type="checkbox"/> The whole eyeball <input type="checkbox"/> The cornea <input type="checkbox"/> I do not know
3. The facial appearance of the donor will be altered after corneal donation	<input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> I do not know
4. People who are not allowed to donate their eyes are:	<input type="checkbox"/> Those who have infectious diseases <input type="checkbox"/> Those who wear glasses

	<input type="checkbox"/> Those with perfect vision <input type="checkbox"/> I do not know
5. Within how much time after death should the donor cornea be removed?	<input type="checkbox"/> Within 12 hours after death. <input type="checkbox"/> Within 24 hours after death <input type="checkbox"/> Any time after death <input type="checkbox"/> I do not know
6. How long can the donated cornea be kept/stored before transplantation occur?	<input type="checkbox"/> Up to 24 hours <input type="checkbox"/> Up to 5 days <input type="checkbox"/> Up to 7-14 days <input type="checkbox"/> I do not know
7. The donor's family does not have to pay for the hospital and surgery costs related to removing, preserving, and transporting the donor's cornea	<input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> I do not know
8. Donor family can specify who will receive the donated cornea	<input type="checkbox"/> True <input type="checkbox"/> False <input type="checkbox"/> I do not know
Part 3: Awareness	
Are you aware of corneal donation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If you are aware about corneal donation, please state the source of your information: (you can select one or more)	<input type="checkbox"/> Television <input type="checkbox"/> Newspapers& magazines <input type="checkbox"/> Social media (Facebook/ twitter/ Instagram) <input type="checkbox"/> Healthcare workers <input type="checkbox"/> Awareness campaigns <input type="checkbox"/> Through courses I learned at university <input type="checkbox"/> Family members &/or friends <input type="checkbox"/> From this questionnaire/study <input type="checkbox"/> Other

Are you aware that corneal blindness may be reversible after corneal donation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are you aware of any corneal transplantation surgeries being conducted in Palestine?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Part 4: Willingness & Attitudes	
Are you willing to donate your cornea?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Undecided
Are you will to donate your cornea to your close relatives' eyes?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Undecided

Perceived reasons for donors willing to donate corneas <i>Place a check mark next to the most appropriate choice according to your beliefs</i>	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Corneal donations give other people the gift of sight					
Corneal donation is an act of doing good to humanity					
Friends or relatives have benefited from corneal donation					
Friends or relatives have donated their cornea					

Hearing & reading about the great benefits of corneal donation					
Perceived reasons for donors not willing to donate their cornea corneas <i>Place a check mark next to the most appropriate choice according to your beliefs</i>					
Fear of body disfigurement					
Objection of family members					
Fear of pain during corneal retrieval process					
Unsuitability to donate eyes due to health issues					
Lack of information about corneal donation process					
Religious beliefs do not support corneal donations					
Eye donation is contrary to the laws of nature					

Appendix (2): Arabic Questionnaire

الوعي والمعرفة والموقف تجاه التبرع بالقرنية بين طلاب التمريض في الأراضي الفلسطينية
إيماناً بدور التمريض الفاعل كونه العمود الفقري في المنظومة الصحية من حيث التأثير الفعال والايجابي
على الوعي الصحي في المجتمعات عامة والمجتمع الفلسطيني خاصة، وطلاب التمريض هم ممرضين
وممرضات المستقبل القادمين.

عزيزي/تي الطالب/ة، تحية طيبة:

أنا الباحث مصطفى محمود عجولي طالب في برنامج ماجستير تمريض العيون في الجامعة العربية
الأمريكية، حيث اجري دراسة حول الوعي، المعرفة، والموقف تجاه التبرع بالقرنية بين طلاب التمريض في
الأراضي الفلسطينية .

ارجوا من حضرتكم المشاركة في تعبئة هذا الاستبيان حيث يحتاج الى ١٥ دقيقة، حيث جميع المعلومات
التي تدلي بها سرية وسيتم استخدامها فقط للبحث العلمي.

