An-Najah National University

Faculty of Graduate Studies

KNOWLEDGE, ATTITUDE AND PRACTICE AMONG PHARMACISTS ABOUT BREASTFEEDING AND INFANT FORMULA USE IN QALQILYA DISTRICT/WEST BANK IN 2022

By

Rana Adnan Muhammad Nazzal

Supervisors

Dr. Nehal Nator

Dr. Maryam Al-Tell

This Thesis is Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Public Health, Faculty of Graduate Studies, An-Najah National University, Nablus - Palestine.

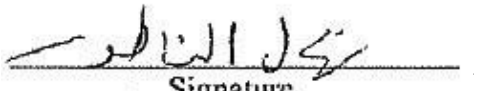
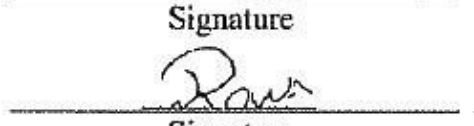
2024

KNOWLEDGE, ATTITUDE AND PRACTICE AMONG PHARMACISTS ABOUT BREASTFEEDING AND INFANT FORMULA USE IN QALQILYA DISTRICT/WEST BANK IN 2022

By

Rana Adnan Muhammad Nazzal

This Thesis was Defended Successfully on 16/03/2024 and approved by

Dr. Nihal Natour Supervisor	 Signature
Dr. Maryam Al-Tal Co-Supervisor	 Signature
Dr. Hazem Agha External Examiner	 Signature
Prof. Rawaa Al Ramahi Internal Examiner	 Signature

Dedication

“I dedicated this thesis to the sake of Allah, and my great teacher and messenger, Mohammed (May Allah bless and grant him), who taught us the purpose of life.

To my homeland Palestine, the intimate womb”

“My great parents, who have always loved me unconditionally and whose have taught me to work hard for the things that I aspire to achieve, to all my family, and my friends who encourage and support me, all the people in my life who touch my heart, I dedicate this research”.

Acknowledgements

“First, I give all the glory to God, the source of my strength, for granting me both the mental and physical endurance to complete this monumental task”.

“I would like to extend a very special thanks to my advisors Dr. Nehal Natour and Dr. Maryam Al-Tell for believing in me and for their diligent supervision, clear guidance, continued support and encouragement throughout this process”.

“My teachers, I extend special thanks and gratitude to you for your assistance, encouragement, and support”.

“Then, I would like to thank my entire family, especially my loving parents, for their love, understanding, and support“

“To everyone who gave me the moral support for the completion of this task, Thank you”.

Declaration

I, the undersigned, declare that I submitted the thesis entitled:

KNOWLEDGE, ATTITUDE AND PRACTICE AMONG PHARMACISTS ABOUT BREASTFEEDING AND INFANT FORMULA USE IN QALQILYA DISTRICT/WEST BANK IN 2022

I declare that the work provided in this thesis, unless otherwise referenced, is the researcher's own work, and has not been submitted elsewhere for any other degree or qualification.

Student's Name: رنا عدنان محمد نزال

Signature: رنا نزال

Date: 16/3/2024

List of Contents

List of Tables

List of Appendices

KNOWLEDGE, ATTITUDE AND PRACTICE AMONG PHARMACISTS ABOUT BREASTFEEDING AND INFANT FORMULA USE IN QALQILYA DISTRICT/WEST BANK IN 2022

By
Rana Adnan Muhammad Nazzal
Supervisors
Dr. Nehal Nator
Dr. Maryam Al-Tell

Abstract

Breastfeeding is universally recognized as the optimal method for meeting infants' nutritional needs, with significant implications for health, social, and economic outcomes. Inconsistent or unclear advice and support from healthcare professionals, including pharmacists, can act as barriers to breastfeeding. This research delves into the contribution of local pharmacies to health education on breastfeeding formulas in the Qalqilya area, using a quantitative, cross-sectional approach. The goal is to evaluate pharmacists' participation in promoting healthy infant feeding practices.

A survey, comprising both multiple-choice and open-ended questions, was administered to 160 pharmacists in Qalqilya. The questionnaire utilized a Likert scale to measure their attitudes, practices, and knowledge about breastfeeding and infant formula. The findings indicate that the participants' average age is under 30 years. They exhibited a moderate level of awareness (67%), low positive attitudes (34%), medium appropriate practices (61%), and limited knowledge regarding breastfeeding and infant formula use (40%).

The study highlights the crucial need to integrate breastfeeding education into the professional development of both local and national pharmacy associations. Pharmacists, particularly those in community settings, should address gaps in their knowledge to deliver accurate information to healthcare providers and better assist breastfeeding patients. The critical role of pharmacists in promoting and supporting breastfeeding requires them to be aware of their competencies and ethical duties in this area.

The results indicate the importance of understanding the existing relationships, power structures, and varying interests in community pharmacies. Additionally, appreciating the specialized knowledge within the pharmacy profession can help researchers design effective interventions that encourage pharmacists' active participation, providing valuable insights.

In conclusion, this study emphasizes the vital role of pharmacists in breastfeeding promotion and recommends incorporating breastfeeding education into professional development programs. Addressing knowledge gaps and ethical responsibilities will enhance pharmacists' ability to support breastfeeding patients effectively. Furthermore, understanding the dynamics within community pharmacies is essential for designing interventions that align with practitioners' needs and contribute to meaningful research embedded within practice.

Keywords: Community pharmacy; Experience-based knowledge; quality of health care; Breast feeding; attitudes.

Chapter One

Introduction

1.1 Introduction

Internationally, breast feeding is recognized a s the optimal method to meet infants' nutritional requirements. (1) , (2)

Globally, attempts to promote breastfeeding have frequently focused on programs in hospital environments. The aforementioned measures are designed to enhance the methods of providing services and tackle environmental elements that impact the practices of breastfeeding. The World Health Organization's Baby Friendly Hospital Organization is a shining example of this strategy.(3)

It is recommended by the World Health Organization (WHO) and the American Academy of Pediatrics that infants be fed only human milk for the first six months of their lives. Depending on the family's wishes, they also advise continuing nursing past the first or second year (4) .

There are numerous short- and long-term health benefits of breastfeeding for both the mother and the child. By protecting the infant from viral and chronic diseases, exclusive breastfeeding reduces the risk of infant mortality while promoting the development of the baby's senses and cognitive abilities. (5).

Although more than 80% of neonates are "ever breastfed" globally, only 50% initiate breastfeeding (baby put to the breast within an hour of birth). (6), (7) and only one-third of infants are exclusively breastfed for the first 6 months of their life (8), (9).

It is recommended that all maternity and infant care facilities worldwide adopt the "Ten Steps to Successful Breastfeeding" initiative by the World Health Organization (WHO) and the United Nations International Children's Emergency Fund (UNICEF). Through 10 essential phases, this program seeks to assist breastfeeding. One of those elements is making sure that healthcare providers have the information, abilities, and competence needed to support breastfeeding. It also entails educating moms about the possible drawbacks of using pacifiers and the risks involved in using bottles and teats for feeding (10).

They serve a dual purpose since they not only offer advice on how moms can meet their breastfeeding objectives, but they also have a large product line for nursing mothers. Furthermore, they frequently sell breast milk breast feeding-relating-relaxation of international codes of marketing of breast-milk substitutes as well as national legislation about the promotion of formula for infants 0 to 6 months of age. (11).

The Ten Steps to Successful Breastfeeding initiative aims to promote breastfeeding as a primary health option, providing practical guidance to help health institutions and motherhood and childhood facilities provide a supportive environment for breastfeeding mothers. The importance of these ten steps lies in the fact that they provide a practical framework to support mothers, starting from providing intensive and professional training for health workers to ensure that they have the necessary knowledge and skills to support breastfeeding, to providing advice and guidance on the potential risks of using bottles and pacifiers that may negatively affect the child’s desire to breastfeed (31).

The initiative plays a dual role, as it is not limited to providing information to mothers only, but also extends to providing products that support breastfeeding, such as breast milk pumps and nursing pillows. It is worth noting that these medical facilities also adhere to national and international laws that prohibit the marketing of breast milk substitutes to newborns up to six months of age, as they are keen to provide a healthy environment that respects breastfeeding controls and works to educate mothers about the great benefits of breastfeeding compared to formula milk (34). In this context, the need to educate mothers about the benefits of breastfeeding for the mother and child is emphasized, as it plays a major role in strengthening the child's immune system and enhancing the mother's health by reducing the risk of some chronic diseases (33). In addition, providing professional and emotional support to mothers by health care providers contributes to facilitating the decision to breastfeed and ensuring its continuation, which in turn reflects a sustainable benefit to the health of society as a whole (35).

Therefore, to comply with the International Code's provisions that apply to pharmacies, pharmacists must possess a complete comprehension of it. This includes banning the advertising of teats, bottles, and alternatives to breast milk through pharmacists' haveurces given to moms. As a major public health recommendation, exclusive

breastfeeding for the first six months of life applies to any product promoted as a breast milk substitute for newborns younger than six months old, according to the International Code. This also applies to "growing up" or "follow-up" formulae sold to kids as young as 36 months. (12).

A recent review examined community pharmacists' roles in nutrition and breastfeeding promotion as well as other aspects of health promotion. Nonetheless, there is a paucity of research on community pharmacies and their professional personnel in these settings, especially with relation to the promotion of breastfeeding and nutrition in general (13).

