Arab American University

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Knowledge, Attitude, and Practice towards Retinopathy of Prematurity among Neonatal Intensive Care Nurses in Palestine

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Approval form

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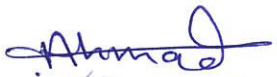
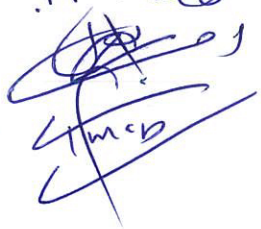
1. Dr. Ahmad Ayed	Supervisor	
3. Dr. Ahmad Battran	Internal Examiner	
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Declaration

I am, Ibrahim Abutrabi, hereby declare that dissertation titled, A Knowledge, Attitude, and Practice towards Retinopathy of Prematurity among Neonatal Intensive Care Nurses in Palestine, in this thesis is my own except for quotations and summaries which have been duly acknowledged and that it has not been submitted elsewhere for the award of any degree.

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Dedication

I dedicate my study to my beloved parents who were my continuous source of motivation and inspiration, who gave me the strength and commitment to work with enthusiasm and determination over every task. For their encouragement, I do dedicate this study to my supervisor, to all my family members and my wife Maysa Jarra'i.

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Also we would like to thank all the people who contributed directly or indirectly to the development of this work. Through they be assured of our faithful friendship, love, and sincere appreciation.

Ibrahim Abu Trabi

Abstract

Background: Premature is birth before 37 weeks of gestation age. "Retinopathy of prematurity (ROP) is the cessation of normal eye development and subsequent abnormal vessel growth that occurs exclusively in premature infants". Nurses have an important role in retinopathy of prematurity (ROP) prevention by increase their awareness. Previous studies have focused primarily on pediatricians the first study focused on nurses.

Objective: The purpose of the current study was to assess the "Knowledge, attitude, and practice" towards ROP among neonatal intensive care nurses in West Bank, Palestine.

Methods: A descriptive cross-sectional study. The study recruited two hundred and eighty-nine nurses who work at neonatal intensive care unit (NICU) nurses in government and private sector in West Bank, Palestine. A self-administered questionnaire developed by the researcher related to nurses' knowledge, practice and attitude for ROP prevention, and treatment was utilized.

Results: Among the 289 neonatal nurses, the study findings revealed that 48.1% of nurses had low knowledge level o; 78% of nurses had neutral level of attitudes; and 57.1% of nurses had fair level of practice regarding retinopathy of prematurity. Attitude, knowledge, and experience in neonate care were significant predictors for practice retinopathy of prematurity prevention ($\beta = 0.572$, 0.075, and 1.86) respectively

Conclusion

The study confirmed that high percentage of neonatal intensive care units nurses had low knowledge level, small percentage had positive attitude, but high percentage had fair level practice toward ROP.

Keywords: Awareness, Knowledge, Attitude, Practice, Retinopathy of prematurity

Abbreviations

Abbreviation	Explanation
ROP	Retinopathy of Prematurity
NICU	"Neonatal intensive Care Unit"
CDC	Communicable Disease Center
GA	"Gestational Age"
BW	"Birth Weight"
VEGF	Vascular Endothelial Growth Factor
CA	Chronological Age
KAP	Knowledge, Attitude and Practice
ICN	International Council of Nurses
CPD	Continuous Professional Development
PPS	Philippine Pediatric Society
RLF	Retrolental Fibroplasias
SPSS	Statistical Package for Social Sciences
ANOVA	Analysis of Variance
t-test	t student statistical test
AAUP	Arab American University Palestine
PNIPH	Palestinian National Institute of Public Health

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1.10 Summary

1.1 Background

Premature is the birth before 37 weeks of gestational age (Communicable disease center [CDC], 2015). Preterm birth has been accompanying with many problems, happening during delivery, during the first weeks of delivery or many years in future (McCormick, 1985). Premature birth is the most frequent cause of neonatal mortality (Lawn, Gravett, Nunes, Rubens, Stanton, & GAPPS Analysis Party, 2010), and one of the more important causes of death in children under 5 years of age (Liu, et al., 2012).

Despite improved clinical conditions and survival levels for even the youngest children, premature delivery also holds a significant risk of negatively impacting certain organs, as the heart (Laas, et al., 2012; Weinberg, Evans, Burns, Pearson, & Kaltman, 2016), lungs (Ho, Subramaniam, & Davis, 2015), brain (Back, 2015) and the eye (Smith, 2003).

Improved survival in small and particularly vulnerable premature babies has contributed to the revival in premature complications including one of the main causes of retinopathy of prematurity (ROP) and childhood blindness, (Kong, Fry, Al-Samarraie, Gilbert, & Steinkuller, 2012).

Retinopathy of prematurity (ROP) is "the cessation of normal eye development and subsequent abnormal vessel growth that occurs exclusively in premature infants" (Harrell & Brandon, 2007).

The first epidemic of ROP occurred in Europe and North America in the late fourth and fifth decade of last century as the survival rate of prematurity babies raised (Dou et al, 2018).

The risk factors that affects the occurrence of ROP such as early gestational age (GA) ≤ 30 weeks and low birth weight (BW) ≤ 1500 g have been shown to be the most important risk factors for developing ROP and other risk factors to oxygen, hypoxia, twin pregnancy, respiratory distress syndrome, anemia, intraventricular haemorrhage, blood transfusions, fungal infections, sepsis, (Alajbegovic Halimic, Zvizdic, Alimanovic Halilovic, Dodik & Duvnjak, 2015).

In 2010 more than 30.000 infants globally had visual impaired caused by retinopathy of prematurity (ROP) (Blencowe, Lawn, Vazquez, Fielder & Gilbert, 2013). The ROP stages represent vascular changes degree. It has five stages. First, the demarcation in which line is seen between the vascular and avascular retinas. Second, ridge the line of demarcation grows to the size and has a height and width to shape a ridge above the plane of the retina. Third, ridge with extra-retinal fibrous vascular proliferation; it arises from the ridge to the vitreous. Forth, subtotal retinal detachment. Fifth, stage-total retinal detachment (Shah, 2016).

The first treatment of ROP is cryotherapy. In the eighties of the last century, intravitreal anti−vascular endothelial growth factor (anti-VEGF) agents for ROP have taken much attention in medicine as a possible alternative and over advantages from laser photocoagulation (Patel & Klufas, 2019).

The first examination premature infant should be done between four to nine weeks Chronological Age (CA), depending on postmenstrual age at birth (Jefferies, 2010).

A multidisciplinary manage is an important approach to address the needs of premature infants in low and middle-income countries as they improve neonatal intensive care. Training should be available to health care professionals with sufficient training to care for the premature infants (Quinn, 2016). The introduction and maintenance of effective

programs necessitates a team approach with clear and sound leadership and a partnership between neonatologists, nurses, and ophthalmologists (Darlow, Gilbert & Quiroga, 2013).

In Palestine, the incidence of ROP and severe type 1 ROP that need treatment was 23.5 and 11.3% respectively (Akkawi, Shehadeh, Shams, Al-Hardan, Omar, Almahmoud, & Qaddumi, 2019). Nurses are main care givers in a neonatal ICU. Nurses should be alert of all the risk factors recognized to be associated with ROP. They should practice the core team in applying safe practices such as hand hygiene and asepsis to reduce infections, encouraging breastfeeding, target oxygen saturation, and support for nutrition to reach good weight increase. These would help in decreasing ROP in the unit. Therefore, "the current study aimed to assess the Knowledge, attitude, and practice" towards ROP among neonatal intensive care nurses in Palestine.

1.2 Problem Statement

In 2010, about 184,700 preterm babies developed ROP (all stages) worldwide. Of these infants, twenty-thousand were severely blind or visually impaired. Also, average of 12,300 preterm babies had mild to moderate visual impairment. Additionally, 65% of ROP-affected babies were born in middle-income regions; and 6.2 % of all ROP-affected babies were born later than 32 weeks of gestational age (Blencowe, et al., 2013).

With the advancement of the health sector and the provision of health services in Palestine, whether in the government or the private sector, it is important to study the awareness of retinopathy of prematurity among neonatal intensive care nurses (NICUs) in hospitals. Unfortunately, no data about retinopathy of prematurity in Palestine.

Nurses are the core of health-related Palestinian workforce and handle primary, secondary, and tertiary health care services throughout the country. The nurses are expected to function safely during care at the Neonate Intensive Care Unit (NICUs). Nurses are able to manage better if they have improved their knowledge, attitude and experience. The need to improve competency-based training and progress pre-service and in-service nurse training curricula to incorporate specialist content on newborn and preterm care, including ROP prevention (Campbell-Yeo, Deorari, McMillan, Singhal, Vatsa, Aylward, et al., 2014). Yet in higher income countries where facilities are usually well resourced, (Hamilton, et al., 2007) revealed a positive correlation between newborn outcomes and the number of qualified nurses working on a specified shift. Despite the fact that many of the risk factors for ROP are increased by nursing practice, the nursing role in preventing and dealing with ROP has not been systematically described. Therefore, the purpose of the current study was to assess the "knowledge, attitude, and practice" towards ROP among neonatal intensive care nurses in the West Bank hospitals, Palestine.

1.3 Study Justification

The ROP is one of the most important sources of preventable childhood blindness (Coats, 2005). However, delays in ROP detection can often result in bad effects. Adequate knowledge, attitude and practice in nurses lead to prevent and reduce ROP. Nurses should play vital role in preventing blindness in newborns through eye screening for retinopathy of prematurity through help in selection of infants eligible for screening established on national criteria and clinical Judgment. This would be both cost-effective and beneficial way to recognize newborns that need care ophthalmologist.

However, the previous studies, had focused mainly on pediatricians. This study seeks to ascertain whether nurses know the valuable role they should play in preventing ROP in newborns and also identify the knowledge, attitudes and practices.

Ultimately, there are no studies conducted on this subject in Palestine or the Middle East and very few across the world, and therefore the information gained would enhance the existing evidence and decrease the amount of children vulnerable to blindness, thereby decreasing disabled children.

1.4 Study Objectives:

1.4.1 General Objective

The general objective of the study was to "assess the knowledge, attitude, and practice towards ROP among neonatal intensive care nurses in the West Bank hospitals, Palestine".

1.4.2 Secondary Objectives

- Comparing between hospitals in the levels of nurses' awareness.
- To assess the knowledge on retinopathy of prematurity among neonatal intensive care nurses in the West Bank hospitals, Palestine.
- To recognize their attitude towards retinopathy of prematurity among neonatal intensive care nurses in the West Bank hospitals, Palestine.
- To assess the practice on retinopathy of prematurity among neonatal intensive care nurses in the West Bank hospitals, Palestine.

1.5 Research Questions:

1- What is the level of "knowledge, attitude, and practice towards Retinopathy of Prematurity (ROP) among neonatal intensive care nurses in Palestine hospitals"?

2- Is there difference between knowledge scores of retinopathy of prematurity (ROP) and demographic characteristics among neonatal intensive care nurses in Palestine hospitals?

3- Is there difference between attitude scores of retinopathy of prematurity (ROP) and demographic characteristics among neonatal intensive care nurses in Palestine hospitals?

4- Is there difference between practice scores of retinopathy of prematurity (ROP) and demographic characteristics among neonatal intensive care nurses in Palestine hospitals?

5. What is the predictors of neonatal intensive care nurses 'practice regarding retinopathy of prematurity (ROP) prevention?

1.6 Hypothesis

First hypothesis: There is a significant difference between knowledge scores of retinopathy of prematurity (ROP) and demographic characteristics among neonatal intensive care nurses in Palestine hospitals at the level ≤0.05.

Second hypothesis: There is a significance difference between attitude scores of retinopathy of prematurity (ROP) and demographic characteristics among neonatal intensive care nurses in Palestine hospitals at the level ≤0.05.

Third hypothesis: There is a significance difference between practice scores of retinopathy of prematurity (ROP) and demographic characteristics among neonatal intensive care nurses in Palestine hospitals at the level ≤0.05.