	العمر
<input type="checkbox"/> ذكر <input type="checkbox"/> أنثى	الجنس
<input type="checkbox"/> مسلم <input type="checkbox"/> مسيحي <input type="checkbox"/> درزي <input type="checkbox"/> يهودي (سامري)	الديانة
<input type="checkbox"/> مدينة <input type="checkbox"/> بلدة <input type="checkbox"/> مخيم <input type="checkbox"/> قرية	مكان الإقامة
<input type="checkbox"/> الضفة الغربية <input type="checkbox"/> القدس <input type="checkbox"/> فلسطين الداخل	منطقة السكن
<input type="checkbox"/> السنة الاولى <input type="checkbox"/> السنة الثانية	السنة الدراسية

<input type="checkbox"/> السنة الثالثة <input type="checkbox"/> السنة الرابعة	
الجامعة العربية الامريكية. <input type="checkbox"/> كلية ابن سينا. <input type="checkbox"/> جامعة بير زيت <input type="checkbox"/> جامعة القدس <input type="checkbox"/> جامعة الخليل	اسم الجامعة
<input type="checkbox"/> حكومية <input type="checkbox"/> خاصة	قطاع المدرسة الثانوية التي تخرجت منها
<input type="checkbox"/> أمي <input type="checkbox"/> التعليم الابتدائي <input type="checkbox"/> التعليم الثانوي <input type="checkbox"/> دبلوم <input type="checkbox"/> بكالوريوس <input type="checkbox"/> دراسات عليا	أعلى مؤهل علمي للأب
<input type="checkbox"/> أمي <input type="checkbox"/> التعليم الابتدائي <input type="checkbox"/> التعليم الثانوي <input type="checkbox"/> دبلوم <input type="checkbox"/> بكالوريوس <input type="checkbox"/> دراسات عليا	أعلى مؤهل علمي للأم
الجزء 2: المعرفة (إجابة واحدة صحيحة فقط)	
الجزء الشفاف الخارجي للعين <input type="checkbox"/> الجزء الشفاف الداخلي للعين <input type="checkbox"/> لا اعلم <input type="checkbox"/>	١- ما هي القرنية؟
يتم زراعة العين بالكامل <input type="checkbox"/> يتم زراعة القرنية فقط <input type="checkbox"/> لا اعلم <input type="checkbox"/>	٢- خلال عملية زراعة القرنية، ما هو الجزء الذي سيتم زراعته من العين؟

<p>نعم <input type="checkbox"/></p> <p>لا <input type="checkbox"/></p> <p>لا أعلم <input type="checkbox"/></p>	<p>٣- عند التبرع بالقرنية، هل سيتأثر مظهر او ملامح وجه المتبرع؟</p>
<p>الشخص الذي يعاني من امراض معدية <input type="checkbox"/></p> <p>الشخص الذي لا يرتدي نظارات <input type="checkbox"/></p> <p>الشخص الذي يتمتع برؤية مثالية. <input type="checkbox"/></p> <p>لا اعلم <input type="checkbox"/></p>	<p>٤- الشخص الغير مؤهل للتبرع بقرنيته؟</p>
<p>خلال ١٢ ساعة بعد الوفاة <input type="checkbox"/></p> <p>خلال ٢٤ ساعة بعد الوفاة <input type="checkbox"/></p> <p>في أي وقت بعد الموت <input type="checkbox"/></p> <p>لا اعلم <input type="checkbox"/></p>	<p>٥- ماهي المدة الأقصى التي يجب خلالها استئصال قرنية المتبرع بعد وفاته؟</p>
<p>خلال ٢٤ ساعة <input type="checkbox"/></p> <p>خلال ٥ ايام <input type="checkbox"/></p> <p>خلال ٧-١٤ يوم <input type="checkbox"/></p> <p>لا اعلم <input type="checkbox"/></p>	<p>٦- ما هي المدة الأقصى للاحتفاظ بقرنية المتبرع وتخزينها قبل اجراء عملية الزراعة؟</p>
<p>نعم <input type="checkbox"/></p> <p>لا <input type="checkbox"/></p> <p>لا اعلم <input type="checkbox"/></p>	<p>٧- هل يتعين على اسرة المتبرع دفع أي تكاليف تتعلق باستئصال القرنية أو حفظها أو نقلها؟</p>
<p>نعم <input type="checkbox"/></p> <p>لا <input type="checkbox"/></p> <p>لا اعلم <input type="checkbox"/></p>	<p>٨- هل يمكن لعائلة المتبرع تحديد من سيتلقى تلك القرنية؟</p>
<p>الجزء الثالث: الوعي</p>	
<p>نعم <input type="checkbox"/></p> <p>لا <input type="checkbox"/></p>	<p>هل لديك أي علم مسبق بعمليات التبرع بالقرنية؟</p>