There are more and more opportunities for health promotion on important public health issues like optimal newborn feeding as community-based pharmacies and associated staff roles grow. Recent national breastfeeding policies recognize these qualities of community-based pharmacies as well as the opportunity they offer to assist and promote nursing (14).

Infant formula is a manufactured food intended and sold for feeding to babies and infants less than 12 months. It is typically made from powder (combined with water) or liquid (with or without extra water) and prepared for bottle-feeding or cup-feeding.

Infant formula is defined as "a food which purports to be or is represented for special dietary use solely as a food for infants because it simulates human milk or its suitability as a complete or partial substitute for human milk" under the Federal product, Drug, and Cosmetic Act (FFDCA) of the United States.

Infant formula manufacturers claim that their formula is made to substantially mimic the makeup of a human mother's milk between one and three months after giving birth, although there are notable variations in the amount of nutrients in these

Purified cow's milk whey and casein are often utilized as protein sources in infant formulae. Other ingredients that vary depending on the producer include a combination of vegetable oils for lipids, lactose for carbohydrates, and a mix of vitamins and minerals. There are many various formulas available; some utilize soybean instead of cow's milk for the protein, while others use protein that has been digested and separated into individual amino acids for babies who are allergic to other proteins .

A comeback of breastfeeding in many nations in recent years has delayed the introduction of supplemental baby meals, such as cow's milk. As a result, between the ages of three and five, there has been a rise in the usage of infant formula and nursing.

Role of pharmacies in health education In addition to addressing a variety of health-related issues like encouraging exercise and quitting smoking, pharmacists are essential in promoting the safe and efficient use of medications. Because of the social and health ramifications, infant formula and breastfeeding are particularly important topics that need the attention of the medical community. Because pharmacies are so common in Palestine's cities and villages, it is crucial that they play a part in educating the public about health issues.

Although breast milk contains unique and ideally balanced components for the infant, the formula may not include all the biological and psychological factors that the mother transmits to the child through breastfeeding. Breastfeeding provides antibodies and immune cells that boost the child's immune system and help protect the infant from infections and diseases, components that cannot be fully produced in formula milk. In addition, the way the infant interacts with his mother during breastfeeding is different, as breastfeeding plays a role in strengthening the emotional bond between the mother and the child, which positively reflects on the child's psychological and social development in the long term.

It is worth noting that the components of the formula are based on proteins taken from cow's milk, but they undergo purification and separation processes in order to reduce the possibility of allergies. However, there may still be some children who suffer from allergies to these components. This has prompted manufacturers to use specialized proteins that have been hydrolyzed into amino acids to suit children who are more susceptible to allergies. In addition, a wide range of vegetable oils are included to secure the child's needs for fats, which are essential for the development of brain cells and nerve tissue in the early stages of growth.

As for the role of pharmacies in health education, the role of pharmacists extends beyond dispensing medications, as they play a vital role in guiding people towards healthy choices and providing advice on a range of health issues. In Palestine, where pharmacies are spread throughout cities and villages, the pharmacist is an important

source of basic medical information that may sometimes not be available from other medical sources.

1.2 Significance of the study

This study focused on the Knowledge, attitudes and practices of local pharmacies in Qalqilya towards breastfeeding and infant formula use.

The findings of this study would provide valuable information about the role of pharmacist in encouraging breastfeeding and use of infant formula.

The findings of this study might be informative to clinicians, healthcare providers, and other decision makers who might need to develop or modify guidelines, improve outcomes.

Pharmacies differ from general medical practices in a few ways: they usually don't need a referral, people can get professional advice without an appointment, the advice is usually free of charge, and people have a lot of autonomy when dealing with pharmacists. Customers also believe that pharmacists have more free time than other primary healthcare providers like general practitioners, and they are less likely to avoid pharmacies for minor ailments. They also find the setting to be more welcoming and less frightening (15).

1.3 Problem Statement

Despite Nongovernmental health initiatives to spread awareness on breastfeeding among women expecting delivery, many gaps still present in this domain. As the Palestinian society is scattered across many geographical locations, private health care sector should have critical role in spreading health education. One of these sectors is local pharmacies which are present in most of Palestinian geographical societies. However, spreading education on issues like breastfeeding and related infant formula feeding is a new concept, despite the repeated statements made with the "World Health Organization and United Nations institutions" regarding this matter, this is still considered insufficient.

Global rates of exclusive breastfeeding for infants under six months remain low at 43%, despite the increased interest in breastfeeding that is bolstered by strong scientific evidence of its benefits. Many women voice their displeasure with the assistance they receive from healthcare professionals (HCPs), both inside and outside the hospital, after they leave the hospital. During this difficult stage of parenthood, they commonly feel abandoned and stop breastfeeding earlier than they had planned (16) .

1.4 Aim and Objectives

The general aim of this thesis was to measure attitudes and practices of local pharmacies in Qalqilya towards breastfeeding and infant formula use.

1.5 Objectives

1. To understand pharmacist role in encouraging breastfeeding and use of infant formula
2. To evaluate the pharmacist's knowledge in terms of breastfeeding and infant formula
3. To survey used infant formulas in Qalqilya as representation to Palestinian society
4. To study the practices and knowledge of pharmacist regarding medications prescribed during lactation.

1.6 Research questions

Q1: What are the attitudes of pharmacists in encouraging and supporting breastfeeding?

Q2: Is there a relationship between the gender of the pharmacist and his ability to help a breastfeeding woman, regardless of experience and training?

Q3: What role does pharmacist do on distributing infant formulas?

Q4: What are the practices of pharmacists with regards to breastfeeding?

Q5: Are pharmacists' struggling in dealing with breastfeeding mothers?

Q6: What is the pharmacists' opinion regarding a small area inside the pharmacy for nursing mothers, with the possibility of getting consoling on good practice and on childcare?

1.7 Research Hypothesis

Alternative hypothesis: there is a positive attitude of pharmacists towards encouraging and supporting breastfeeding.

Alternative hypothesis: there is a relationship between the gender of the pharmacist and the ability to help a breastfeeding woman, regardless of experience and training.

Null hypothesis:

Null hypothesis: there negative attitudes towards participation in supporting breastfeeding.

Null hypothesis: there is no relationship between the gender of the pharmacist and the ability to help a breastfeeding woman, regardless of experience and training.

1.8 Literature Review

The optimal diet for babies is generally agreed to be human breastfeeding, which is advised from birth until roughly six months of age. It offers vital nutrients, immunity-boosting properties, and defense against illness. Infants should be fed commercial infant formula that has been enriched with iron if human milk is not an option. Complementary foods and beverages are gradually offered alongside breastfeeding as infants grow tody. Meet the nutritional needs of newborns with these complementary foods, especially as they get closer to 6 months of age. The goal of complementary feeding is to create a healthy eating habit in toddlers as they start to experiment with a range of foods with diverse flavors and textures, and by the time they are two years old, to help them transition to a balanced family diet. Additional vitamin D and iron supplements may be necessary for breastfed newborns in order to guarantee proper nutrition. (17).

1.9 Factors that encourage women to breastfeed

The choice to breastfeed is acutely entrenched in a woman's autonomy and is determined by numerous cultural, social, and political element. While there are elements that may dampen breastfeeding, it is primarily tied to the role of motherhood and extends beyond mere nutrition (18). Culturally, breastfeeding can be seen as a imitation that strengthens the association between a mother and her baby, joining them

to their heritage and ancestral attitudes. Socially, it is frequently promotion as the best beginning for a newborn's health, promoting a feel of responsibility and care among moms. Politically, breastfeed is backed as a public health initiative, with approach and programs aimed at supporting and promoting its benefits to both moms and baby. These multifaceted elements were weaved to shape a woman's choice to breastfeed, creating it a holistic choice that goes behind the simple act of nourishing an infant.

The choice to breastfeed is multifaceted and determined by cultural, social, and political elements. It often remaining with the individual woman, only in specific limiting status. The decision to breastfeed is a complicated process formed by various aspects of a woman's life (19) . Cultural factors can be especially influential, as they inclue beliefs, traditions, and family expectations that may encourage or discourage breastfeeding. In some societies, breastfeeding is acutely ingrained in the cultural fabric, signifies maternal devotion and ancestral heritage. Socially, a mom's decision can be influenced by her peer group, healthcare providers, or workplace policies. A supportive social environment can ease breastfeeding, while a poverty of support can create challenges. Politically, government policies play an important role, with initiatives such as maternity leave and workplace accommodations affecting a mom's ability to breastfeed. , the decision to breastfeed is acutely personal one, reflecting the interaction of cultural, social, and political elements within an individual's life condition's.

1.10 Nutritional Components of Human Milk

Human milk, especially that from healthy women, has a perfect ratio of long-chain polyunsaturated fatty acids (PUFAs) (n-3 and n-6), which are important for brain development and metabolism but can change depending on the stage of breastfeeding. Lactose is its main source of carbohydrates, with approximately 130 distinct oligosaccharides and monosaccharides like glucose and galactose added for variation. These oligosaccharides are essential for influencing gut flora and supporting the growing immune system; they are mainly lacking in cow's milk. Numerous immune-related substances, including sIgA, leukocytes, lysozyme, lactoferrin, interferon-γ, nucleotides, cytokines, and others, are abundant in human milk. In the infant's upper respiratory tract and gastrointestinal system, these compounds offer passive protection that aids in preventing pathogen adhesion. In addition to these physiologically active compounds, human milk contains vital fatty acids, enzymes, hormones, growth factors,

polyamines, and other components that support both short- and long-term health and development (5).