1.7 Variable:

Independent Variables:

- Demographic characteristics of the nurses.

Dependent Variables:

- Knowledge of ROP.
- Attitude of ROP.
- Practice of ROP.

1.8 Theoretical and Conceptual Framework:

The "Knowledge, Attitude and Practice (KAP) model" is a common tool for gathering information from patients and practitioners (Kishore, 2016). Knowledge-Attitude-practice was constructed on the basis of the cognitive, behavioral theory of Schwartz to study the relationship between knowledge, attitudes and practice (Bano et al., 2013). Therefore, the conceptual framework of the current study was built on model of knowledge, attitude, and practice (KAP).

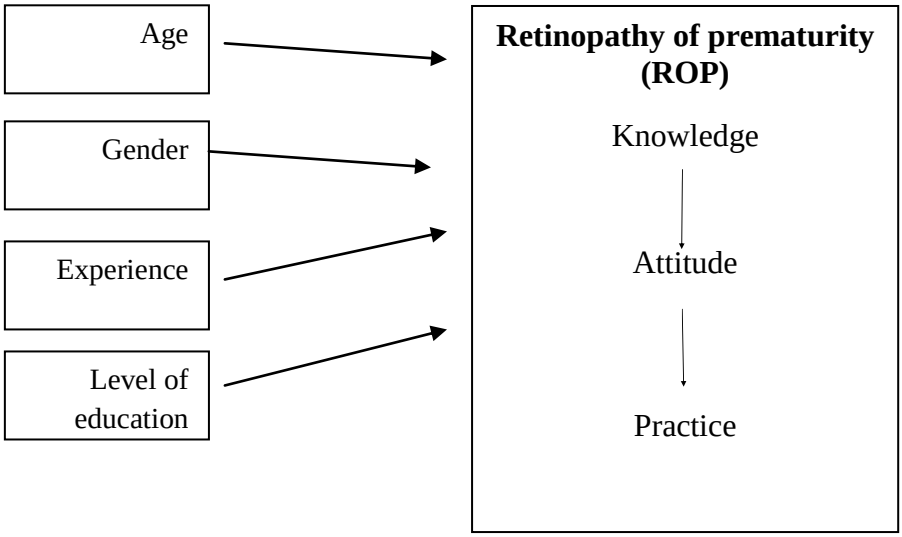

Figure 1: Conceptual Framework of "Nurses' Knowledge, attitude, and practice towards retinopathy of prematurity "

1.9 Conceptual and Operational Definitions

Nursing: "Nursing encompasses autonomous and collaborative care of individuals of all ages, families, groups and communities, sick or well and in all settings. Nursing includes the promotion of health, prevention of illness, and the care of ill, disabled and dying people. Advocacy, promotion of a safe environment, research, participation in shaping health policy and in patient and health systems management, and education are also key nursing roles" (ICN, 2014)

Premature is birth before 37 weeks of gestation age (Communicable disease center [CDC], 2015).

Knowledge is capability to obtain, keep and use data that is mixed with skills and experience (Badran, 1995). Also, knowledge is the person understanding of any specified topic (Kaliyaperumal, 2004).

Attitude is the person' feelings towards an issue (Kaliyaperumal, 2004). Attitude is a tendency to respond in a confident way to a certain situation (Badran, 1995).

Practice is the way that person display their knowledge and attitude (Kaliyaperumal, 2004). Also, it means the usage of rule and knowledge towards action (Badran, 1995).

According to the previous definitions, this study defined meaning of Knowledge, Attitude and practice as follow;

Knowledge is the level of nurses' knowledge of ROP.

Attitude is the level of nurses' receiving, responding, and valuing of ROP.

Practice refers to the level of nurses' imitation, manipulation, and precision of ROP.

In the current study, the KAP model will be beneficial to understand nurses' practices generally. It can show knowledge, attitude, and practice of nurses in neonate care units and determine the relationship of each factor with ROP. As a characteristic of the model, it is valuable for the identification of problems in order to initiate efficient interventions. Moreover, the KAP model is effective to conclude knowledge and attitude of nurses; which hasn't previously been studies. The KAP model can test this gap to evidently understand how knowledge associates with attitude, and practice towards ROP among nurses in neonate units.

1.10 Summary

In this chapter of the study, reader was orientated to the main reason for conducting this study to be undertaken, objectives, problem statement, study justification, research questions, variables, and operational definition. The conceptual framework of knowledge, attitude, and practice towards retinopathy of prematurity among neonatal

intensive care nurses in Palestine was formed, the term definitions of the study was explained.

The intensity of the problem is was discussed through this chapter. Therefore, it is understood that the problem concerns not only pediatricians, but also a problem that concerns nurses. And, therefore as a problem affecting the preterm babies in the NICU the need for assessment awareness among nurses.

Chapter Two

Literature Review

2.1 Introduction:

This chapter presented the studies about “knowledge, attitude, and practice” about ROP among neonatal intensive care nurses. Also, it presented the definition, stages, and locations of ROP. Moreover, it included the role of nurses in the prevention and treatment of ROP.

2.2 Global Studies Related to ROP

A cross-sectional study conducted by Raiturcar et al (2019) in Goa on 58 pediatricians revealed a very high level of awareness of ROP, its risk factors, the importance of timely screening and prompt referral. Results of the study revealed that all respondents have heard of ROP and were alert of the major common risk factors of ROP. Approximately 51 respondents (87.93 %) were alert of the timing of the first screening of preterm infants for ROP, whereas 45 (77.58 %) are knowledgeable of the available treatment strategies (Raiturcar, Cacodcar, Dubhashi & Aguiar, 2019).

In a descriptive study conducted by Sankar, & Pappa, (2018) on 60 staff nurses selected randomly to assess the knowledge regarding ROP in a selected hospital in Kerala. The study conducted with a structured knowledge questionnaire developed by the researcher. The tool reliability was 0.81. The analysis showed that 43% of nurses had good awareness, 50% had fair knowledge, and 7% had poor knowledge of ROP. Excluding age, there was no important association between the level of knowledge of nurses and their chosen individual characteristics.

Also, another quantitative and qualitative study conducted in Pakistan on the awareness of pediatricians/neonatologists towards ROP indicated awareness of ROP should be increased at a national level to increase the development of ROP screening

and treatment services in Pakistan. The study showed that 93% had heard about ROP and 43 (69.4%) approved that the infants must be screened for ROP. Fifteen respondents (24%) reported that there is screening criteria for ROP, forty four (71%) reacted negatively and three (4.8%) responded that there may be a criteria existing; 48 participants (77.4%) expressed that they did not have an ophthalmologist to do ROP screening while 11 (17%) had an ophthalmologist. Thirty-five (56.5 %) have accepted treatment options for ROP but 20 (32.3 %) have not been assured of treatment options. Thirty-two (51 %) approved the reappointment of a patient within 3 days after losing one. For 40 (64 %) of doctors the ROP was a major concern, although 16 (25 percent) were not assured of this (Moin, Inayat, Mian, Khalid & Shabbir, 2016).

Additionally, in a study conducted on pediatricians attending continuous professional development (CPD) course in Nigeria (2013) on awareness and screening for ROP among pediatricians. Forty eight participants in this study. The study suggests there is need to enlighten pediatricians in Nigeria on retinopathy of prematurity in order to prevent this treatable cause of blindness in children. Study indicated that a large number of pediatricians attending CPD course were alert of ROP, are currently poorly informed on the management of this condition and the need for screening. The results showed that forty six (95.8%) knew some risk factors for ROP. Fourteen (29.2%) participants knew the ROP screening guidelines while 10 (20.8%) had partial knowledge of these guidelines (Uhumwangho & Israel-Aina, 2013).

On the other hand, some previous studies indicated poor awareness level of prematurity retinopathy among pediatricians. Where in a prospective, multicenter, cross-sectional study conducted in the Philippines found that a significant proportion was unaware of the Philippine Pediatric Society (PPS) ROP screening guidelines. More

than half of them do not have a protocol developed. There have been variations in the clinical practices of pediatricians attending to ROP at-risk children. On the basis of these, there is still a need to increase awareness among pediatricians (Te, Loy, Chua, Jimenez & Anzures, 2013).

Moreover, a cross sectional study conducted on pediatricians in south India, in which 83 pediatricians participated. Just 54 (65.1%) pediatricians were alert of ROP, while 29 (34.9%) were not alert of ROP. Approximately 24 (28.9%) replied that ROP was not preventable. Thirty-four (41 %) pediatricians did not have information on what portion of the eye ROP had impaired, while 38 (45.8 %) did not know when ROP screening would begin. Only 43 pediatricians (51.8 %) were assured that ROP was treatable. The research also showed that pediatricians in private hospitals were more concerned towards ROP relative to their colleagues in government hospitals (P = 0.006). (Shah, Narendran, Sathiamohanraj, Senthilkumar & Kalpana, 2011).

2.3 Regional and Local Studies of ROP

In a cross-section study conducted in Palestine by Akkawi et al. (2018) to determine the perception of prematurity retinopathy among pediatricians in the West Bank. Seventy pediatricians from 11 different hospitals participated in this study. Results indicated that a great number of pediatricians were alert of ROP as a preventable disease. Fifty-nine (84.3 %) reported that ROP was preventable, while 11 (15.7 %) stated that ROP was not preventable. Also, nine (12.9%) pediatricians had no idea which part of the eye was affected by ROP. Among the participants, 29 (41.4%) did not know when ROP screening should be began. However, sixty-three (90%)

pediatricians were confident that ROP might be treated. But there was less data about the ROP service delivery and screening guidelines (Akkawi, Qaddumi, Issa & Yaseen, 2018).

2.4 Neonatal Care Units in Palestine

There are 38 neonatal units (27 in the West Bank, 3 in East Jerusalem and 8 in the Gaza Strip). The allocation of neonatal facilities, especially in Gaza, does not match the geographic population and the birth rate. Nearly all neonatal Palestinian units admit very small birth weight babies, even exceptionally low birth weight babies (36/38). Within the West Bank over 79 % of the neonatal units and 75.1 % of the incubators are clustered. The actual number of incubators in Gaza is just below what is needed at the present time: 119 vs. 220, the main reason for the high occupancy of beds in neonatal units, often more than 150%. The number of incubators working to provide specific services for little babies is much fewer. Palestine has 10 neonatologists: 6 in hospitals in East Jerusalem, 3 in the West Bank and one in Gaza. Most work part-time and don't have full-time coverage. In fact, sub-specialty consultants are clustered in only a few hospitals in various medical and surgical fields. A well-trained nurse’s position in neonatal intensive care units is critical to holding extremely sick babies in a reliably high quality care network. In 2018, a total of 86 professional neonatal nurses were trained in Palestine; 55 in the West Bank, 31 in East Jerusalem and zero in Gaza. Several units have nurses elsewhere in the hospital, however this could impede continuing care and raise cross-infection between hospital units (Palestinian National Institute of Public Health). (PNIPH), 2018).

2.5 Retinopathy of prematurity

2.5.1 Concept of ROP Development

The first term was used to refer to ROP a retrolental fibroplasia (RLF) termed in the year 1942 by Terry (Shah, 2016). ROP is "a disorder of retinal blood vessel development in low birth weight preterm infants" (Bashinsky, 2017). In 2010 about 11.1 % of all live births were born prematurely worldwide (14.9 million babies born before 37 weeks of gestation) (Blencowe et al., 2013). An additional 184,700 babies out of 14.9 million preterm babies developed some level of ROP globally in the same year (Kim et al., 2018).

2.5.2 Definition of Retinopathy of Prematurity:

The ROP is defined as condition characterized by the "development of abnormal retinal vessels secondary to an incomplete vascularization of the retinal tissue due to hyperoxia causing down regulation of vascular endothelial growth factor (VEGF) and death of endothelial cells" (Freitas, Mörschbächer, Thorell & Rhoden, 2018).

2.5.3 Stages of ROP:

ROP categorized by International Committee for the Classification of Retinopathy of Prematurity (ICROP) into five stages including stage 1, stage 2, stage 3, stage 4, stage 5 ROP. This stages describes the abnormal vascular response at the junction of the vascularized and avascular retina.