<p><input type="checkbox"/> التلفاز</p> <p><input type="checkbox"/> الصحف والمجلات</p> <p><input type="checkbox"/> وسائل التواصل الاجتماعي (فيسبوك / تويتر / انستغرام)</p> <p><input type="checkbox"/> العاملين في الرعاية الصحية</p> <p><input type="checkbox"/> حملات التوعية</p> <p><input type="checkbox"/> من خلال المسافات التي يتم تدريسها في الجامعة</p> <p><input type="checkbox"/> أفراد العائلة و / أو الأصدقاء</p> <p><input type="checkbox"/> من هذا الاستبيان / الدراسة</p> <p><input type="checkbox"/> مصادر اخرى</p>	<p>إذا كنت على علم مسبق بعملية التبرع بالقرنية ، فيرجى ذكر مصدر معلوماتك: (يمكنك اختيار واحد أو أكثر)</p>
<p><input checked="" type="checkbox"/> نعم</p> <p><input type="checkbox"/> لا</p>	<p>حسب معلوماتك: هل حالات فقدان البصر المتعلقة بالقرنية هي حالات يمكن علاجها من خلال عمليات زراعة القرنية المتبرع بها؟</p>
<p><input checked="" type="checkbox"/> نعم</p> <p><input type="checkbox"/> لا</p>	<p>حسب معلوماتك: عمليات زراعة القرنية يتم إجرائها في فلسطين؟</p>
<p>الجزء الرابع: الرغبة والمواقف حول التبرع بالقرنية</p>	
<p><input type="checkbox"/> نعم</p> <p><input type="checkbox"/> لا</p> <p><input type="checkbox"/> لم احدد بعد</p>	<p>هل أنت على استعداد للتبرع بقرنيتك؟</p>
<p><input type="checkbox"/> نعم</p> <p><input type="checkbox"/> لا</p> <p><input type="checkbox"/> لم احدد بعد</p>	<p>هل أنت على استعداد للتبرع بقرنيتك لاحد من أقربائك؟</p>

ضع علامة (✓) بجوار الخيار الأنسب وفقا لمعتقداتك

معارض بشدة	معارض	محايد	موافق	موافق بشدة	بعض الأسباب التي قد تجعل الشخص على استعداد كامل للتبرع بالقرنية
					التبرع بالقرنية يعتبر بصيص من الامل لإعادة البصر لفاقيه
					التبرع بالقرنية فعل من أفعال الخير التي تعود بالنفع للإنسانية
					عندما يكون أحد الأقارب او الأصدقاء هم المنتفعين من عمليات زراعة القرنية
					سبق وان تبرع أحد الأصدقاء او الأقارب بقرينتهم
					الاستماع او القراءة عن فوائد واهمية التبرع بالقرنية

ضع علامة (✓) بجوار الخيار الأنسب وفقا لمعتقداتك

معارض بشدة	معارض	محايد	موافق	موافق بشدة	بعض الأسباب التي قد تجعل المتبرعين غير مستعدين للتبرع بقريناتهم
					الخوف من تشوه الجسم
					الاعتراض من قبل افراد الاسرة
					الخوف من الألم خلال عملية استئصال القرنية
					عدم القدرة على التبرع بالعيون بسبب بعض المشاكل الصحية
					نقص في المعلومات المتوفرة عن عملية التبرع بالقرنية
					المعتقدات الدينية لا تدعم التبرع القرنية
					التبرع بالعين مخالف لقوانين الطبيعة

AAUP approval

Arab American University
 Faculty of Graduate Studies


 الجامعة العربية الأمريكية
 كلية الدراسات العليا

2021-1-7

إلى من يهمه الامر

تسهيل مهمة بحثية

تحية طيبة وبعد،

تهديكم كلية الدراسات العليا في الجامعة العربية الأمريكية أطيب التحيات، وبالإشارة إلى الموضوع أعلاه، تشهد كلية الدراسات العليا في الجامعة أن الطالب مصطفى محمود علي عجولي والذي يحمل الرقم الجامعي 201812762 وهو طالب ماجستير في الجامعة العربية الأمريكية تخصص تربية العيون، ويعمل على إعداد أطروحة الماجستير الخاصة به بعنوان:

"الوعي والمعرفة والموقف لدى طلاب التمريض تجاه التبرع بالقرنية في الأراضي الفلسطينية" تحت اشراف كل من الدكتور أحمد العايد والدكتورة ليانه اللبدي.