In addition to its rich composition, breast milk has a dynamically changing composition during the different stages of lactation, meaning that the concentration of nutrients and immune components changes to suit the development of the child's needs over time. For example, the milk secreted during the first days after birth, known as "colostrum" or "gum", is known for its very high concentration of immune elements such as antibodies and antibacterial proteins, which provide the child with strong protection against infection at a stage when his immune system is not yet integrated.

Breast milk also provides important factors to enhance the child's neurological and cognitive development; research indicates that some proteins found in milk such as "alpha-lactalbumin" and "lactoferrin" may contribute to supporting brain development, by enhancing the production of neurons and protecting the brain from the harmful effects of environmental stress (36). In addition, milk contains components that help improve the child's sleep and psychological comfort, as it contains hormones that positively affect mood and promote a healthy sleep pattern.

On the other hand, breast milk not only provides nutrients but also serves as a vehicle for transferring beneficial microbial components to the baby, as these beneficial bacteria contribute to the formation of a healthy microbiome in the infant's intestine. This microbial diversity helps strengthen the intestinal barrier against harmful microbes and contributes to regulating the baby's metabolism effectively.

1.11 Maternal Obesity and Breastfeeding Behavior

Breastfeeding behavior is influenced by an extensive of socio-cultural and physiological factors. Maternal obesity has been correlated with low breastfeeding rates, raising public health concerns as obesity rates increase among women of reproductive age. Studies have found that obese women tend to plan for shorter breastfeeding durations and are less likely to initiate breastfeeding. Moreover, delayed lactogenesis has been linked to maternal obesity. Numerous investigations carried out in various nations have examined the relationship between mother obesity and the length of breastfeeding. Even after correcting for possible confounding variables, the majority of these studies show

that obese women often breastfeed for shorter periods than women of normal weight (2).

In addition to the physiological effects associated with obesity, there are some factors that can contribute to lower breastfeeding rates in overweight mothers. For example, obesity can lead to additional health problems such as diabetes or heart disease, which can increase the mother's physical and psychological fatigue and affect her ability to breastfeed consistently. This can lead to a lack of motivation and persistence in breastfeeding, especially in the first weeks, which are critical for the onset of successful breastfeeding. In addition, mothers who are obese may have difficulty receiving appropriate support from health care providers. They may feel embarrassed or reluctant to discuss their breastfeeding problems due to avoidance of topics related to obesity or social pressure. Sometimes, breastfeeding problems in obese mothers may not be given enough attention in health clinics, which hinders the provision of effective counseling and support.

1.12 Benefits of Breastfeeding

Breastfeeding offers numerous benefits for both mothers and their babies. Infants who are breastfed have a lower risk of developing various illnesses, including asthma, obesity, type 1 diabetes, ear infections, sudden infant death syndrome (SIDS), gastrointestinal infections like diarrhea and vomiting, and necrotizing enterocolitis (NEC) in premature babies. For mothers, breastfeeding can reduce the risk of health issues such as high blood pressure, type 2 diabetes, and ovarian and breast cancer (20).

In addition to the benefits mentioned above, breastfeeding plays a crucial role in promoting infant cognitive development. Research suggests that breastfed babies tend to score higher on intelligence tests than formula-fed babies, likely due to the presence of essential fatty acids such as docosahexaenoic acid and arachidonic acid in breast milk, which are essential for brain development during the first months of life (52). The nutrients in breast milk not only support physical growth, but also contribute to the development of neurological functions, such as memory and learning abilities. In addition to the cognitive benefits, breastfeeding also promotes emotional and psychological benefits for both the infant and mother. The close physical contact during breastfeeding enhances the bond between mother and child and provides the infant with

a sense of security and comfort. This interaction helps regulate the infant's stress levels and promotes emotional well-being. Furthermore, for mothers, breastfeeding has been linked to a lower risk of postpartum depression due to the release of oxytocin, a hormone that helps relieve stress and promote feelings of calm and bonding (53).

Breastfeeding also offers long-term health benefits, particularly in relation to immune function. Because breast milk contains antibodies that protect against infection, it significantly reduces an infant's susceptibility to illnesses such as respiratory infections and ear infections. These antibodies help establish an infant's immune system early in life, reducing the need for medical interventions and promoting overall health. Additionally, breastfeeding has been shown to improve digestive health by supporting the development of a healthy microbiome, which is essential for digestion and immune function (54).

1.13 Protection from Infection

Breastfeeding is an extraordinary process that goes beyond simply providing nutrition. It plays a crucial role in protecting newborns from infections, compensating for the initial weaknesses of their immune systems. Human milk is a complex fluid that not only provides essential nutrients but also contains a wide range of important proteins and bioactive compounds specifically designed for defense. Despite having lower protein content compared to cow's milk, human milk is rich in protective components. These include immunoglobulins, which fight infections and offer passive immunity to the baby, lysozymes that break down bacterial cell walls, and lactoferrin, which binds iron to deprive harmful pathogens of this necessary nutrient. This unique composition highlights the remarkable protective properties of human milk, making breastfeeding a crucial shield that strengthens infants against infections and helps them navigate the early stages of life with greater resilience. (21)

A key component of mature breast milk is SIgA antibodies, which are found at a concentration of about 1 gram per liter. These antibodies are produced through the enteromammary pathway, where lymphocytes from the mother's intestines migrate to the mammary glands. This process enables SIgA antibodies in the milk to specifically target and neutralize the mother's intestinal bacteria, even during infections. Their primary role is to bind to the surfaces of microorganisms on mucosal membranes,

preventing them from attaching to the mucosal epithelium and invading deeper tissues(16).

Lactoferrin, an essential component found in human milk, plays a crucial role in safeguarding infant health through its multifaceted properties. Beyond its function as a nutrient transporter, lactoferrin exhibits potent antimicrobial capabilities, effectively combating certain bacteria, viruses, and Candida, thereby creating an unfavorable environment for potential pathogens. Moreover, lactoferrin acts strategically in modulating the immune system by entering white blood cell nuclei, where it collaborates with the transcription factor NF-kB to regulate immune responses. This partnership helps to control the production of proinflammatory cytokines, ensuring a balanced immune defense without excessive inflammation.

In addition, α-Lactalbumin, another significant protein in human milk, has shown promise in fighting cancer due to its ability to target various types of human tumor cells, including those associated with skin papilloma. These diverse bioactive compounds in human milk not only provide essential nourishment but also actively protect and fortify infant health (22).

The role of breast milk in promoting infant health goes beyond the role of lactoferrin and α-lactalbumin. In addition to the biologically active compounds it contains, breast milk includes a group of hormones and enzymes that play a fundamental role in facilitating food digestion and improving the absorption of essential nutrients. For example, breast milk contains enzymes such as lactase, which helps the infant digest lactose more efficiently, which contributes to reducing the likelihood of digestive problems such as bloating or colic.

In addition, breast milk is a rich source of antioxidants, such as immunoglobulins, which play an important role in strengthening the immune system in infants. These compounds work to fight free radicals and reduce the negative effects of environmental pollutants, which contributes to protecting the infant from disease. In another context, the psychological benefits of breastfeeding are very important, as studies indicate that breastfed children enjoy stronger emotional bonds with their mothers, which enhances their emotional and social development in general.

Furthermore, breast milk can help improve the microbial balance in the gut, which is essential for a child's healthy development. Studies suggest that breastfeeding contributes to a healthy gut microbiome, which improves digestive function and reduces the risk of inflammatory bowel disease and gastrointestinal inflammation later in life (37).

1.14 Human Milk Oligosaccharides (HMO)

Human milk is an extraordinary nutritional resource for infants, featuring a complex array of bioactive compounds, with human milk oligosaccharides (HMOs) standing out. These unique substances underscore the intricate design of nature, serving as infants' main dietary source during their crucial initial months of life . HMOs are custom-made for human infants, perfectly tailored to meet their specific needs. These complex carbohydrates are present in human milk in significant quantities, providing essential benefits for the developing infant. Remarkably, while HMOs can be found in trace amounts in mature bovine milk, they are virtually absent from bovine milk-based infant formula, emphasizing the specialized nature of HMOs. This underscores the challenges in replicating the intricacies of human milk fully and highlights the irreplaceable value of breastfeeding, as it not only provides essential nutrition but also delivers a unique blend of bioactive compounds like HMOs that contribute to the optimal health and development of infants (3).

Human milk oligosaccharides, or HMOs, influence breastfed infants' health in a variety of ways, both locally and systemically. Stable isotopes, frontal-affinity chromatography, glycan microarrays, mass spectrometry (MS), and automated solid-phase carbohydrate synthesis are just a few of the methods that recent developments in glycobiology and nutrition have used to improve our knowledge of HMOs and possible health effects [8].