Stage 1 ROP (demarcation line) is a small, flat, white yet definite boundary that anteriorly distinguishes the avascular retina from the posterior vascular retina. Stage 2 ROP is a (ridge) that appears in the demarcation line area, has height and width, and

stretches above the retina surface. The ridge may turn from white to pink, and vessels can exit the retina plane back to the ridge for entry. Stage 3 ROP is a (extraretinal fibrovascular proliferation) or neovascularization extends from the ridge into the vitreous. At the posterior of the ridge it is continuous, creating a ragged look as the proliferation is more widespread. Stage 4 ROP is a split (partial retinal detachment) into extrafoveal (stage 4A) and foveal (stage 4B). Generally the detachment is concave and circumferential centered. The fibrous tissue continues to contract in progressive cases, and the detachment rises in height and expands anteriorly and posteriorly. Stage 5 ROP refers to total retinal detachment ("The International Classification of Retinopathy of Prematurity Revisited", 2005).

2.5.4 Location of ROP

According to location ROP classified by ICROP (2005) into 3 zones; zone I, zone II, and zone III ROP. Zone I is surrounded by an imaginary circle, whose radius is twice the width from the disk to the middle of the macula. Zone II extends concentrically from the edge of zone I; its radius extends from the center of the disc to the nasal ora serrata. Zone III consists of a residual temporal crescent anterior to zone II.

2.5.5 Pathophysiology of ROP

ROP is a two-phase disease, of ROP development including phase I and phase II. Beginning with the delayed vascular retinal growth after premature birth (Phase I). Phase II occurs as the hypoxia generated in Phase I activates stimuli that stimulate the growth of new blood vessels. The fetus retina has no blood vessels just before fourth month of gestation. The retinas of premature babies are therefore incompletely

vascularized, with a peripheral avascular zone, the area of which depends on their gestational age (Trese & Capone, 2006).

2.5.6 Risk factors of ROP

The main risk factors of ROP are gestational age (GA) at delivery, birth weight (BW), oxygen therapy duration and concentration, and prolonged mechanical ventilation (Kim et al., 2018). Additionally other risk factors including genetic factors, prenatal complications, multiple gestation, immature pulmonary function, intraventricular hemorrhage, patent ductus arteriosus, anemia, sepsis, growth factors, prostaglandin synthetize inhibitors, vitamin E deficiency, and lactic acidosis (Tah et al., 2014).

2.6 The Nurses' Role in Prevention and Treatment of ROP

Neonatal nurses are the essential caregivers in NICU and play a main role in preventing ROP. However, there are diverse other responsibilities of a neonatal nurse that form a part of the role of a nurses in NICU, including specialist knowledge, service management, clinical advocacy, mentorship, leadership, and counseling, support. It are the role of the neonatal nurses to develop specialist knowledge on the risk factors for ROP for preterm babies to promote best clinical skills to preventing for ROP. The role of the nurse is to clinical advocate for the best quality neonatal care and to protect preterm babies from visual impairment due to ROP and protecting preterm babies from unnecessary interventions, pain and contact to reduce the risk factors for ROP. Nurses are also responsible for mentorship and leadership for education and training on prevention of ROP including to that are mentoring junior staff education and training

programs on protecting eyes from ROP. Nurses are strong Service management for the prevention of ROP advocates and minimize risk factors like availability of safe oxygen delivery and monitoring equipment, management of staffing numbers and skill mix, timely eye screening and organization of follow up services. Finally, neonatal nurses should be provide support and counseling to parents and careers on ROP and the specific needs of preterm, including the on ROP screening and adherence to follow-up care after discharge from hospital. (Kalyan & Moxon, 2016).

2.7 Retinopathy of Prematurity: Nurses Prevention Practice

Neonatal intensive care nurses play main role in preventing ROP by providing best practices in high quality care, nurses in this ward have recurrent contact with preterm babies and their parents. Nurses can assist to prevent ROP through focusing on decreasing risk factors and through the daily care to preterm babies. The main points of care to decrease ROP include oxygen monitoring, good nutrition, infection control, supportive developmental care, and temperature control. Neonatal intensive care nurses in this ward are responsible for observing oxygen saturation by pulse oximeters must be kept of oxygen saturation from 89% to 94%. Recommended requires close monitor. Keeping oxygen saturation within the range required during care continuously and increase awareness about dangers oxygen saturation if too high or too low. Also essential items include oxygen, flow meters, compressed air, oxygen humidifiers, pulse oximeters, and monitors must be kept ready and monitored. Premature babies are more vulnerable than adults to the risk of infection, and are less able to overcome it.

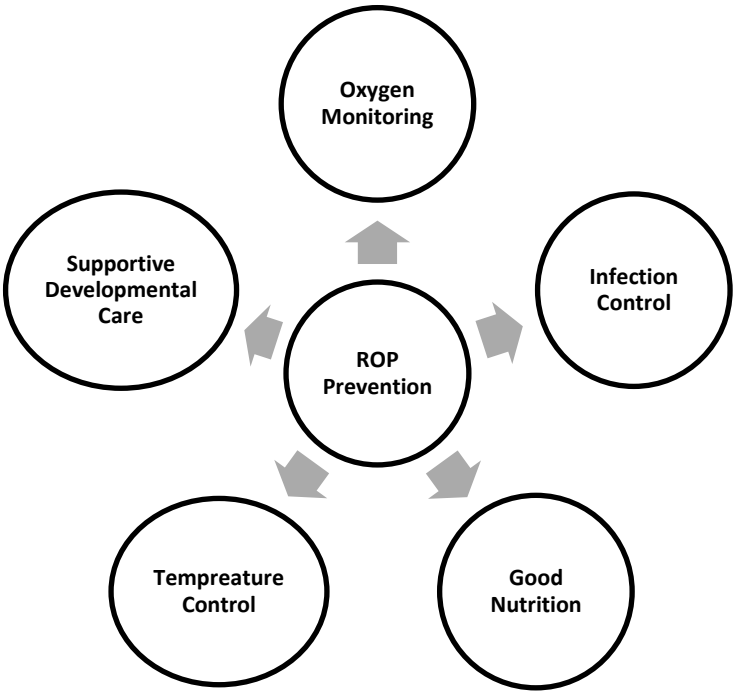

Figure 2: the points of nurses care to reduce ROP

Early onset infection is mostly developed during delivery (48 hours delivery time). Late-onset infection is more probable, and is established within the neonatal unit by cross-infection. Measures to prevent infection at a late onset include hand washing for every baby procedure and this relates to ophthalmologists and visitors also. Other actions to control infection involve careful skin preparation before withdraw blood, avoiding the use of broad-spectrum antibiotics, prevent sharing equipment, like stethoscopes, between preterm babies. Good nutrition in order to maintain normal growth and development of preterm babies and helps to minimize the risk of infection and ROP. Calories should be maintained from carbohydrates, fats, protein, vitamins, and minerals for preterm babies. The beneficial food for preterm babies is their mother's own breast milk.

Neonatal nurses can control to maintain preterm babies temperature within normal range to prevent shiver they lead to cold preterm babies. They accommodate by

consuming additional oxygen, which raises their demands for oxygen. As premature babies are stressed, their respiratory rate, heart rate, and blood pressure all rise; this may cause fluctuating oxygen saturations. During care, nurses can reduce discomfort by reducing noise and bright light, and keeping babies in position so that they are comfortable and maintain their limbs. Neonatal intensive care nurses can minimize baby contact by grouping together procedures and keeping babies for longer stretches of time is pain-free to alleviate stress. Also, nurses are accountable for the control and restricting blood withdrawal so that it is for serious tests just because is one a risk factor for ROP (Quirorga & Moxon, 2017).

2.8 Summary

In this chapter the literature review focused on aspects which have to be considered in a study which aims to assess "knowledge, attitude, and practice towards retinopathy of prematurity among neonatal intensive care nurses in Palestine". In next chapter methodology the research design and methodology will be discussed.

The findings from this review reveal a lack of extant literature on the ROP among nurses for this research. More researches are needed about prevention and awareness from ROP among nurses. It is clear that of previous studies on the awareness in ROP was confined only to pediatricians. The studies revealed the need to conduct the study on nurses in neonate wards to assess the "knowledge, attitude, and practice towards ROP among neonatal intensive care nurses in West bank hospitals".

Chapter Three

Methodology

3.1 Introduction

3.2 Study Design

3.3 Study Setting:

3.4 Study Population and Sample

3.5 Inclusion Criteria • Nurses who are working at the neonatal intensive care unit (NICUs). • Nurses who have experience six months and more in the neonatal intensive care unit (NICUs).

3.6 Exclusion Criteria:

3.7 Study Instrument

3.8 Validity of Questionnaire

3.9 Pilot Study

3.10 Reliability of Questionnaire

3.11 Data Collection

3.12 Ethical Consideration:

3.13 Data Analysis

3.14 Summary

3.1 Introduction

The current study methodology is described in the following sections: study design, setting, population and sample, study instruments, data collection methods, data analysis, and ethical considerations.

3.2 Study Design

This study is a cross-sectional, descriptive study to assess the "nurses' knowledge, attitude, and practice towards retinopathy of prematurity among neonatal intensive care nurses in the West Bank, Palestine".

3.3 Study Setting:

The study was performed at hospitals in West Bank, Palestine hospitals' neonatal intensive care unit (NICU) (Table 1). The study was conducted from September 2019 through July 2020. The study recruited nurses from 16 private hospitals and 8 governmental hospitals in West Bank and east Jerusalem, Palestine.

Table 1: Distribution of hospitals included in the study in West Bank, Palestine according to the provinces.

Provinces	Governmental	Private
Jerusalem	-	1
Ramallah	1	3
Jenin	1	2
Nablus	1	4
Tulkarem	1	1
Hebron	1	3
Qalqylia	1	-
Bethlehem	1	2
Tubas	1	-

3.4 Study Population and Sample

The sample was an accessible population in governmental and private hospitals who work in neonatal intensive care units in the West Bank, Palestine.

3.5 Inclusion Criteria

• Nurses who are working at the neonatal intensive care unit (NICUs).

• Nurses who have experience six months and more in the neonatal intensive care unit (NICUs).

3.6 Exclusion Criteria:

• Nurses who are working in other departments.

• Nurses who have experiences less than six months at the neonatal intensive care unit (NICUs).

• Nurses are not available at the neonatal intensive care unit (NICUs) during the period study.

3.7 Study Instrument

For the purpose of the study, after critical reviewing literature, a self-administered instrument was developed by the researcher and composed of four parts; socio-demographic characteristics; knowledge; attitude; and practice. (Appendix A)

Part one: Socio-demographic information and it composed of 8 items to assess gender, age, marital status, educational level, place of residence, kind of hospital, training regarding ROP, and number of years of experience in the neonatal intensive care unit.

Part two: Nurses' knowledge regarding the ROP questionnaire and it composed of 15 multiple-choice questions that had been developed and modified after critical reviewing of the literature (Kalyan & Moxon, 2016).

Participants were informed to choose the correct answer from the choices. Knowledge questions included characteristics of disease, time of screening, gestational age for screening, risk factors, complications, range of the SPO_2, stages of the disease, use safely oxygen, common presenting signs, symptoms, and treatment available. Score "2" was put for the correct answer and "1" for false answer. The total score 15 and it was then changed into a percentage. Nurses overall knowledge was categorized into three groups using the Bloom's cut-off point.

Level of Knowledge	Composite percent of scores
High level knowledge	80% - 100%
Moderate level knowledge	60% - 80%
Low level knowledge	<60%

Part three: Nurses' practice regarding ROP and composed of the 8 items. The participants were informed to rate the 5 level of practice varying from 1 to 5; where (1) strongly disagree; (2) disagree; (3) neutral; (4) agree; and (5) strongly agree. The level of practice was categorized using the Bloom's cut off point.