نأمل من حضرتكم الإيعاز بما يلزم لمساعدته في الحصول على المعلومات اللازمة للدراسة، طمأ أن المعلومات ستستخدم لغاية البحث فقط، وقد أعطي هذه الرسالة بناءً على طلبه.

وتفضلوا بقبول فائق الاحترام،،،


 د. اشرف الميمني


 عميد كلية الدراسات العليا

Page 1 of 2

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الملخص

قد تتعرض القرنية لندبات من خلال مجموعة واسعة من الأمراض المعدية، الأمراض التهابية، صدمات، أمراض خلقية، والتدخلات الطبية الفاشلة، وجميع هذه الأسباب قد تؤدي في النهاية إلى ضعف البصر أو العمى. عمى القرنية هو رابع سبب رئيسي للعمى على مستوى العالم (5.1%)، ويعتبر السبب الثاني للعمى في دول العالم النامي. زراعة القرنية هو العلاج القياسي الذهبي المستخدم لاستعادة ضعف البصر عند فشل التدخل البصري، ولكن النسبة العالمية بين الطلب والعرض هي 1:70، لكن 37.5% فقط من الذين يحتاجون لزراعة القرنية يحصلوا على قرنية من المتبرع بها والسبب الرئيسي للفجوة الكبيرة بين الطلب والعرض للقرنية هو نقص الوعي والمعرفة المناسبة حول التبرع بالقرنية.

الهدف من الدراسة: التحقيق في المعرفة، الوعي، والمواقف تجاه التبرع بالقرنية لدى طلاب التمريض في الجامعات الفلسطينية.

طريقة الدراسة: أجريت دراسة مقطعية على 904 من طلاب برنامج بكالوريوس التمريض، وشملت الدراسة خمس جامعات فلسطينية، وتم إنشاء استبيان إلكتروني شبه منظم عبر الإنترنت بناءً على أهداف الدراسة لتقييم وعي ومعرفة ومواقف المستجيبين فيما يتعلق بالتبرع بالقرنية.

النتائج:

أفاد تحليل هذه الدراسة أن غالبية الطلاب 62.1% لديهم مستوى منخفض من المعرفة فيما يتعلق بالتبرع بالعين، و 52.5% من المستجيبين لديهم وعي حول التبرع بالقرنية، وكانت المصادر الرئيسية للمعلومات من التلفزيون 31.97%. فقط 29.6% من الطلاب لديهم استعداد للتبرع بالقرنية، واستجابة المشاركين للأسباب المتصورة للمتبرعين الراغبين في التبرع بالقرنية، يعتقد معظمهم 67.3% أن تبرعات القرنية تمنح الآخرين هدية البصر، وحول الأسباب المتصورة للمتبرعين غير مستعدين للتبرع بالقرنية، يعتقد غالبية المستطلعين أن نقص المعلومات حول عملية التبرع بالقرنية هو السبب الرئيسي.

لا توجد فروق ذات دلالة إحصائية حسب الجنس والدين والمستوى الجامعي مع متوسط معرفة التبرع بالقرنية ($P > 0.05$)، ولا توجد فروق ذات دلالة إحصائية حسب الجنس والدين والمستوى الجامعي مع سبب عدم الرغبة في التبرع بالقرنية ($P > 0.05$). ($P > 0.05$)، كان

هناك فرق معنوي بين الجنس ومتوسط أسباب الرغبة في التبرع بالقرنية ($p < 0.05$) ، ومع ذلك ، لم يكن هناك فرق معنوي حسب الدين والمستوى الجامعي ($P > 0.05$) .

خاتمة: أوضحت نتائج دراستنا الحالية أن غالبية طلاب التمريض يفتقرون إلى الوعي والمعرفة ولديهم أيضا مواقف سلبية فيما يتعلق بالتبرع بالقرنية. لذلك يحتاج طلاب التمريض إلى مستوى كافٍ من البرامج التعليمية التي تركز على التبرع بالقرنية لرفع مستوى المعرفة والوعي فيما يتعلق بالتبرع بالقرنية لأن هذه المجموعة من مقدمي الرعاية الصحية المستقبلين على اتصال مباشر مع المراجعين وعائلاتهم في المستشفيات والمراكز الصحية، ولديهم القدرة للتأثير الإيجابي وتحفيزهم على التبرع بالأعضاء بشكل عام والقرنية بشكل خاص.