When it comes to unbound oligosaccharides, mature human milk has 5–10 grams per liter, which is more than lipids and about the same as proteins. Five monosaccharides make up these oligosaccharides: sialic acid (N-acetyl neuraminic acid in humans), L-glucose (Fuc), D-glucose (Glc), D-galactose (Gal), and N-acetylglucosamine (GlcNAc). Up to 15 N-acetyllactosamine repeat units can be added to lactose, which forms the reducing end. Moreover, lactose or the polylactosamine backbone may be fucosylated or sialylated in a variety of bonds. Human milk has been found to have over 130 distinct

HMOs, but infant formula only has trace levels of less complicated oligosaccharides (62).

1.15 Breastfeeding and Protection from Neurological Disease

Breastfeeding offers multiple health benefits, not only for infants but also for mothers. During pregnancy, especially in the third trimester, and in the first 3–6 months postpartum, there is a reduced likelihood of a woman experiencing a multiple sclerosis (MS) relapse. This phenomenon is observed across various species and is thought to be due to fundamental biological mechanisms rather than subjective or social effects of pregnancy on MS patients (11).

The maternal immune system undergoes natural immunomodulation during pregnancy, believed to protect the developing fetus. This immunomodulation can be attributed to various factors, including the gradual increase in hormones like estrogens (estradiol, estriol), and progesterone, with peak levels in the third trimester, coinciding with the highest disease protection period (23).

Although breastfeeding improves maternal health and reduces the risk of relapse in some autoimmune diseases such as multiple sclerosis, there is also evidence that the duration of breastfeeding may affect the body's response to medications and treatments that the mother may need in some cases. For example, it is thought that breastfeeding may affect the absorption or utilization of medications in the body, which requires careful assessment of the dosages of medications taken during this period (38).

Moreover, breastfeeding not only helps the body recover after childbirth, but it also plays an important role in regulating mothers' weight. Studies show that women who exclusively breastfeed their babies for six months or more are more likely to regain their normal weight after childbirth than mothers who do not breastfeed. This is due to the extra energy the body uses to produce milk, which helps burn more calories (39).

In addition, breastfeeding has been shown to reduce the risk of cardiovascular disease in the long term. The hormones released during breastfeeding can help regulate cholesterol levels and reduce blood pressure, which contributes to improved heart health. This is why many studies recommend that mothers breastfeed for as long as possible as part of their long-term overall health care (40). In addition to these physical benefits,

breastfeeding has also been shown to have positive psychological effects on the mother, as it helps strengthen the emotional bond with the child and enhances the mother's sense of psychological well-being. This psychological effect enhances the mother's ability to deal with the psychological stresses and pressures that she may face during the postpartum period, which helps promote her emotional and psychological balance.

The impact of nursing on relapses in multiple sclerosis (MS) following childbirth, however, has generated discussion. Although certain research suggest possible advantages, others have not yielded clear results. Despite the World Health Organization's advice that infants be breastfed exclusively for the first six months of life, this uncertainty has led many women to consider starting their disease-modifying medications (DMDs) again soon after giving birth in an attempt to reduce the chance of an MS relapse (24).

1.16 Breastfeeding as a Protective Factor for Infants

Breastfeeding stands as a cornerstone of infant health, encompassing a multifaceted protective role that extends far beyond its role as a source of nutrition. At the very outset, mothers provide their newborns with colostrum, a specialized form of milk produced in the initial days after birth. Colostrum is a nutritional powerhouse, packed with immunologically active molecules, essential nutrients, and vital vitamins, all finely tuned to kickstart an infant's growth and immune system. It's the first gift of health and resilience that a mother bestows upon her child (1) .

Moreover, breastfeeding continues to fortify an infant's health throughout their early life. The immunity boost provided by breast milk is invaluable, shielding infants from a multitude of diseases and infections. Breastfed infants are not only less likely to face malnutrition but also receive a perfectly balanced blend of nutrients tailored to their precise developmental needs. The importance of this natural nourishment cannot be overstated, as breastfeeding furnishes all the necessary elements for an infant's growth and development during their first year of life, with particular emphasis on the first six months. These crucial initial months lay the foundation for lifelong health, making breastfeeding an invaluable protective factor that contributes immeasurably to infant well-being (25).

In addition to the direct nutritional and immunological benefits provided by breast milk, breastfeeding is an important factor in promoting the child's psychological health. Through breastfeeding, the emotional relationship between mother and child is strengthened, as the moments spent in the mother's arms during breastfeeding contribute to building a close bond. This relationship is not only a source of emotional security, but also plays a major role in developing the child's ability to form healthy relationships in the future, which enhances his psychological and social stability (46).

Moreover, breast milk contains nutrients that play a fundamental role in improving the child's ability to learn and mentally grow. One of these components is fatty acids such as DHA (docosahexaenoic acid), which is very important for the development of the brain and nervous system. These fatty acids contribute to improving the ability to concentrate, memory, and the development of fine motor skills. This positively affects the child's cognitive development in the early stages of his life (47).

As for the mother, breastfeeding is not only beneficial for the child, but also contributes to the mother's long-term health. Studies show that women who breastfeed their babies have a lower risk of developing breast and ovarian cancers. In addition, breastfeeding helps mothers recover faster after giving birth, as it helps contract the uterus and reduce postpartum bleeding. Breastfeeding also contributes to improving the mother’s psychological health, as it helps reduce the risk of postpartum depression due to the release of the hormone oxytocin, which enhances feelings of well-being and attachment to the baby (48).

Ultimately, breastfeeding is one of the healthiest behaviors that has an impact on the health of mothers and children. Its benefits are not limited to physical health, but also extend to psychological and social effects, making supporting and encouraging breastfeeding crucial to ensuring the health and well-being of future generations.

1.17 Benefits of Breastfeeding for Lactating Mothers

Breastfeeding has several benefits for nursing moms and is essential for babies. Long-term nursing has been associated with protective effects against obesity following pregnancy, lowered chances of ovarian and breast malignancies, and a lower risk of osteoporosis (in moms who nurse for three to six months). Furthermore, mothers and

their breastfed children may have a decreased risk of immune system-mediated illnesses and disorders due to the presence of allergen-specific antibodies in breast milk (10).

In addition to the physical health benefits of breastfeeding, the practice has profound effects on the emotional and psychological health of both mothers and infants. For mothers, breastfeeding is associated with a lower risk of postpartum depression. The act of breastfeeding promotes the release of oxytocin, a hormone that not only helps with uterine contractions but also helps reduce stress and promote emotional bonding between mother and baby (49). This bonding is crucial in the first months of a baby's life, helping to build trust and emotional security, which are the foundation for future social and emotional development. From an infant's perspective, breastfeeding provides more than just nutrition. Studies have shown that breastfed babies have enhanced cognitive development compared to formula-fed babies. This is largely due to the presence of essential fatty acids such as docosahexaenoic acid (DHA) in breast milk, which plays a vital role in brain development (50). Research also suggests that these infants are better equipped to form secure bonds with their caregivers, as the act of breastfeeding encourages the development of a secure attachment style in infants.

Breastfeeding also offers long-term benefits by providing infants with antibodies needed to fight off infections and diseases. These antibodies help build a baby's immune system during the first few months, reducing the risk of respiratory infections, gastrointestinal problems, and ear infections. The immune benefits of breastfeeding continue into early childhood, contributing to a stronger immune system that can more effectively fight off common illnesses.

For mothers, breastfeeding can also play an important role in reducing the risk of chronic diseases later in life. Research has shown that women who breastfeed their babies have a lower risk of type 2 diabetes, high blood pressure, and cardiovascular disease. Breastfeeding helps the body restore hormonal balance after pregnancy, which may explain the lower incidence of these diseases among breastfeeding mothers (51).

1.18 Breastfeeding and Its Relationship with Allergy and Asthma

The intricate correlation between nursing and the onset of asthma in children is impacted by various factors, including the child's age and the allergies of its parents. These factors could be a factor in the varying conclusions observed in cross-sectional research on this subject (13).

Regardless of the mother's allergy status, the results of a study involving 3,115 Dutch children from the PIAMA (Prevention and Incidence of Asthma and Mite Allergy) birth cohort showed that breastfeeding for more than 16 weeks was significantly associated with a lower prevalence of asthma between the ages of 3 and 8 years. Of these children, 35% (n = 1081) were breastfed. Nevertheless, neither bronchial hyperresponsiveness nor sensitization to airborne allergens at age 8 were shown to be statistically significantly inversely correlated with breastfeeding. Regarding these correlations, no interactions were found between breastfeeding and gender, maternal allergy, or paternal allergy (14).

In result, breastfeeding is linked to a decreased risk of asthma in child up to 8 years of age, with no proof of attenuation, and behindhand of family history of allergy.

In addition to the direct links between breastfeeding and asthma prevention, there is growing recognition of the complex biological mechanisms that may explain these findings. For example, breast milk contains a variety of immune components that are essential for the development of a strong immune system in infants. These include cytokines, antibodies, and growth factors, which play important roles in shaping the infant’s immune system, potentially reducing the likelihood of developing allergic responses later in life (41).

Breastfeeding has also been shown to influence the infant’s gut microbiome, another critical factor in immune development. The infant’s gut microbiome is critical for training the immune system, and breastfeeding supports the establishment of healthy gut flora that can prevent the development of asthma and other allergic diseases. Studies suggest that breastfeeding helps maintain the balance of the gut microbiome by providing probiotics, which are essential for promoting beneficial bacteria. This in turn may reduce the risk of developing asthma as the child grows older (42).