Level of practice	Composite percent of scores
Good level practice	80% -100%
Fair level practice	60% - 80%
Poor level practice	<60%

Part four: Nurses' attitude regarding ROP and it composed of 12 items. The participants were informed to rate the 5 level of attitude varying from 1 to 5; where (1) strongly

disagree; (2) disagree; (3) neutral; (4) agree; and (5) strongly agree. The level of practice was categorized using the Bloom's cut off point.

Level of attitude	Composite percent of scores
Positive attitude	80% - 100%
Neutral attitude	60% - 80%
Negative attitude	< 60%

3.8 Validity of Questionnaire

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

Content validity was done before data collection, by sent the questionnaire with covering letter concerning study and paper contain instruction about the study, main aim, objectives, the field of the study, and other relevant information to experts who are experienced and expert in the field, they were asked to estimate and revised the items in the questionnaire in terms of sufficiency the questionnaire in relation to study, accuracy, and its relevancy. Feedback was obtained from experts and modification accordingly was done by the researcher and supervisor; their opinion was taken into consideration. The questionnaire was translated to Arabic following the World Health Organization (WHO) translation procedure to overcome any language barriers and to maintain the content validity.

3.9 Pilot Study

Pilot study was conducted on 10% of the sample. Approximately 40 participants were included to get clear questions and to avoid lengthy & ambiguity of questions; they are all from different, age, gender, educational levels, and residency. All of them were provided with a clear explanation about the study and its objectives before applying, to ask them about the difficulties, the average time to fill out the questionnaire, and their opinion of the questionnaire. The participants consider it clear, without comments, and the time range between 10-20 minutes to complete the questionnaire. The participants were excluded from the actual study.

3.10 Reliability of Questionnaire

The reliability of the final copy obtained after the process of translation was further tested by alpha Cronbach through the pilot study on 40 participants. Cronbach's Alpha coefficient is the most commonly used measure of reliability (Polit and Beck, 2014). Cronbach's alpha coefficient of knowledge, practice and attitude questionnaire was yielded at 0.76, that's reliable, and the scale was accepted to be applied in the study.

3.11 Data Collection

After obtaining the permission to conduct the study from Arab American University, Ministry of health, and private hospitals administration, the researcher visited the hospitals and met the chiefs of nurses and head nurses of neonatal intensive care units. He explained to them the objectives of the study and asked them to prepare list names of nurses in the intensive care units and the schedule duty to meet the nurses.

The researcher explain the objectives of the study to the nurses. The nurse who agreed to participate assigned the informed consent and then complete the questionnaire.

3.12 Ethical Consideration:

Ethical approval was attained from the Arab American University Palestine, MoH, and private hospitals administration (Appendix B) before beginning data collection. Participation by the nurses was voluntary and their involvement will be confidential. All nurses who reported interest in participating in the research were given the consent form and the questionnaire. Consent presented information concerning study purpose, clarification that there are no risks or threats to participation, short explanation of what the nurse will be requesting to do, describing how the information to the participant should be held secret, and how much time they will spend participating in the study. In fact, nurses have been told they might exit the study at any time and there will be no consequence or loss of benefits if they choose to stop.

3.13 Data Analysis

Data were cleaned and analyzed with Statistical Package for Social Sciences (SPSS) program version 23. Descriptive analysis with percentage, frequency, mean, and standard deviation. For the testing hypothesis, an independent t-test and ANOVA test were used. Multiple linear regression test was used to identify the potential predictors for practice. An alpha level of 0.05 was used for all significance tests.

3.14 Summary

In this chapter explained how the study was conducted. It covered the study design, population, inclusion and exclusion criteria, sampling, study setting, study period, study tool, measures taken to ensure reliability and validity, data collection, data analysis, ethical considerations, and limitation of the study. The structure of the questionnaire and the technique of collecting data were also explained.

This descriptive cross-sectional study was centered on assessing the "nurses' Knowledge, attitude, and practice towards retinopathy of prematurity among neonatal intensive care nurses in West Bank, Palestine". In addition, the relationships among nurses' "knowledge, attitude, and practice" were examined. The participants involved in this study were all nurses who are working at twenty-four neonatal intensive care units (NICU). This study was conducted from December 2019 to July 2020.

Chapter Four
Results

4.1 Introduction

4.2 Response Rate:

4.3 Participants' Characteristics:

4.4 Cronbach's Alpha for Scale

4.5 "Nurses' Knowledge, Attitude, and Practice Towards Prevention Retinopathy of Prematurity"

4.6 Relationships Between Variables:

4.1 Introduction

This chapter presents the analysis of the data which was collected. Statistical procedure allowed the researcher to realize, summarize, interpret, organize, evaluate, and communicate the numeric information. Analysis is a technique of interpreting quantitative information intelligible and meaningful. The purpose of data analysis is to afford answers to the hypothesis or research questions. The plan for data analysis derives exactly from the question, the design, and the level of measurement of the data and the method of data collection. In this chapter the data collected were edited, tabulated, analyzed and interpreted. The purpose of this study was to "assess the knowledge, attitude, and practice towards ROP among neonatal intensive care nurses in the West Bank hospitals, Palestine".

4.2 Response Rate:

The study consisted of all nurses who are working in neonatal intensive care units at twenty four hospitals in West Bank/ Palestine. Two hundred and eighty nine out of 370 questionnaires (78.1%) were completed and returned by the nurses.

The response rate received for this study was very good from the organizational standpoint; as such the results should provide more representative information on the nursing population. Researchers should keep approximately 60% of response rates (Fincham, 2008).

4.3 Participants' Characteristics:

Table 2 shows the demographic characteristics of the nurses. The analysis revealed that the mean age of nurses was 30.1(SD = 7.3) years with a minimum 21 years and maximum 55 years. Most of nurses were below 30 years (57.1%).

. With regard to gender, the majority 203 (70.2%) were females and remaining 86 (29.8%) were males. Further, the findings indicated that around 183 (63.3%) were married, 99 (34.3%) were single, and 7 (2.4%) were divorced. More than half of the participants 160 (55.4%) were bachelor, 78 (27.0%) were diploma, 32 (11.1%) were high diploma, and 19 (6.6%) were master or above. While viewing the nurses' mean years of experience in the neonatal intensive care, more than half of them 160 (55.4%) were below 5 years' experience, 67 (23.2%) were between 6-10 years, 31 (10.7%) were between 11-15 years, 16 (5.5%) were between 16-20 years, and 15 (5.2%) were more than 20 years. These results indicated that the study participants were newer to the profession and that fewer of the study nurses had 16 or greater years of experience.

Table 2 showed these demographic variables of the nurses.

Variable		N (%)
Age	Age (years old) (M = 30.1, SD = 7.3, Min = 21, Max = 55)	
	below 30 years old	165(57.1)
	30-39 years old	93(32.2)
	40-49 years old	24(8.3)
	50 years old and above	7(2.4)
Gender	Male	86 (29.8)
	Female	203(70.2)
Marital status	Single	99 (34.3)
	Married	183 (63.3)
	Divorced	7 (2.4)
Educational level	Diploma	78 (27.0)
	Bachelor	160 (55.4)
	High diploma	32 (11.1)
	Master and above	19 (6.6)
Total experience in neonatal intensive care	6 month – 5 years	160 (55.4)
	6 – 10 years	67 (23.2)
	11 – 15 years	31(10.7)
	16 – 20 years	16(5.5)
	More than 20 years	15(5.2)

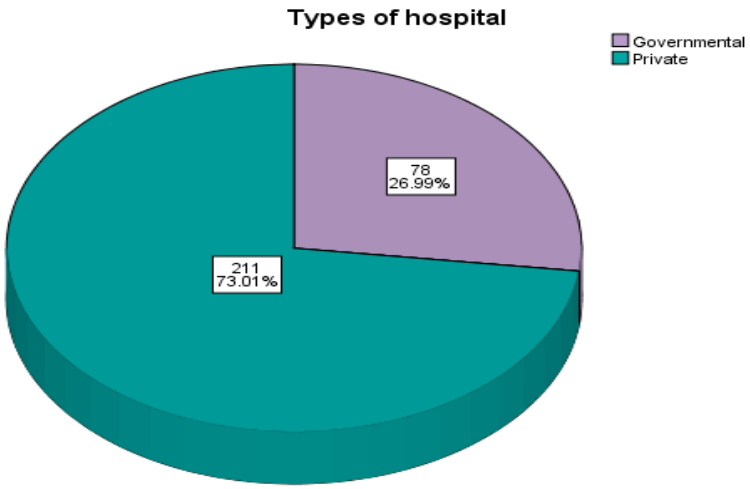

Figure 3: Distribution of the participants regarding to hospitals (N=289)

Figure 3 showed that the majority of the partcipants 211 (73.0%) were from private hospitals while 78 (27.0%) were from governmental hospitals, as shown in figure 3

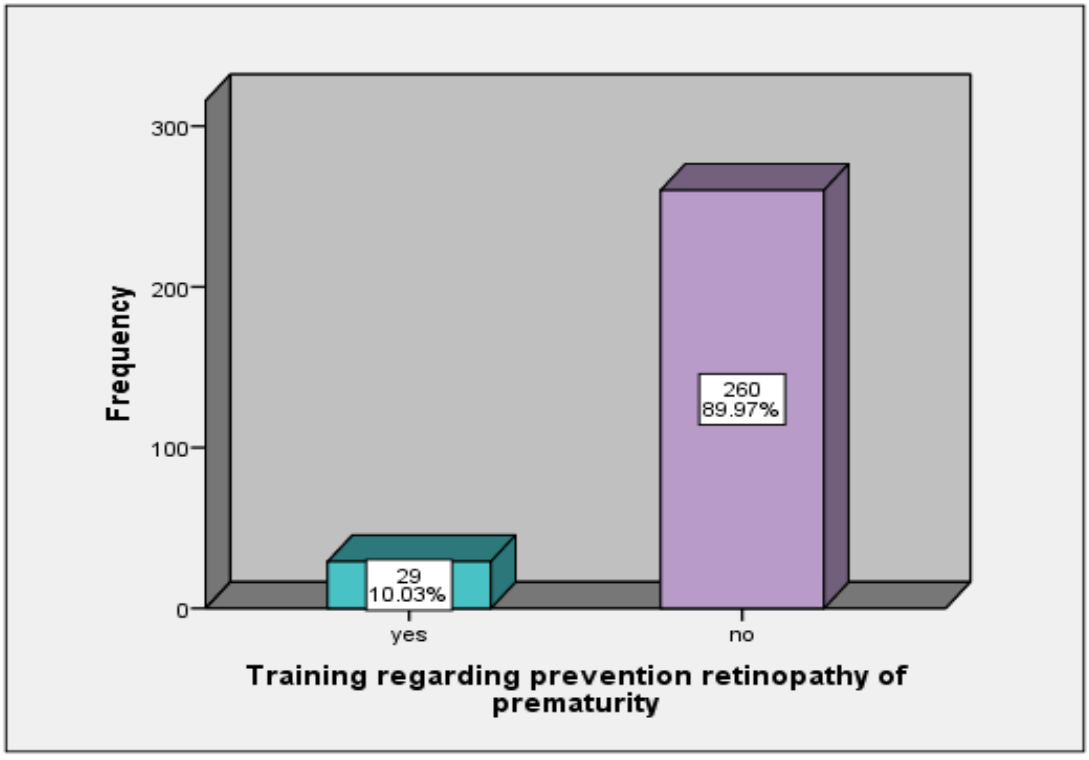

Figure 4: Distribution of the participants regarding to training on prevention retinopathy of prematurity (N=289)

Figure 4 showed that most of the participants 260 (90.0%) weren't have training course regarding prevention while 29 (10.0%) were have training.

4.4 Cronbach's Alpha for Scale

For each of the subscales, Cronbach's Alpha was calculated for knowledge, attitude, and practice towards ROP prevention. Table 3 shows there was an alpha above 0.60 in all ratings.