Furthermore, while evidence from cross-sectional studies has been mixed, longitudinal research increasingly supports the idea that early exposure to breast milk may have long-term protective effects against the development of asthma. This protection may not be limited to the absence of allergens in breast milk, but may be related to the development of immune tolerance that breast milk promotes. As the immune system learns to distinguish between harmful and harmless substances, it may be less likely to respond to environmental allergens such as dust mites or pollen, thus reducing the risk of developing asthma later in life.

The relationship between breastfeeding and asthma is not limited to the duration of breastfeeding alone. The timing of introduction of other solid foods, maternal lifestyle factors, and the overall environment in which the child grows up interact with breastfeeding to influence the development of asthma. For example, early exposure to allergens and pollutants in the home environment may alter the protective benefits of breastfeeding, suggesting that the overall environment plays a role in asthma prevention.

1.19 Maternal fatness and Breastfeeding

Study has shown that maternal obesity can acutely affect moms' breastfeeding experiences. Obese mothers facing exclusive challenges in their breastfeeding trip, of their initial intentions to the period and intensity of breastfeeding. These challenges usually stem from the tow physiological and psychological factors. For example, obese moms may be fewer inclined to begin breastfeeding because concerns linked to their weight or misconceptions about breastfeeding. Physiological factors, like delayed lacto genesis and difficulties achieving a proper latch, can further hinder successful breastfeeding between obese moms. This problem may lead to shorter period of breastfeeding and lower breastfeeding intensity. However, it's essential to recognize that with appropriate support, education, and tailored interventions, obese moms can overcome these barriers and enjoy the endless benefits that breastfeeding offers for both them and their infants (26).

The results of these research show that, in comparison to women of normal body weight, obese women typically prepare for a shorter length of nursing. Furthermore, obese women are less likely to start nursing a child. Three of the research that looked

into when lactation starts found a strong correlation between obesity and delayed lactogenesis. In addition, fifteen research projects from the USA, Australia, Denmark, Kuwait, and Russia looked at the connection between the length of nursing and mother obesity. Even after correcting for potential confounding variables, the bulk of these larger studies continue to confirm the finding that obese women breastfeed for shorter periods of time than women with normal body weight (2).

1.20 Breastfeeding and Its Relationship with Allergic Diseases

Allergic diseases, containing asthma, allergic rhinitis, eczema, and food allergies, are common in childhood and can cause big morbidity. In late decades, there has been an increase in the prevalence of these conditions. This increase has been especially delayed for food allergies, becoming clearer in the last 10–15 years (4). The role of breastfeeding in reducing the risk of allergic diseases has been a subject of considerable research and debate. Human milk contains a complex array of bioactive components, including immunoglobulin's, cytokines, and breast milk oligosaccharides, which are believed to provide to the development of a healthy immune system in infants. Many studies have proposed that breastfeeding may give a protective effect against allergic diseases, especially all long the early years of life. However, the connection between breastfeeding and allergies is complex and not fully understood. Variables such as the duration of breastfeeding, the timing of introducing complementary foods, and genetic predispositions all influence this relationship. Therefore, while breastfeeding is beneficial for infant health overall, its exact role in preventing allergic diseases needs more research and clarification, especially given the increasing prevalence of these conditions in childhood.

1.21 The Development of the Immune System

The human neonate immune system is initially quite restricted but rapidly expands, especially as it meets the gut micro flora. Typically, newborns become settled with microbes from their mother's intestinal flora during and after birth. A key aspect of a mother's milk's defense mechanism is the presence of substantial amount of secretory IgA antibodies. These antibodies are created by lymphocytes that migrate from the mother's intestine to her mammary glands. Therefore, the mother's old and new gut microbiota are the main targets of these SIgA antibodies. This procedure stops bacteria from moving through the intestinal mucosa of the newborn and helps control when the

mucosa is first exposed to germs. Breastfeeding offers effective protection against infant septicemia and other diseases, in large part because of this. Breast milk has defensive systems that work to keep mucosal infections at bay. On the other hand, maternal IgG antibodies obtained through the placenta mostly offer protection in tissues, albeit this protection may also result in high energy consumption, tissue engagement, and clinical symptoms brought on by cytokines (27).

Immediately after birth, the infant's immune system begins to respond gradually to environmental factors, as the digestive tract is the first natural gateway through which it recognizes foreign microbes. In this context, SIgA antibodies play a fundamental role in enhancing immunity in the intestine and effectively prevent the transfer of harmful organisms to the intestinal wall, forming a barrier on the intestinal mucosal surface. This biological barrier not only limits the early exposure of the intestine to germs, but also regulates the infant's initial immune response so that it can better adapt to the new environment (43).

With continued breastfeeding, the infant benefits from a continuous strengthening of its immune system thanks to the vital components available in breast milk. Breast milk contains antimicrobial agents, such as lactoferrin and fatty acids with antibacterial and antiviral properties, which contribute to protecting the infant's respiratory and digestive systems from infections. In addition, the beneficial bacteria present in breast milk prepare the infant's digestive system and support it in building a healthy microbiome that contributes to the development of its immunity in the long term.

In addition to SIgA antibodies, IgG antibodies transferred from the mother across the placenta before birth enhance the infant’s systemic immunity. These antibodies differ from SIgA in that they focus on protecting internal tissues, such as organs and blood, from pathogens that may penetrate the gut barrier. Although they provide broad protection, their repeated activation can be more energy-intensive and lead to intense immune reactions including the release of cytokines that may sometimes contribute to inflammatory symptoms in the infant (44).

Activating the immune system through breastfeeding also enhances the infant’s ability to recognize different types of germs and strengthens the infant’s ability to mount balanced immune responses. For example, friendly bacteria transferred from mother to

infant help modulate the immune response so that allergies or autoimmune diseases are less likely to develop later in life.

1.22 Duration of Breastfeeding

A study examining the variables affecting the length of breastfeeding produced a number of noteworthy conclusions. At the time of hospital release, it was initially observed that around four out of every five children were breastfed. Preterm infants, neonates weighing less than 2500 grams, and infants whose moms smoked had a noticeable decrease in this percentage. (12).

The study's additional research identified a number of important variables affecting how long a woman breastfeeds. A 2% increase in the length of breastfeeding was linked to every year that a mother aged (adjusted hazard ratio 1.02; 95% confidence interval 1.00, 1.04). Furthermore, compared to children born to moms with only an elementary education, women with a university education nursed their babies for 53% longer (adjusted hazard ratio 1.53; 95% confidence range 1.21, 1.95). Conversely, it was discovered that a mother's usage of tobacco during her pregnancy reduced the length of time she breastfed by 41% (adjusted hazard ratio 0.59; 95% confidence interval 0.46, 0.76).(28).

Having a single pregnancy and having babies weighing more than 2500 grams at delivery were other characteristics linked to prolonged breastfeeding. A quantified assessment of these elements' influence on breastfeeding length can be obtained by analyzing them in terms of time parameters. This method could be useful for evaluating the success of initiatives aimed at supporting and promoting breastfeeding (12).

In addition to individual factors that influence the duration of breastfeeding, there are social and cultural aspects that play a pivotal role in whether a mother continues to breastfeed for longer periods. Community encouragement and appreciation of breastfeeding in the community are influential factors that increase a mother’s desire to adhere to breastfeeding. In some communities, breastfeeding is considered an essential part of maternal identity, which enhances family and community support for the mother in her breastfeeding journey (45).

Government policies and public health programs also contribute to shaping the duration of breastfeeding. The provision of paid maternity leave and a breastfeeding-friendly environment in the workplace allow mothers to continue breastfeeding for longer periods, which enhances the health benefits for both mother and child. These policies not only contribute to the personal desires of mothers to breastfeed but also contribute to the overall health of the community.

In addition, the economic status of the mother is an influential factor, as mothers in low-income families may find it more challenging to access resources to support breastfeeding, such as products to help store milk or specialized lactation counseling. In these cases, financial support interventions or the provision of free services by local health authorities may be vital to ensure that all mothers receive adequate support regardless of their economic status.

Finally, studying the duration of breastfeeding requires not only focusing on personal factors but also integrating societal, political and economic dimensions, providing a more comprehensive view of supporting and motivating breastfeeding as part of sustainable health strategies.

1.23 Breastfeeding Knowledge and Attitudes Guidance

Breastfeeding extends beyond simply feeding infants; it involves a complex interaction of understanding, attitudes, and support from various stakeholders, including expectant parents. A recent cross-sectional study in Mekelle, Ethiopia, examined the intricate dynamics of breastfeeding knowledge and attitudes among expectant couples, highlighting crucial aspects of breastfeeding support (6).

Breastfeeding is more than a health practice; it's deeply intertwined with cultural norms and family dynamics in societies like Ethiopia. The decision to breastfeed and the level of support a mother receives can significantly impact her breastfeeding experience and, consequently, her baby's health and well-being. Therefore, understanding the knowledge and attitudes of both expectant mothers and fathers regarding breastfeeding is crucial.

The study offers insightful perspectives, highlighting interesting differences between expectant mothers and fathers in their attitudes toward supporting breastfeeding. Particularly noteworthy is the strong intention of male partners to provide various forms of breastfeeding support, including appreciation, continuous presence during breastfeeding, and responsiveness to breastfeeding needs, compared to the perspectives of mothers themselves. This surprising discovery challenges conventional gender roles and underscores the potential role of fathers as active participants in the breastfeeding journey (29).

These gender-specific variations in attitudes towards breastfeeding support highlight the complexity of the issue. They also emphasize the importance of addressing not only mothers but also fathers in breastfeeding education and promotion efforts. By fostering open and inclusive discussions about breastfeeding within expectant couples and encouraging fathers to take an active role in supporting breastfeeding, we can potentially create a more nurturing and supportive environment for mothers and infants, thereby positively influencing breastfeeding practices and, subsequently, maternal and child health (6).

1.24 Role of Pharmacists in Breastfeeding guidance

(30) A study evaluated the standard of breastfeeding advice provided by neighborhood pharmacies. 18 pharmacists and 48 pharmacy assistants were consulted by mystery shoppers during the researchers' visits to 66 pharmacies. The average duration of these contacts was 2.3 minutes, and only 9 out of 66 meetings resulted in the provision of printed product or educational materials in addition to verbal assistance. It's interesting to see that the majority of the papers were product information for infant formula. Only 4 out of 66 conversations contained advise on continuing to breastfeed in the face of difficulties, according to content analysis. Most of the conversations focused on recommending certain brands of baby formula.

(58) explored the role of pharmacists in breastfeeding support within the local Health Authority in Rome. They discovered that pharmacies could serve as places for breastfeeding support, given their 24-hour accessibility and convenience. Mothers often seek advice on various health issues at pharmacies. While pharmacists had restricted knowledge about breastfeeding, they expressed interest in play apart in training courses.

An impressive 90% of them announced their willingness to collaborate with local breastfeeding collaborator. The study highlights the increasing importance of pharmacists in protecting, promoting, and supporting breastfeeding, provided they are competent and ethical regarding breastfeeding matters (57).

(30) aimed to understand the potential of community pharmacies in health promotion, including strategies with a focus on nutrition promotion. The study identified five key lessons: The intricate practice environment at community pharmacy makes embedded research challenging. Crucial factors include utilizing the available capacity, negotiating social power relations and interests, personalizing engagement and detection tactics, taking logistical considerations into account, and choosing the right form of intervention. In intervention research, the social environment comes out as crucial, emphasizing the need for a sophisticated comprehension of the social context to guarantee successful implementation. Designing and carrying out complex intervention research in community pharmacy settings requires utilizing staff expertise and experience.

(59) The review looked at the ways that pharmacists assist with nursing. It was discovered that although most pharmacists are ignorant about nursing, they generally have a good outlook on it. Pharmacies have a wide range of breastfeeding support practices that are frequently based on individual experiences. Interestingly, no US pharmacist group took a clear stand on the topic of infant nutrition and nursing among the 58 health professional organizations that published policy statements on the subject in English. In contrast, organizations in Canada and Australia did. According to the study, contact between mothers and pharmacists both before and after childbirth may enable them to play a bigger part in encouraging and facilitating breastfeeding.

These studies collectively shed light on the evolving role of pharmacists in breastfeeding support, emphasizing the need for training, awareness, and integration of breastfeeding promotion into pharmacy practices.

Chapter Two

Methodology

2.1 Introduction

This chapter describes the research methods employed in the study, including the research design, population for the pilot study, sampling frame, instrument, data collection, and data analysis. Research methods must address the research questions and subsequently lead to the achievement of the research objectives.

2.2 Study design

The study design was a quantitative, cross-sectional study. Data was collected by utilizing a self-administered questionnaire distributed to the target population. Using this design to achieve the purpose of the study, the study conducted between (June/2022-April/2023).

2.3 Setting

The population were pharmacists working in local pharmacies in Qalqilya.

2.4 Study population and sample

The study population was all pharmacist in Qalqilya district. The number of pharmacists was 160 in Qalqilya district according to Palestinian Pharmacist Syndicate. Participants were selected as convenient sample. The study population was 208 pharmacists distributed in Qalqilya district. They were the same sample size but 48 of them could not be reached or complete the questionnaire, for various reasons (15 participants did not complete the questionnaire or apologized for completing it due to lack of time, 23 were not present at their workplace at the time of my visit, It was not possible to reach 10 of them due to poor or unavailability of roads and transportation in their areas), 160 participants completed the questionnaire.

2.4.1 Inclusion Criteria

All pharmacies consent to participate were surveyed.

2.4.2 Exclusion Criteria

Pharmacies who don’t sign the consent form.

2.5 Variable

2.5.1 Dependent variable

Pharmacist knowledge, Attitude, practice

Patterns of infant formula use, Breast feeding

2.5.2 Independent variable

Age, Sex, Income, Geographical Location of the pharmacy, Education level, Specialization, Ownership, Social status.

2.6 Study instrument

Data collection was conducted in one point of time for every participant that agrees to enter the study, by a structured questionnaire that was developed by the researcher based on previously studies to cover all the aspects regarding this topic.

A pre-tested self-administered questionnaire included both closed and open-ended questions relating to attitudes and practices of local pharmacies in Qalqilya towards breastfeeding and infant formula use.

The questionnaire composed of two parts, the first part: Sociodemographic information included participants' age, annual household income, and education level.

The second part was Likert scale measure of attitudes, practices, and knowledge regarding breastfeeding, which was designed and developed by the researcher.

The data collection tool composed of five parts the first part is demographic data about participants and it is reflected by questions 1-26, second part is scale of awareness and it is reflected by questions 27-34, third part is scale of attitudes and it is reflected by questions 35-39, fourth part is scale of practices and it is reflected by questions 40-49 , fifth part is scale of knowledge and it is reflected by questions 58-67 \ 68-86 (Appendix A).

2.7 Validity and reliability

The content validity of the questionnaire was evaluated by experts.

Prior to the study, for the assessment of the reliability of the questionnaire, a quantitative study was undertaken to evaluate the study tools' clarity and usefulness, as well as to estimate the time required for each tool. It was carried out on a sample of 15 pharmacists working in Qalqilya they were excluded from final analysis, the questionnaire took between 10 and 20 minutes to complete. Cronbach's alpha value was 0.90, and this percentage assured the possibility of using the instrument.

2.8 The scoring system

We have two scales: the statement for the five Likert choices and the statement for the three choices. The scores for the two scales are as follows: the five scale is dependent on the interval length, which is equal to the range/number of intervals and (5-1)/5=0.80. The outcome is shown on the scale below: 1.80 is the completely low level; 2.60 is the middle level; 3.40 is the low level; 4.20 is the high level; and 5 is the entirely high level. The three levels depend on the interval length, which is equal to (3-1)/3=0.67. The outcome is shown on the scale below: 1.67 is a low level; 2.34 is a medium level; and 3.34 is a high level (Likert, 1932).

Likert, Rensis (1932). "A Technique for the Measurement of Attitudes". Arecord of Psy chology 140: 1–55

Very low level	$1.0 \geq 1.8$
Low level	$1.8 \geq 2.6$
Medium level	$2.6 \geq 3.4$
High level	$3.4 \geq 4.2$
Very high level	$4.2 \geq 5.0$

2.9 Ethical considerations

The study was conducted after institutional review board (IRB) approval obtained from An-Najah University (Appendix B). Before the trial began, each participant received a consent form. Pharmacists were given an explanation of voluntary involvement. There was no mention of participant names or private details. Every piece of information was kept private and used exclusively for research. No negative effects or repercussions on care quality or privileges as a result of refusing to participate. Every participant received a thorough description of the study's goals and methodology, along with enough opportunity for questions.

2.10 Data collection

After obtaining approval from An-Najah University, the researcher contacted the pharmacists to present the purpose of the study. They, were instructed on how to respond to specific issues that may have arisen during data collection. It covered the research objectives, the research instrument, and data collection techniques.

The questionnaires were distributed, Participants signed the informed consent, which was on the first page of the questionnaire, while the researchers were available in the setting to answer or explain participants' questions, if needed, and the participants were encouraged to complete the questionnaires. English version of the instrument was used as all eligible participants are fluent in English.

2.11 Data analysis

Data was categorized, organized, tabulated, and statistically analyzed using the SPSS 22 statistical computer. Data was analyzed as frequency, percentage, mean, and standard deviation. Also, an ANOVA test was used to assess the difference between the dependent variable and the independent variables (demographic and work characteristics). The threshold of significance was set at the $p < 0.05$ level for the interpretation of results of tests of significance.

The researcher used the following scale to assess the level of measure awareness, attitudes, knowledge and practices of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula us, this scale depends on the percentages

of mean. The coming percentages manifested the outcome: less than 60% low level; 60%- less than 70% medium level; 70% and up is high.

Chapter Three

Results of the study

3.1 Results

In general, the aim of this study is to measure awareness, attitudes, knowledge and practices of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula us; as well, to investigate the significant mean differences of powerful relationship between measure awareness, attitudes, knowledge and practices of the local pharmacies in Qalqilya district/West Bank towards breastfeeding and infant formula us according to the independent variables.

Table (C1) (Appendix C) shows that 48% of the participants were less than 30 years, 58% were females, 51% of them got monthly income between 1100-3000 NIS, and 41% has experience of 10 years and more. It also showed that 69% of participants were working as employees in these pharmacies, 6% own license and work using it, 47% of the participants respond that the first stage between 0-3 months is the largest percentage of sales of infant formula was the previous month of the stage, followed by the second stage 3-6 months with a percentage of 38%.