Table 3: "Cronbach's Alpha for knowledge, attitude, practice of ROP prevention Subscales"

Scale		**Cronbach's Alpha**	**Number of Items**
Total scale		0.81	35
	Knowledge	0.69	15
	Attitude	0.75	8
	Practice	0.69	12

4.5 "Nurses' Knowledge, Attitude, and Practice Towards Prevention Retinopathy of Prematurity"

First research question: What is the level of knowledge, attitude, and practice towards Retinopathy of Prematurity (ROP) among neonatal intensive care nurses in Palestine hospitals?

The analysis indicated that the nurses' knowledge regarding retinopathy of prematurity prevention was at a very low level 139 (48.1%). It was found that 132 (45.7%) of nurses possessed moderate level of knowledge. Very few nurses 18 (6.2%)

had a high level of knowledge. Also, the analysis showed that most of the nurses 208 (78%) achieved neutral attitude level towards retinopathy of prematurity prevention. Nearly one-fourth 76 (26.3%) of the nurses showed positive attitude and a few 5 (1.7%) of the nurses had an overall positive attitude regarding retinopathy of prematurity prevention. Moreover, overall nurses' practice regarding retinopathy of prematurity prevention were at the fair level 165 (57.1%). It was found that 117 (40.5%) of the nurses scored at the good levels and 7 (2.4%) of the nurses had poor levels of practice regarding retinopathy of prematurity prevention.

Table 4: Description of the participants' knowledge, attitude, and practice regarding prevention retinopathy of prematurity (N=289)

Variable		**N (%)**
Knowledge	"Low level knowledge"	139 (48.1
	"Moderate level knowledge"	132 (45.7
	"High level knowledge"	18 (6.2
Attitude	Negative attitude	5 (1.7
	Neutral attitude	208 (72.0
	Positive attitude	76 (26.3
Practice	Poor level	7 (2.4
	Fair level	165 (57.1
	Good level	117 (40.5

N= sample; %= percentage

The figure 5 revealed the Nurses' Knowledge, attitude, and practice level regarding prevention retinopathy of prematurity. In knowledge level, 6.2% of them had

high knowledge level, 1.7% had negative attitude level, and 2.4% had poor practice level.

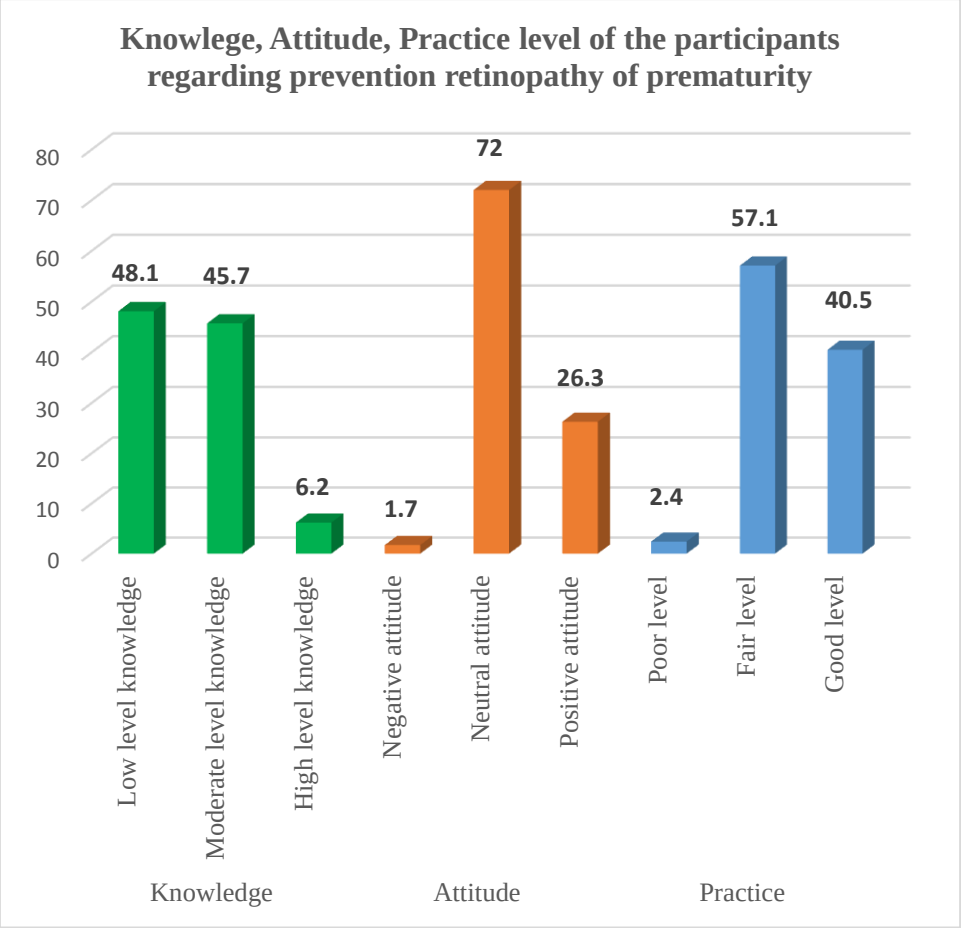

Figure 5: Nurses' Knowledge, attitude, and practice regarding prevention retinopathy of prematurity (N=289)

Second research question: Is there difference between knowledge scores of retinopathy of prematurity (ROP) and demographic characteristics among neonatal intensive care nurses in Palestine hospitals?

Third research question: Is there difference between attitude scores of retinopathy of prematurity (ROP) and demographic characteristics among neonatal intensive care nurses in Palestine hospitals?

Fourth research question: Is there difference between practice scores of retinopathy of prematurity (ROP) and demographic characteristics among neonatal intensive care nurses in Palestine hospitals?

The answers to the research questions were as shown here.

Results of t-test showed that there was no significant difference between nurses' gender and each of knowledge, attitude, and practice scores (p> 0.05, as shown in (Table- 5).

Table 5: Differences of mean between the gender and knowledge, attitude, and practice regarding prevention retinopathy of prematurity (N=289)

Variable	Male	Female	**Statistical test**	
	"M (SD)"	**"M (SD)"**	**t**	**P value**
Knowledge	52.6(20.7)	56.6(19.5)	-1.565	.119
Attitude	74.1(8.6)	75.8(8.6)	-1.553	.122
Practice	77.9(9.9)	80.1 (11.0)	-1.567	.104

M= Mean; SD= Standard deviation, t= student t test

Results of t-test showed that there was no significant difference between nurses' training and each of knowledge, attitude, and practice regarding retinopathy of prematurity prevention scores (p> 0.05), as shown in (Table- 6).

Table 6: Differences between nurses' training and knowledge, attitude, and practice regarding prevention retinopathy of prematurity (N=289)

Variable	Yes	No	**Statistical test**	
	"M (SD)"	**"M (SD)"**	**t**	**P value**
Knowledge	52.0 (18.0)	55.7(20.1)	-.974	.331
Attitude	74.7(8.5)	75.4(8.6)	-.386	.700
Practice	76.4 (11.2)	79.8(10.6)	-1.616	.107

M= Mean; SD= Standard deviation, t= student t test

Results of an independent t-test showed that there was no significant difference between hospital and each of knowledge and attitude regarding retinopathy of prematurity prevention scores (p> 0.05), while there was significant difference between hospital and practice regarding retinopathy of prematurity prevention scores (p< 0.05), as shown in (Table- 7).

Table 7: Differences of mean between the hospitals and knowledge, attitude, and practice regarding prevention retinopathy of prematurity (N=289)

Variable	Governmental	Private	**Statistical test**	
	M (SD)	**M (SD)**	**t**	**P value**
Knowledge	58.3 (19.1)	54.3 (20.1)	1.525	.128
Attitude	76.6(8 9.4)	74.8 (8.3)	1.515	.131
Practice	81.7(11.4)	78.6 (10.4)	2.212	.028

M= Mean; SD= Standard deviation, t=student t test

Results of One way ANOVA test showed that was significant difference between nurses experience and each knowledge and practice regarding retinopathy of prematurity prevention scores (p< 0.05), while there was no significant difference between nurses experience and attitude regarding retinopathy of prematurity prevention scores (p> 0.05), as shown in (Table- 8).

Table 8: Differences of mean between the participants' experience and knowledge, attitude, and practice regarding prevention retinopathy of prematurity (N=289)

Variable	**5 years and less**	**6-10 years**	**11-15 years**	**16-20 years**	**More than 20 years**	**Statistical test**	
	"M (SD)"	**"M (SD)"**	***"M (SD)"***	***"M (SD)"***	***"M (SD)"***	***F***	**P value**
Knowledge	20.1(1.6)	17.7(2.2)	18.0(3.2)	20.9(5.2)	19.2(4.9)	4.861	.001
Attitude	8.7(0.7)	9.0(1.1)	7.0(1.3)	8.6(2.1)	7.4(1.9)	2.206	.069
Practice	10.6(0.8)	11.2(1.4)	9.1(1.6)	9.4(2.4)	11.3(2.9)	2.931	.021

M= Mean; SD= Standard deviation, F=ANOVA

Results of One way ANOVA test showed that was significant difference between nurses education level and knowledge regarding retinopathy of prematurity prevention scores ($p< 0.05$), while there was no significant difference between nurses education level and each attitude and practice scores regarding retinopathy of prematurity prevention ($p> 0.05$), as shown in (Table- 9).

Table 9: Differences of mean between the participants' education level and knowledge, attitude, and practice regarding prevention retinopathy of prematurity (N=289)

Variable	Diploma	Bachelor	High diploma	Master and above	Statistical test	
	"M (SD)"	"M (SD)"	"M (SD)"	"M (SD)"	*F*	P value
Knowledge	19.0 (2.1)	19.7 (1.6)	20.7(3.7)	18.8 (4.3)	4.310	.005
Attitude	8.7(1.0)	8.9 (0.7)	7.8(1.4)	7.1(1.6)	1.399	.243
Practice	11.9(1.3)	10.4(0.8)	9.3(1.7)	9.3(2.1)	1.989	.116

M= Mean; SD= Standard deviation, F=ANOVA

4.6 Relationships Between Variables:

Examining the correlation of practice regarding prevention retinopathy of prematurity with other study variables, some of the demographic variables were correlated with practice regarding prevention retinopathy of prematurity. The Pearson correlation test was computed to determine the relationships between practice regarding prevention retinopathy of prematurity and other study variables of attitude, knowledge, and age, and analysis showed significant correlation between practice and the study variables. There was significant moderate correlation between practice and attitude ($r = 0.564$, $P < .01$).

Also, there was significant small correlation between practice and each knowledge and age (r = 0.277, P < .01) and (r = 0.503, P < .05), as shown in table 10.

Table 10: The Pearson Correlation Matrix of Key Study Variables (N=289)

	1	2	3	4
Practice	1			
Knowledge	.277**	1		
Attitude	.503**	.266**	1	
Age	.117*	.198**	.148*	1

*"*Correlation is significant at the .05 level (2-tailed). **Correlation is significant at the .01 level (2-tailed)".*

Factors Predicting Practices of prevention retinopathy of prematurity

Fifth research question: What is the predictors of neonatal intensive care nurses 'practice regarding retinopathy of prematurity (ROP) prevention?

Multiple linear regression analysis was applied to check the possibility predictors for practice of prevention retinopathy of prematurity among neonate intensive care nurses. To check which variables are the possibility predictors of practice, the ANOVA and t-test and were performed.

The age, experience, and type of hospital were realized to be correlated with practice that were included as a possibility predictors in multiple linear regressions. Regarding the chief study variables of knowledge and attitude were enrolled to the model.

The results showed a 3-predictor model that described 29.3% of the variance in practice among neonate intensive care nurses. The 3 variables, attitude, knowledge, and experience in neonate care were found to be the significant predictors for practice retinopathy of prematurity prevention (β = 0.572, 0.075, 1.86) respectively. Of these,

experience was the greatest predictor. However, many independent factors were found to be non-statistically significant predictors for practice in this study among nurses in neonate intensive care units (Table 11).