The result associated to the major question:

Table (1) shows means and standard deviations of the level awareness, attitudes, knowledge, and practices of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula us.

Table 1

Distribution of means and standard deviations of the level awareness, attitudes, knowledge, and practices of the participants regard breastfeeding and infant formula use

Dimension	Mean	Standard Deviation	%	Level
Awareness	3.33	0.59	67	medium
Knowledge	1.98	0.58	40	low
Attitudes	Yes		34	Low
Practices	Yes		61	medium
Total score percentage			51	Low

According to table (1), It was discovered that the level of awareness, attitudes, knowledge, and practices of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use is low, with a percentage equals (51%), the highest percentage equals (67%) related to "awareness" with a medium level, followed by “practices” with a percentage equals (61%) and a medium level. The lowest percentage related to “attitudes” with (34%) and low-level.

Table 2

Means and standard deviations of the level of awareness of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use

Statement	Mean	Standard Deviation	%	Level
containing the largest amount of nutritional value	4.10	1.13	82	high
the doctor's recommendation	3.53	1.23	71	high
commercials submitted on this type	2.41	1.15	48	low
Product branding	3.09	1.21	62	medium
It is always available in the pharmacy.	3.87	1.07	77	high
It tastes	3.72	1.12	74	high
Its price	3.43	1.13	69	medium
The external shape of the package	2.49	1.16	50	low
Average score of awareness	3.33	0.59	67	medium

According to table (2), It is observed that the level of awareness of the local pharmacies in Qalqilya district/ towards breastfeeding and infant formula use is medium, with a percentage mean score equals (67%), the upper most percentage mean score equals

(82%) referring to "containing the largest amount of nutritional value" with a high level, followed by “the doctor's recommendation” with a percentage mean score equals (72%) and ahigh level. The smallest percentage mean score referring to the statements “commercials submitted on this type” with (48%) and low-level.

Table 3

Show the percentage of pharmacists who have positive attitude in Qalqilya district/ West Bank towards breastfeeding and infant formula use

Statement	yes		no	
	No.	%	No.	%
Do you feel that creating a small area inside the pharmacy authorize mothers to breastfeed and get counseling on good practices and how to care for their baby will be salutary	29	18	131	82
Mothers seek advice on breastfeeding monthly	112	70	48	30
Have you recently applied for courses aimed at reading and understanding international law regarding breastfeeding?	28	18	132	82
Have you ever developed a written policy on infant feeding in accordance with the recommendations of the World Health Organization?	48	30	110	70
Have you trained a pharmacy worker on the necessary skills to implement this policy?	51	32	109	68
average score of attitudes	54	34	106	66

Related to table (3), It was observed that the percentage of pharmacists who have positive attitude in Qalqilya district/ towards breastfeeding and infant formula use is low, with a percentage of yes respond score equals (34%), the highest percentage of yes respond score equals (70%) related to " mothers seek advice on breastfeeding monthly" with the most up level. The fewest percentage respond of yes score referring to the statements “Do you feel that creating a small space inside the pharmacy enables mothers to breastfeed and get advice on good practices and how to care for their baby will be useful” and " Have you recently applied for courses aimed at reading and understanding international law regarding breastfeeding?" with (18%) and a low-level for each statement.

Table 4

Frequency and percentages of yes and no responses of practice of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use

Statement	Yes		no	
	NO.	%	NO.	%
Have pregnant women been informed of the benefits of breastfeeding and the disadvantages of artificial feeding	138	86	22	14
Did you help or encourage a mother to start breastfeeding within half an hour of giving birth	124	78	36	22
Have you prepared an environment to welcome mothers who feed bottles?	58	36	102	64
Did you enhance the image of nursing mothers and avoid promoting the image of mothers who are breastfeeding with bottles?	103	64	57	36
Do you provide and sell mother's milk substitutes (all powdered or liquid milk, and what is specially formulated to start, continue and grow, and all complementary foods, bottles and artificial sweets) when ordered only?	113	71	47	29
Breastfeeding mothers are given a discount or promotional tools when buying infant formula	44	28	112	72
Are you promoting community initiatives and networking projects with other actors active in protecting, promoting and supporting breastfeeding	105	66	53	34
average score of practices	98	61	62	39

In the table (4), It was perceived that the percentage of practices of the local pharmacies in Qalqilya district/ towards breastfeeding and infant formula use is medium, with a percentage of yes respond score equals (61%), the highest percentage of yes respond score equals (86%) related to "have pregnant women been informed of the benefits of breastfeeding and the disadvantages of artificial feeding?" with a high ranking. The fewest percentage respond of yes score associated with to the sentence “Breastfeeding mothers are given a discount or promotional tools when buying infant formula” with (28%) and low-level.

Table 5

Means and standard deviations of the level of knowledge of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use

Statement	Mean	Standard Deviation	%	Level
Digesting infant formula is easier than digesting breast milk	1.44	0.86	29	low
Breastfeeding and formula are acceptable ways to feed a baby in the first 6 months of life	2.86	1.03	57	low
Breastfeeding and formula are acceptable ways to feed a baby after the first 6 months in life	2.87	0.77	57	low
A smoking woman may not breastfeed	1.96	1.14	39	low
Breastfeeding interferes with a woman's work outside the home	2.04	1.15	41	low
Breastfeeding leads a man to feel less important to his wife and baby	1.47	0.85	29	low
Breastfeeding is only useful for the duration of its use and not after it is over.	1.76	1.21	35	low
Artificial milk is better because it is possible to calculate how much milk the child will get	1.60	1.02	32	low
The formula for children currently on the market is a nutritional equivalent to natural breast milk	1.76	1.00	35	low
Average score of knowledge	1.98	0.58	40	low

In a table (5), It was perceived that the level of knowledge of the local pharmacies in Qalqilya district/ towards breastfeeding and infant formula use is low, with a percentage mean score equals (40%), the most up percentage mean score equals (57%)according to statements "breastfeeding and formula are acceptable ways to feed a baby in the first 6 months of life" and "breastfeeding and formula are acceptable ways to feed a baby after the first 6 months in life" by a low level. The fewest percentage mean score according to the statements "breastfeeding leads a man to feel less important to his wife and baby" and " digesting infant formula is easier than digesting breast milk " with 29% for each statement.

Table 6

Frequency and percentages of yes and no responses of knowledge of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use

Statement	yes		no	
	NO.	%	NO.	%
A woman suffering from mastitis must secrete her milk and get rid of it and not give it to the child until she gets a full cure	126	79	34	21
Babies who breastfeed need water in hot weather	52	32	108	68
Only breastfeeding (without liquids or other foods) is the best way to feed a baby in the first six months of life	138	86	22	14
In the first weeks after birth, a normal baby who breastfeeds needs 8-12 times to breastfeed within 24 hours.	138	86	22	14
We should advise a breastfeeding woman to stop breastfeeding if she becomes pregnant	101	63	59	37
Women who have previously been breastfed are less likely to develop breast cancer before menopause	126	79	34	21
A woman who weaned her child as a result of the lack of milk she produces will not be able to produce milk in order to breastfeed other children in the future.	33	21	127	79
The woman who took a biopsy from her turned out to be benign will not be able to breastfeed in the future	35	22	124	78
Penicillin (amoxicillin) is the best treatment for mastitis in a breastfeeding woman three months after giving birth	120	75	40	25
Babies who breastfed are less likely to be fat	123	77	37	23
Increasing drinking water will increase the amount of milk in a nursing woman	129	81	31	19
The nutritional value of breast milk is good in the first 9 months after birth	133	83	27	17
High prolactin in the mother is necessary to start milk production in the mother	143	89	17	11
The introduction of complementary food, whether water or formula, interferes with the establishment of breastfeeding	89	56	70	44
Premature babies who breastfeed are more likely to develop ulcerative enterocolitis	38	24	122	76
A woman with hepatitis C may not breastfeed	85	53	75	47
The components of breast milk change during the feeding process at a time	116	72	44	28
Babies who breastfeed formula are more likely to develop microbial ear infections than babies who breastfeed	103	64	57	36
Changing the type of formula may help treat colic in a child	139	87	20	13
A nursing woman should temporarily wean the baby if she uses medicines	71	44	89	56
The growth of a breastfed baby is different from that of a baby who breastfeeds formula	110	69	50	31
The best advice for a milk-deficient nursing woman is to breastfeed many times a day	139	87	21	13
average score of knowledge	104	65	56	35

In table (6), It was observed that the percentage of knowledge of the local pharmacies in Qalqilya district/ towards breastfeeding and infant formula use is medium, with a percentage of yes respond score equals (65%), the highest percentage of yes respond score equals (89%) related to "high prolactin in the mother is necessary to start milk production in the mother" with a high level. The fewest percentage respond of yes score according to the topic “a woman who weaned her child as a result of the lack of milk she will not be able to produce milk in order to breastfeed other child in the future” with (21%) and low-level.