Table 11: Predictors for practice of prevention of retinopathy of prematurity (N=289)

Variable	**B**	**SE**	**β**	**t**	**Significance**
Attitude	.572	.065	.460	8.811	0.001
Knowledge	.075	.028	.140	2.654	0.008
Total experience in neonate intensive care	1.863	.855	.200	2.179	0.030
types of hospital	-1.939	1.230	-.080	-1.576	0.116
AGE	-.236	.136	-.161	-1.735	0.084

Note. $R^2 = .293$, *adjusted* $R^2 = .280$, *F-statistic = 23.402, df = 5.*

Chapter Five

Discussion, Recommendations, and Conclusion

Introduction

5.1 Limitation of the Study:

5.2 Discussion:

5.2.1 Knowledge:

5.2.2 Attitude

5.2.3 Practice:

5.2.4 The Predictors of Neonatal Intensive Care Nurses 'Practice Regarding Retinopathy of Prematurity (ROP) Prevention:

5.3 Recommendations of the Study

5.4 Implications of the Study:

5.6 Conclusion

Introduction

In this chapter, discussion, conclusions, and recommendations will be explained. The conclusion will be formulated according to the purpose of the study. The purpose of this study was to "assess the knowledge, attitude, and practice towards ROP among neonatal intensive care nurses in the West Bank hospitals, Palestine".

5.1 Limitation of the Study:

- Limited resources like, literature, books, and magazine.
- Limited information, insufficient and inappropriate data registry.
- Time limitations.
- The lack of funds spent on scientific research.
- Closures regarding COVID epidemic.

5.2 Discussion:

Nurse awareness has a significant role to play in patient care. Performance of critically-care trained nurses will be routinely assessed to ensure their performance is satisfactory. A holistic view is required for providing critical clinical care for preterm infants. Intensive care has reasonable and observable characteristics that can be monitored in nursing activities. In other terms, evaluating the quality of clinical care is a phase in coordinating nursing practices that will improve the performance of nurses in hospitals and other health-care facilities.

The major risk factors for premature babies developing premature retinopathy (ROP) are improperly administered supplemental oxygen, poor weight gain, transfusion of blood products, and infections. This means that ROP is sensitive to the quality of

neonatal inpatient care provided, particularly the nursing care. Neonatal nurses have recurrent contact with premature babies and their parents.

The current study discussed the role of the neonatal nurse in prevention of ROP based on a framework of three dimensions of care: knowledge, attitude, and practice. Prevention of ROP is part of holistic care of the premature newborn in intensive neonate care unit. By delivering high quality care, nurses play an important role in preventing ROP.

5.2.1 Knowledge:

Even though the variation in most of the variables was not statistically significant, knowledge was associated with demographic characteristics of the nurses. The longer the experience of the nurses in the nursing practice, the more they had good knowledge on ROP.

Overall about 48.1% of the nurses worked in neonate intensive care units had low level of knowledge regarding the prevention of ROP. These results supported by Deng et al. (2018) cross-sectional results indicated that neonatal “nurses' knowledge, attitude and practice levels” related to neonatal care were low. Also, Abd El Fattah et al. study (2009) in Egypt showed that nurses had poor knowledge on immediate care of the newborn. A similar trend could be seen in a research conducted in Ghana to assess the “knowledge, attitude and practice” of infant ocular health among midwives practicing in the various neonatal units within hospitals (Abdul-Sadik et al., 2018)

Otherwise, these results are lower than previous studies in India (40%) (Shinde, 2015) and in Pune city (72 %) (Devi et al., 2017). Additionally, a study in Sudan indicated that 83.5% of the nurses aware that oxygen has complications but the bulk didn't know the

nature of the complications and what triggers those (Omer et al., 2015). Moreover, study by Sankar & Pappa (2018) showed that 43% of nurses had good knowledge, 50% had average knowledge and 7% had poor knowledge regarding ROP. Also, a study was done by Raiturcar et al. (2019) on practicing pediatricians in Goa. The study results revealed that all participants were aware of ROP and aware to risk factors for it also. Approximately, 87.93% were alert of the scheduling of first screening of preterm infants for ROP; 84.48% were alert of recommendation to an ophthalmologist for screening and management of ROP. Approximately, 77.58% aware of treatment and 56.89% stated that they met obstacles to referral. Moreover, the results of study conducted by Metreş et al. (2019) indicated that the nurses provided the care based on their observations rather than evidence-based knowledge in the pain management in examination ROP. This could be related to difference in the instruments used and the kind of the study settings. This variation could also be clarified by the difference in the type of health professionals enrolled in the study and access to training.

5.2.2 Attitude

The variation between the attitudes was not statistically significant with the demographic characteristics of the nurses.

The results of the current study revealed that only 76 (26.23%) of the nurses had positive attitude regarding the screening and prevention of ROP. These results supported by Deng et al. (2018) survey that indicated neonatal nurses' attitude level related to neonatal care were relatively low. This poor attitude on prevention ROP may attributed due to lack of training.

However, the current study results was greatly lower than the study done by Lemma study which found that 53.3% and 60% respectively of the nurses had positive attitude. This might be due to majority of the respondents in this study were short experience. Moreover, Abdul-Sadik et al., (2018) found that attitudes of midwives towards infant ocular health were generally positive (89.8%).

Furthermore, a majority (86.6%) of health staff in Nigeria had high level of attitude in both of caring for sick neonates and incubators (Okoh & Onubogu, 2018). The Nigerian study was among nurses and doctors working in tertiary health services, different from the current study that involved nurses who work predominantly in hospitals where great neonatal care level is essential.

5.2.3 Practice:

Even though the variation in most of the variables was not statistically significant, only the practice was associated with demographic characteristics of the nurses. The longer the experience of the nurses in the nursing practice, the more they had good performance in ROP. The nurses' performance is expected to improve over time as they gain more and more experience.

Overall, only 40.5% of the nurses had good practice whereas the rest had fair or poor practice. This might be due to lack of training and guidelines and increased workload. In this regard, a study in Iran by Hemati, et al. (2016) evaluated nurses' performance during oxygen therapy for hospitalized infants at the neonatal intensive care unit indicated that 39.1% had favorable performance. Also, in the study of Solberg et al. (2011) showed a difference between professional measures of oxygen administration and the measures used to evaluate infants' needs. High percentage of nurses applied

oxygen saturation to assess the oxygen need, whereas only 17% of them used the oxygen-hemoglobin dissociation curve for needs assessment.

Because of the significance of this sector for newborns, further works are still requisite to reach a satisfactory nursing implementation in oxygen therapy (Kord et al., 2012). Poor nursing performance could develop from unsatisfactory nursing knowledge, no continuous monitoring by skillful professionals, inadequate staffing, deficient work motivation, and failure to join training courses or specialized courses of oxygen therapy of neonatal intensive care (Bizzarro et al., 2014). However it was inconsistent when compared with another study conducted by Hemati, et al. (2016) in Iran in which 74.5% of the nurses had good practice and 25.5% of them had poor practice. This might be due to that 11.1% of the nurses were high diploma in neonate holders and 55.4 of them were new experience. Also, this might be due to increased workload.

5.2.4 The Predictors of Neonatal Intensive Care Nurses 'Practice Regarding Retinopathy of Prematurity (ROP) Prevention:

Concerning the factors associated with ROP practice, knowledge, attitude, experience were found as predictors of practical performance. Nurses' performance is predictable to progress over time as they expansion more experience. A similar trend could be seen in a research conducted in Iraq to assess the Evaluate of nurse's knowledge in managing of preterm baby in neonatal care units (Issa et al., 2018).

Attitudes and knowledge towards prevention of ROP were both associated with Practices. This is consistent with the "knowledge, attitude, and practice (KAP) model" (Chien-Yun et al., 2011), which suggests that practices are influenced by knowledge and attitudes.

Additionally, this is same to the findings in Ethiopia which found a significant positive relationship between health personal awareness and their newborn care (Negussie et al, 2018). However, these results are inconsistent with findings of Tigray (2019) and Kim et al. (2013). This difference could be fitting to slight diversity in the study populations. The implications of the findings are clear that the focus needs to be on changing attitudes and improving knowledge in order to enhance prevention of ROP practices of nurses for neonates.

5.3 Recommendations of the Study

Keeping in view of the results of the current study, the researcher recommends the following recommendations:

Health Policy Makers

– Additional training and lectures for nurses should be given by government and private hospitals to increase nurse's knowledge about premature retinopathy prevention.

– Health policy makers should provide ROP prevention policies and protocols.

– The necessity of implement preventive health programs particularly among risky groups.

– Increase the number of qualified staff (especially nurses).

– Improving the infrastructure to add more costs to the neonatal intensive care unit departments.

Nurses' Education

– In order to reduce this phenomenon and find effective solutions to the problems, nurses ought to update their knowledge and skills through training courses and training programs for ROP babies to develop their practice and perform statistics by MOH about the number of premature births and ROP incidence and prevalence in the country.

Research

- Making a comprehensive database for each neonate within the NICU departments and record everything related to social and health characteristics to be a source for researchers to conduct other studies.
- The necessity of perform other ROP studies in neonates and its risk factors.
- A comparative study between nurses working in governmental hospitals and nurses working in private hospitals can be conducted.

5.4 Implications of the Study:

Because of the vision is a very significant direct and indirect determinant of health, and deteriorating or declining the vision could be a major contributory factor to poor health. This study aims to focuses and shed light on one among important health problems in each developed and developing countries, namely retinopathy of prematurity in neonates, and deal with the retinopathy of prematurity that is one among the foremost significant causes of global and local loss of vision. It additionally seeks to provide the responsible, hospitals, health staff, and any person who interested in the outcomes of the study to take advantage of it.

The implications for this study are going to be mentioned under 3 headings: nursing practice, nursing education, and nursing research.

These implications are:

- Early detection of retinopathy of prematurity and avoiding its incidence or its negative complications.
- The study findings can help to identify the preventable causes of retinopathy of prematurity and implement interventions that may lead to reduce the severity and incidence of retinopathy of prematurity.
- Enhance nurse's role in preventing retinopathy of prematurity and in the identification of at-risk neonates in the NICU for effective ROP screening.
- Educate and increase the knowledge of nurses and improve their capabilities about the mechanisms & how to deal with retinopathy of prematurity.
- Motivating nurses to provide neonates with the best and highest quality care, including protecting premature babies from visual loss due to retinopathy of prematurity, as well as protect them from needless treatments, and reducing the risk factors for retinopathy of prematurity.
- Contribute to raising awareness and knowledge among nurses about the necessary role they ought to play in preventing ROP, and improving their capacity to prevent and reduce the incidence of ROP.
- Increase the level of awareness and knowledge about neonate's blindness prevention by eye screening for ROP by identifying neonates eligible for screening on the basis of clinical Judgment and national criteria.
- It will be a useful and cost-effective means of identifying neonates who need care from an ophthalmologist.

- Promoting the most effective clinical skills to avoid ROP in preterm babies and reduce the number of blind children.
- Results add additional dimensions to conduct other ophthalmic researches for neonates.

5.6 Conclusion

The study confirmed that high percentage of neonatal intensive care units nurses had low knowledge level regarding ROP. Also, the study confirmed that one-fourth of the nurses showed a positive attitude regarding ROP. Fortunately, more than half of the participants have fair level practice toward ROP. Attitude, knowledge, and experience in neonate care were found to be the significant predictors for practice of ROP.

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Appendix A

ARAB AMERICAN UNIVERSITY

FACULTY OF GRDUATE STUDIES

HEALTH SCIENCES DEPARTEMENT

Master Program in Ophthalmic Nursing

My name is Ibrahim Abu Trabi. I am a postgraduate student at Arab American University - Ramallah.

I invite you to participate in this research study. The study is carried out as part of fulfilling the requirements for a master degree in Health Ophthalmic of Nursing.

This study aims to assess the level of knowledge, attitude, and practice among neonatal intensive care nurses towards the retinopathy of prematurity (ROP) in Palestine. Therefore, this is a semi self-administered questionnaire for nurses who are working in the neonatal intensive care unit to assess and evaluate their knowledge, attitude, and practice about retinopathy of prematurity (ROP).

Your effective participation has it is own importance for ROP. This research study may help in finding possible solutions and recommendations to increase the nurse's knowledge and skills.

This questionnaire needs less than 30 minutes. Names are not required. Your participation in this study is voluntary and you are free to withdraw your participation at any time. The information in this study will only be used for research purposes.

Participant privacy and confidentially will be completely protected, no identifiers or personal information will be collected or stored including participants name ID, and others, kindly append your signature below.

Declaration:

I accept that I have read and understood the above explanation and I am willing to participate in the study voluntarily.

Participant's signature_____

Thank you for your co-operation.

Knowledge, Attitude, and Practice Study towards Retinopathy of Prematurity among nurses in neonatal intensive care unit (NICU) in West Bank, Palestine.

Socio-demographic information:	
Gender:	☐ Male ☐ Female
Age:	_____
Marital Status:	☐ Single ☐ Married ☐ Divorced ☐ Widowed
Educational Level:	☐ Diploma degree. ☐ Bachelor degree. ☐ High diploma degree. ☐ Master degree. ☐ Doctoral degree.
Place of residence:	☐ City ☐ Village ☐ Camp
Work Status	
Total experience in neonatal intensive care unit:	☐ 6 month – 5 years ☐ 6 – 10 years ☐ 11 – 15 years ☐ 16 – 20 years ☐ More than 21 years
Kind of Hospital	☐ Governmental ☐ Private
Did you receive any training regarding how to prevent retinopathy of prematurity?	☐ Yes ☐ No

Part Two Nurses knowledge regarding retinopathy of prematurity (ROP):

Please choose the correct answer? (You can choose several options)

1- ROP is characterized by which of the following:

A- Arrest of normal retinal neuronal and vascular development.
B- Raised intraocular pressure leading to optic nerve damage.
C- Opacification of the crystalline lens.
D- Don't know.

2- At what age do you think the preterm babies should be screened for ROP?

A. 4-6 weeks after delivery.
B. 7-12 weeks after delivery.
C. Dependence on gestational age.
D. Other (specify) _____.
E. Don't know.

3- What are the symptoms of ROP? (You can choose several options)

A- White pupils.
B- Abnormal eye movements.
C- Crossed eyes.
D- Don't know.

4- Which gestational age do you think should be screening criteria for ROP screening indication in preterm babies in neonatal intensive care unit?

A- Less than 32 weeks from the beginning of the gestational age.
B- From 32 to 34 weeks from the beginning of the gestational age.
C- 35 weeks and more from the beginning of the gestational age.
D- Don't know.

5- Which birth weight do you think should be screening criteria for ROP screening indication in preterm babies in neonatal intensive care unit?

A- Less than 1500 gm at birth.
B- From 1500 – 1700 gm at birth.
C- From 1701 – 1900 gm at birth.
D- Don't know.

6- Who perform the eye examination?

A- Ophthalmology Specialist.
B- Pediatric Specialist.
C- Other (Specify) _____.
D- Don't know.

7- Is ROP preventable?

A- Yes.
B- No.
C- Don't know.

8- Is ROP treatable?

A- Yes.
B- No.
C- Don't know.

9- If yes, treated by

A- Avastin injection.
B- Laser.
C- Cryotherapy.
D- Don't know.
E- Other (Specify) _____.

10- What are the risk factors for ROP? (You can choose several options)

A. Improper administration supplemental oxygen.
B. Infection.
C. Poor weight gain.
D. Transfusion of blood products.
E. Don't know.

11- How is the disease identified?

A- By examining the eyelids.
B- Examining the retina.
C- Examining of the outer layers of the eye.
D- Don't know.
E- Other (specify) _____.

12- The stages of ROP are:

A- One stage.
B- Tow stage.
C- Three stage.
D- Four Stage.
E- Five stage.
F- Don't know.

13- Complications of retinopathy of prematurity can include: (You can choose several options)

A. Blindness.
B. Myopia.
C. Early development of cataracts.
D. Glaucoma.
E. Don't know.

14- To use oxygen safely and reduce the risk of ROP, safe oxygen therapy require:

A. Monitoring with pulse oximeter.
B. Use of oxygen blender and humidification.
C. Start with 21- 30 % fio2.
D. All of the above.
E. Don’t know.

15- Range of the spo2 for premature babies:

A. 95-100%.
B. 89-94 %.
C. 82- 88%.
D. Don’t know.

Part three Nurses practice regarding retinopathy of prematurity (ROP):

The following questions are about assessing your practice about ROP. Please put (X) on the option that matches your answer:

No	Statement	Strongly Agree	Agree	Neutral	disagree	Strongly disagree
16	Nurse acts to minimize the risk factors for ROP.					
17	Nurse assists in screening based on screening criteria.					
18	Nurse reminds physician to keep the examinations briefly in eye screening.					
19	Nurse cares for premature mentoring new staff on protecting eyes from ROP.					
20	Nurse ensures availability of safe oxygen delivery and monitoring oxygen saturation.					
21	Nurse calculates timing of first eye examination at birth based on gestational age.					
22	Nurse installs topical agent to dilate eyes 1 hour just before examination in eye screening ROP.					
23	Nurse keeps infant NPO one hour before the examination screening to prevent aspiration.					

Part four: Nurses attitude regarding retinopathy of prematurity:

The following questions are about assessing your attitude about ROP. Please put (X) on the option that matches your answer:

No	Statement	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
24	I think retinopathy of prematurity is a common problem in preterm babies.					
25	I think retinopathy of prematurity is not considered a serious problem.					
26	I think oxygen therapy is the main reason for retinopathy prematurity.					
27	I think infection increase the risk of retinopathy of prematurity.					
28	I think retinopathy of prematurity may cause blindness in children.					
29	I think eye exam in preterm should be done only when the pediatricians request.					
30	I think eye exams in preterm babies can only be done by an eye care worker.					
31	I think preterm babies with white pupil reflex should be reviewed by an eye ophthalmologist.					
32	I think retinopathy of prematurity is an important issue in your nurses' practice to prevent ROP.					
33	I think your knowledge and practice adequately equips you to deal with and prevent risk factor of retinopathy of prematurity.					
34	I think preterm with ROP requires a thorough systematic review by t the ophthalmologist.					
35	I think better nurses' intervention and immediate screening care can help reduce the burden of ROP.					

الجامعة العربية الأمريكية

كلية الدراسات العليا

دائرة العلوم الصحية

برنامج الماجستير في تمريض العيون

أنا إبراهيم أبو ترابي. طالب دراسات عليا في الجامعة العربية الأمريكية- رام الله.

أدعوكم للمشاركة في هذه الدراسة البحثية, التي تشكل استكمالاً لمتطلبات الحصول على درجة الماجستير في تخصص تمريض العيون.

وتهدف هذه الدراسة إلى تقييم مستوى المعرفة والمواقف والممارسات لدى ممرضي الرعاية المركزة لحديثي الولادة, تجاه اعتلال شبكية العين للخدج في فلسطين ("Retinopathy of Prematurity "ROP). ولذلك، فإن هذا الاستبيان هو استبيان شبه ذاتي موجه للممرضين الذين يعملون في وحدة العناية المركزة لحديثي الولادة لتقييم معرفتهم ومواقفهم وممارساتهم بشأن اعتلال شبكية العين للخدج.

إن مشاركتكم الفعالة لها أهميتها الخاصة إزاء اعتلال شبكية العين للخدج. وقد تسهم هذه الدراسة البحثية في إيجاد الحلول الممكنة والتوصيات لزيادة معرفة الممرضين ومهاراتهم.

يحتاج هذا الاستبيان لأقل من 30 دقيقة من وقتكم. علما بأنه لا حاجة لذكر الأسماء. وإن مشاركتكم في هذه الدراسة طوعية, ولكم الحرية في سحب مشاركتكم في أي وقت. ولن تستخدم المعلومات الواردة هنا في هذه الدراسة إلا لأغراض البحث.

وستكون خصوصية المشاركين وسريتهم محمية تماما، ولن يتم جمع أو تخزين أي محددات للهوية أو معلومات شخصية، بما في ذلك هوية المشاركين وغيرها، يرجى إرفاق توقيعك أدناه.

تصريح:

أنا أوافق أنني قرأت وفهمت التفسير المذكور أعلاه وأرغب في المشاركة في الدراسة طواعية.

توقيع المشارك_____

شكرا لتعاونك.

دراسة عن المعرفة و المواقف والممارسات اتجاه اعتلال شبكية العين للخدج لدى ممرضي وحدة العناية المركزة لحديثي الولادة في الضفة الغربية/ فلسطين.

المعلومات الاجتماعية-السكانية:	
الجنس:	ذكر ☐ أنثى ☐
العمر:	_____
الحالة الاجتماعية:	أعزب ☐ متزوج ☐ مطلق ☐ أرمل ☐
المستوى التعليمي:	شهادة الدبلوم. ☐ شهادة البكالوريوس. ☐ شهادة الدبلوم العالي. ☐ شهادة الماجستير. ☐ شهادة الدكتوراه. ☐
مكان الإقامة:	مدينة ☐ قرية ☐ مخيم ☐
وضع العمل (الوضع الوظيفي)	
مدة الخبرة في وحدة العناية المركزة لحديثي الولادة:	6 أشهر - 5 سنوات ☐ 10-6 سنوات ☐ 15-11 سنة ☐ 20-16 سنة ☐ أكثر من 21 سنة ☐
نوع المستشفيات:	الحكومي ☐ الخاص ☐
هل تلقيت أي تدريب حول كيفية منع اعتلال شبكية العين للخدج؟	نعم ☐ لا ☐

معرفة الممرضين بشأن اعتلال شبكية العين للخدج:

الرجاء اختيار الجواب الصحيح؟

1- تتميز اعتلال شبكية العين للخدج بأي مما يلي:

أ. توقف النمو الطبيعي للأعصاب والأوعية الدموية لشبكية العين.
ب. ارتفاع الضغط داخل العين مما يؤدي إلى ضرر في العصب البصري.
ج. تعتيم في العدسة البلورية.
د. لا أعرف.

2- في أي عمر بعد الولادة تعتقد أن ألأطفال الخدج يجب أن يتم فحصهم لاستثناء وجود اعتلال شبكية العين لديهم؟

أ. 4-6 أسابيع بعد الولادة.
ب. 7-12 أسابيع بعد الولادة.
ج. يعتمد على العمر ألحملي.
د. أخرى (حددها) _____.
ه. لا اعرف.

3- ما هي أعراض اعتلال شبكية العين للخدج؟ (يمكنك اختيار عدة خيارات)

أ. بؤبؤ أبيض اللون.
ب. حركات العين غير طبيعية.
ج. حول العينين.
د. لا أعرف.

4- أي سن حملي في رأيك ينبغي أن يكون معيار الفحص لكشف علامات اعتلال شبكية العين للخدج في وحدة المواليد الخدج؟

أ. أقل من 32 أسبوعا من بداية عمر الحمل.
ب. من 32 إلى 34 أسبوعا من بداية عمر الحمل.
ج. 35 أسبوعا وأكثر من بداية عمر الحمل.
د. لا أعرف.

5- أي وزن عند الولادة في رأيك ينبغي أن يكون معيار الفحص لكشف علامات اعتلال شبكية العين للخدج في وحدة المواليد الخدج؟

أ. أقل من 1500 غرام عند الولادة.
ب. من 1500 - 1700 غرام عند الولادة.
ج. من 1701 - 1900 غرام عند الولادة.
د. لا أعرف.

6 - من يقوم بفحص العين؟

أ. أخصائي طب العيون.
ب. أخصائي طب الأطفال.
ج. أخرى (حددها) _____.
د. لا اعرف.

7-هل يمكن الوقاية من اعتلال شبكية العين للخدج؟

أ. نعم.
ب. لا.
ج. لا أعرف.

8- هل اعتلال شبكية العين للخدج قابل للعلاج؟

أ. نعم.
ب. لا.
ج. لا أعرف.

9- إذا كان الجواب نعم، يعالج باستخدام:

أ. حقن الافاستين للسائل الزجاجي.
ب. الليزر.
ج. العلاج بالتبريد (Cryotherapy).
د. لا أعرف.
ه. أخرى (حددها) _____.

10- ما هي عوامل الخطر بالنسبة لاعتلال شبكية العين للخدج؟ (يمكنك اختيار عدة خيارات)

أ. إعطاء غير مناسب للأكسجين التكميلي.

ب. العدوى.

ج. اكتساب هزيل للوزن.

د. نقل مكونات الدم.

ه. لا أعرف.

11- كيف يتعرف على المرض؟

أ. عن طريق فحص الجفون.
ب. فحص شبكية العين.
ج. فحص الطبقات الخارجية للعين.
د. لا اعرف.
ه. أخرى (حددها) _____.

12- مراحل اعتلال شبكية العين للخدج هي:

أ. مرحلة واحدة.
ب. مرحلتان.
ج. ثلاث مراحل.
د. أربع مراحل.
ه. خمس مراحل.
و. لا أعرف.

13- مضاعفات اعتلال شبكية العين للخدج قد تتضمن: (يمكنك اختيار عدة خيارات)

أ. العمى.
ب. قصر النظر.
ج. التطور المبكر لإعتام عدسة العين.
د. ارتفاع ضغط العين.
ه. لا أعرف.

14- لاستخدام الأكسجين بأمان والتقليل من خطر اعتلال شبكية العين للخدج، يتطلب العلاج الآمن بالأكسجين:

أ. المراقبة بجهاز قياس الأكسجين في الدم.
ب. استخدام جهاز ترطيب الأكسجين.
ج. ابدأ مع 21-30% fio2.
د. كل ما سبق.
ه. لا أعرف.

15- مدى درجة إشباع الأكسجين spo2 للمواليد الخدج:

أ. 95-100%.
ب. 89-94 %.
ج. 82- 88%.
د. لا أعرف.

الجزء الثالث ممارسات الممرضين/الممرضات بخصوص اعتلال شبكية العين للخدج:

الأسئلة التالية هي حول تقييم ممارستك بخصوص اعتلال شبكية العين للخدج. الرجاء وضع (X) على الخيار الذي يطابق إجابتك:

الرقم.	بيان	أوافق بشدة	موافق	محايد	أخالفك الرأي	أخالفك الرأي بشدة
16	الممرض/الممرضة يعمل على تقليل عوامل الخطر لاعتلال شبكية العين للخدج.					
17	يساعد الممرض/الممرضة في الكشف عن المرض اعتمادا على معايير الفحص.					
18	الممرض/الممرضة يذكر الطبيب بإبقاء الفحوصات لفترة وجيزة في فحص العين.					
19	الممرض/الممرضة يهتم بتوجيه الموظفين الجدد حول الخدج وحماية عيونهم من اعتلال شبكية العين.					
20	يتأكد الممرض/الممرضة من توافر إعطاء الأكسجين بطريقة آمنة ويراقب تشبع الأكسجين.					
21	يحسب الممرض/الممرضة توقيت أول فحص للعين عند الولادة بناء على العمر الحملي.					
22	يقوم الممرض/الممرضة بوضع قطرة موضعية لتوسيع بؤبؤ العين قبل ساعة من الفحص للكشف عن اعتلال شبكية العين للخدج .					
23	يبقي الممرض/الممرضة الرضيع بدون تغذية عبر الفم(NPO) قبل ساعة من الفحص لمنع حدوث الرشف الارتجاعي.					

الجزء الرابع: موقف الممرضين/الممرضات بشأن اعتلال شبكية العين للخدج:

الأسئلة التالية هي حول تقييم موقفك بخصوص اعتلال شبكية العين للخدج. الرجاء وضع (X) على الخيار الذي يطابق إجابتك:

الرقم.	بيان	أوافق بشدة	موافق	محايد	أخالفك الرأي	أخالفك الرأي بشدة
24	أعتقد أن اعتلال شبكية العين للخدج هو مشكلة شائعة لدى المواليد الخدج.					
25	أعتقد أن اعتلال شبكية العين للخدج لا يعتبر مشكلة خطيرة.					
26	أعتقد أن العلاج بالأكسجين هو السبب الرئيس في إعتلال شبكية العين للخدج.					
27	أعتقد أن العدوى تزيد من خطر اعتلال شبكية العين للخدج.					
28	أعتقد أن اعتلال شبكية العين للخدج قد يسبب العمى لدى الأطفال.					
29	أعتقد أن فحوصات العين في الخدج يجب أن تتم فقط عندما يطلبها أطباء الأطفال.					
30	أعتقد أن فحص العين للمواليد الخدج يمكن أن يتم فقط من قبل طبيب العيون.					
31	أعتقد أن المواليد الخدج الذين يكون انعكاس بؤبؤ أعينهم أبيض اللون يجب أن يفحصهم طبيب عيون.					
32	أعتقد أن اعتلال شبكية العين للخدج هو قضية مهمة في ممارستك كممرض/ممرضة لمنع اعتلال شبكية العين للخدج.					
33	أعتقد أن معرفتك وممارستك المناسبة تؤهلك بشكل كافي للتعامل مع ومنع عوامل الخطر لاعتلال شبكية العين للخدج.					
34	أعتقد أن الخدج ذوي اعتلال شبكية العين للخدج يحتاجون لفحص منهجي متعمق من قبل طبيب العيون.					
35	اعتقد أن تدخلا أفضل من الممرض/الممرضة وفحصا فوريا بعناية يساعد في تقليل أضرار اعتلال شبكية العين للخدج.					

Appendix B

مستشفى جمعية المقاصد الخيرية الاسلامية – القدس
MAKASSED ISLAMIC CHARITABLE HOSPITAL - JERUSALEM

Ref. No.: 59/1/3 رقم الشارة:
Date: 2020 /2/25 التاريخ:

حضرة الدكتور عبد الرحمن أبو لبدة المحترم

عميد كلية الدراسات العليا

الجامعة العربية الأمريكية

تحية طيبة وبعد ،

الموضوع: تسهيل مهمة بحثية

بالإشارة إلى كتابكم رقم 2019/12/G.S/14 والذي تطلبون فيه تسهيل مهمة بحث بعنوان:

"Knowledge, Attitude, and Practice Study Towards Retinopathy of Prematurity Among Nurses in Neonatal Intensive Care Unit (NICU) in West Bank, Palestine" للطالب إبراهيم حسن أبو ترابي ، فإنه لا مانع لدينا من حيث تسهيل مهمتهم ، على أن يتم وتزويد مكتب الإدرة بنتائج البحث ، بالإضافة لعدم نشر البحث إلا بموافقة من إدارة المستشفى.

وتفضلوا بقبول فائق الإحترام،،،

الدكتور هيثم الحسن
المدير العام

Jerusalem: P.O. Box: 19481, Code 91190
Al-Tour/ Mount of Olives, Jerusalem: P.O. Box: 22110, Code 91220
Tel. 02-6270222
Fax: 02-6288392
www.almakassed.org
e-mail: info@almakassed.org
القدس: ص.ب. 19481، الرمز البريدي: 91190
الطور/ جبل الزيتون، القدس ص.ب. 22110 الرمز البريدي: 91220
تلفون: 02-6270222
فاكس: 02-6288392

Appendix C

State of Palestine
Ministry of Health - Nablus
General Directorate of Education in Health

دولة فلسطين
وزارة الصحة– نابلس
الإدارة العامة للتعليم الصحي

Ref.: .....
Date:.....

الرقم: ٢٠٢٠/٥٧/١٦٤
التاريخ: ٢٠٢٠/١٠/١٣

الأخ مدير عام الادارة العامة للمستشفيات المحترم،،،
الأخ مدير مجمع فلسطين الطبي المحترم،،،

تحية واحترام،،،

الموضوع: تسهيل مهمة

يرجى تسهيل مهمة الطالب: **ابراهيم حسن محمود ابو ترابي**– ماجستير تمريض عيون – الجامعة العربية الامريكية/ رام الله، تحت اشراف د. أحمد العايدي، في عمل بحث علمي بعنوان: "المعرفة والسلوك والممارسات لدى ممرضي الرعاية المركزة لحديثي الولادة تجاه اعتلال شبكية العين للخداج في فلسطين"، وذلك بالسماح له بتعبئة استبانة البحث من قبل الممرضين والممرضات (بعد اخذ موافقتهم) وذلك في:

- **مستشفى رفيديا – مستشفى عاليه – مستشفى جنين – مستشفى طوباس**
- **مستشفى قلقيلية – مستشفى بيت جالا – مستشفى طولكرم**
- **مجمع فلسطين الطبي**

في الفترة الزمنية ما بين (2020/1/15 – 2020/3/30)، علما بأنه سيتم الالتزام بمعايير البحث العلمي والحفاظ على سرية المعلومات.

مع الاحترام،،،

د. امل ابو عوض
مدير عام التعليم الصحي

دولة فلسطين وزارة الصحة
الادارة العامة للتعليم الصحي

نسخة: عميد كلية الدراسات العليا المحترم/ الجامعة العربية الأمريكية

P.O .Box: 14
TelFax: 09-2333901

ص.ب. 14
تلفاكس: 09-2333901

الملخص

الخلفية: الخداج هو الولادة المبكرة قبل 37 أسبوعًا من عمر الحمل. أما اعتلال الشبكية الخداجي (ROP) فهو توقف النمو الطبيعي للعين ونمو الأوعية غير الطبيعي الذي يحدث حصريًا عند الأطفال الخدج. ولذلك فانه يتوجب على الممرضين والممرضات أن يلعبوا دورًا مهمًا في منع اعتلال الشبكية الخداجي (ROP) من خلال زيادة وعيهم. هذا وان الدراسات السابقة كانت قد ركزت في المقام الأول على أطباء الأطفال, وهذه هي الدراسة الأولى التي تركز على الممرضين والممرضات.

الأهداف: لقد كان الهدف الرئيس لهذه الدراسة الحالية هو تقييم المعرفة والموقف والممارسة تجاه اعتلال الشبكية الخداجي بين ممرضي/ ممرضات العناية المركزة لحديثي الولادة في الضفة الغربية، فلسطين.

المناهج: لقد تم عمل دراسة وصفية مقطعية أجريت في الفترة ما بين شهري كانون الثاني (يناير) وآذار (مارس) 2020. وضمت الدراسة مائتين وتسعة وثمانين ممرضًا يعملون في وحدة العناية المركزة لحديثي الولادة (NICU) في القطاعين الحكومي والخاص في الضفة الغربية ، فلسطين. تم استخدام استبيان ذاتي الإدارة تم تطويره بواسطة الباحث يتعلق بمعرفة الممرضات وممارساتهم وموقفهم للوقاية من اعتلال الشبكية الخداجي وعلاجها.

النتائج: من بين 289 ممرضة حديثي الولادة ، كشفت نتائج الدراسة أن 48.1٪ من الممرضات لديهن مستوى منخفض للغاية من المعرفة. 78٪ من الممرضات لديهم مستوى محايد من المواقف. و 57.1٪ من الممرضات لديهم مستوى مقبول من الممارسة فيما يتعلق باعتلال الشبكية الخداجي. تم العثور على الموقف والمعرفة والخبرة في رعاية حديثي الولادة لتكون مؤشرات مهمة لممارسة اعتلال الشبكية للوقاية الخداج (0.572 = β و 0.075 و 1.86) على التوالي.

خاتمة:

أكدت الدراسة أن نسبة عالية من ممرضات وحدات العناية المركزة لحديثي الولادة لديهم مستوى معرفة منخفض للغاية ، ونسبة صغيرة لديهم موقف إيجابي ، ولكن النسبة العالية كانت لديهم مستوى مقبول من الممارسة تجاه اعتلال الشبكية الخداجي.

كلمات أساسية (مفاتيح): الوعي ، المعرفة ، الموقف ، الممارسة ، اعتلال الشبكية الخداجي