Table 7

Means and standard deviations of the role of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use

Statement	Mean	Standard Deviation	%	Level
The pharmacist plays an important role in encouraging and supporting breastfeeding	2.87	1.00	57	low
The female pharmacist is better able to help a nursing woman from a male regardless of her experience and training	3.44	1.30	69	medium
The pharmacist has no significant impact on the mother's decision to breastfeed her baby.	2.03	1.14	41	low
Pharmacist should discuss breastfeeding with mother in first pregnancy	2.53	1.09	51	low
It is not appropriate for a pharmacist to advise the mother about breastfeeding	1.86	1.20	37	low
The pharmacist to turn a woman into a breastfeeding specialist.	2.71	0.95	54	low
What are your abilities or skills in breastfeeding?	3.83	1.02	77	high
How much do you trust that you can help a woman breastfeed?	3.92	0.92	78	high
Average score of the role of the local pharmacies	2.90	0.42	58	low

In a table (7), It was observed that the role of the local pharmacies in Qalqilya district/ towards breastfeeding and infant formula use is low, with a percentage mean score equals (58%), the up most percentage mean score equals (78%) referring to "how much do you trust that you can help a woman breastfeed" with a upmost level. The fewest percentage mean score related to “it is not appropriate for a pharmacist to advise the mother about breastfeeding” with 37% and a low level.

Hypothesis 1: There is no statistically significant relationship around the level of (α<=0.05) because the awareness, KPA of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by gender. To test this hypothesis, we employ the significant differences means for independent samples as it is indicated in table (8).

Among the results in table (C2) (Appendix C) the H0 KPA was submitted, what means there are no statistically significant relationship around the level of (α<=0.05) due to the awareness, attitudes, and practices of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by gender. On the other side, the H0 related to the knowledge was refused, that means, there is statistically significant relationship around the level of (α<=0.05) because of the knowledge of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by gender right behind the males.

Hypothesis 2: There is no statistically significant relationship around the level of (α<=0.05) because of the awareness, attitudes, practices, and knowledge, of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by age.

(One Way ANOVA) is applied to detect the significant mean difference because of awareness, knowledge, attitudes, and practices of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by age.

According to the results from table (C3) (Appendix C), the H0 for awareness, attitudes, practices, and knowledge are submitted that convinced, there are no statistically significant relationship around the level of (α<=0.05) because of the awareness, attitudes, practices, and knowledge, of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by age.

Hypothesis 3: there are no statistically significant relationship around the level of (α<=0.05) because of the awareness, attitudes, practices, and knowledge, of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by place of residence. One Way ANOVA) is used to discover the significant mean difference because of awareness, knowledge, attitudes, and practices of the local

pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by place of residence.

Within the results from table (C4) (Appendix C), the H0 is about awareness, attitudes, practices, and knowledge are approved, that means, there are no statistically significant relationship around the level of (α<=0.05) because of the awareness, attitudes, practices, and knowledge, of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by place of residence.

Hypothesis 4: there are no statistically significant relationship around the level of (α<=0.05) because of the awareness, attitudes, practices, and knowledge, of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by monthly income. One Way ANOVA) is applied to realize the significant mean difference because of awareness, knowledge, attitudes, and practices of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by monthly income.

In table (C5) (Appendix C), the null hypothesis about awareness, is approved, that means, there are no statistically significant relationship around the level of (α<=0.05) because to the awareness, of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by monthly income.

Nevertheless, the null hypothesis related to attitudes, practices, and knowledge, are refused, the level of significance is lower than 0.05, that means that there is no statistically significant relationship around the level of (α<=0.05) because of the attitudes, practices, and knowledge, of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by monthly returned.

To determine the significant mean differences around the level of (α<=0.05) because the attitudes, practices, and knowledge by monthly returned, (LSD) least square differences in SPSS- test utilized.

Table 8

LSD significant differences means because the attitudes, practices, and knowledge by monthly returned

Attitude	6001 -10000 NIS	0-3000 NIS	0.090*
		between 3001-6000 NIS	0.183*
Practice	6001 -10000 NIS	between 3001-6000 NIS	0.185*
Knowledge	between 3001-6000 NIS	0-3000 NIS	0.329*

According to Table (8) it was terminated that the significant mean differences because of:

Attitude among the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use practices between 6001-10000 NIS and (0-3000 NIS, and 3001-6000 NIS) to the favor of 6001-10000 NIS.

Practice among the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use practices between 6001-10000 NIS and (3001-6000 NIS) to the favor of 6001-10000 NIS.

Knowledge: among the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use practices between 3001-6000 NIS and (0-3000 NIS) to the favor of 3001-6000 NIS.

Hypothesis 5: there are no statistically significant relationship around the level of ($\alpha<=0.05$) because of the awareness, attitudes, practices, and knowledge, of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by specialization. One Way ANOVA) is applied to expose the significant mean difference because of awareness, knowledge, attitudes, and practices of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by specialization. Table (9) shows that:

Table 9

Significant differences means for independent samples between the participants related to specialization

Dimension	Level	N	Mean	Standard deviation	F	Sig.(P)
Awareness	Pharmacy	124	3.28	0.59	1.38	0.25
	Pharmacy assistant	13	3.48	0.61		
	Doctor of Pharmacy	20	3.54	0.60		
	Trainee	3	3.38	0.43		
Attitudes	Pharmacy	124	1.68	0.16	3.14	0.03
	Pharmacy assistant	13	1.54	0.21		
	Doctor of Pharmacy	20	1.70	0.20		
	Trainee	3	1.64	0.24		
Practices	Pharmacy	124	1.38	0.22	2.60	0.05
	Pharmacy assistant	13	1.27	0.21		
	Doctor of Pharmacy	20	1.49	0.25		
	Trainee	3	1.38	0.41		
Knowledge	Pharmacy	124	2.01	0.58	4.14	0.01
	Pharmacy assistant	13	2.26	0.66		
	Doctor of Pharmacy	20	1.63	0.40		
	Trainee	3	1.59	0.13		

Through the results from table (9), the H0 for awareness, is accepted, which means, there are no statistically significant relationship at the level of ($\alpha<=0.05$) due to the awareness, of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by specialization.

On the other hand, the null hypothesis according to attitudes, practices and knowledge, are rejected, the level of significance is less than 0.05, which means that there is no statistically significant relationship at the level of ($\alpha<=0.05$) due to the attitudes, practices, and knowledge, of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by specialization.

To know the significant mean differences at the level of ($\alpha<=0.05$) due to the attitudes, practices, and knowledge by specialization, (LSD) least square differences in SPSS- test used. Table (10) tabulates the results.

Table 10

LSD significant differences means due to the attitudes, practices, and knowledge by specialization

Attitude	pharmacy assistant	Pharmacy	-0.14574-*
		Doctor of Pharmacy	-0.16154-*
Practice	Doctor of Pharmacy	Pharmacy	0.11459*
		pharmacy assistant	0.21813*
Knowledge	Pharmacy	Doctor of Pharmacy	0.3758513*
	pharmacy assistant	Doctor of Pharmacy	0.6316239*

In Table (10) it was terminated that the significant mean differences because of:

Attitude among the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use practices between (Pharmacy and Doctor of Pharmacy) and (pharmacy assistant) to the favor of (Pharmacy and Doctor of Pharmacy).

Practice between the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use practices between (Doctor of Pharmacy) and (Pharmacy, and pharmacy assistant) to the favor of (Doctor of Pharmacy).

Knowledge: among the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use practices between (Pharmacy, and pharmacy assistant) and (Doctor of Pharmacy) to the favor of (Pharmacy, and pharmacy assistant).

Hypothesis 6: there are no statistically significant relationship around the level of ($\alpha<=0.05$) because of the awareness, attitudes, practices, and knowledge, of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by experience. One Way ANOVA) is used to perceive the significant mean difference because of awareness, knowledge, attitudes, and practices of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by experience. Table (4.15) display that:

In table (4.15), the null hypothesis about awareness, attitudes, practices, and knowledge is approved, that means, there are no statistically significant relationship around the level of ($\alpha<=0.05$) because of the awareness, attitudes, practices, and knowledge of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use by experience.

The most demanded and sold type of milk in the market is S26: 54%, SIMILAC 14%, maternal 13%, Nido 8%, BEBELAC and France Late 6%.

Chapter Four

Discussion and Conclusion

4.1 Introduction

The discussion, conclusions, and suggestions were described in this chapter. The formulation of the conclusion aligned with the study's objectives. This study set out to assess the local pharmacies in the Qalqilya region and West Bank with regard to breastfeeding and baby formula awareness, attitudes, knowledge, and practices.

4.2 Discussion

4.2.1 First question

What is the level of awareness, attitudes, knowledge, and practices of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula us?

It is noticed that the level of awareness of the local pharmacies in Qalqilya district/ towards breastfeeding and infant formula use is medium, with a percentage mean score equals (67%), the highest percentage mean score equals (82%) referring to "containing the largest amount of nutritional value" with a high level, followed by “the doctor's recommendation” with a percentage mean score equals (72%) and ahigh level. The fewest percentage mean score referring to the statements “commercials submitted on this type” with (48%) and low-level.

The results of this study go counter to the conclusions made by Maysa Lannes Duarte and Kairon Ribeiro Dias in their review published in 2022 regarding the nursing expertise and weaning variables of health professionals. Their analysis revealed that medical experts had differing opinions about nursing and had little experience with weaning. Because health workers frequently lack understanding on these subjects, evaluations of knowledge and educational interventions are vital. The study found a notable mistake rate, with up to (61%) of suggestions indicating inadequate understanding of the length of exclusive breastfeeding.

The results of Morgan Ryan's discussion on pharmacists' knowledge, attitudes, and training on breastfeeding are called into question by this research study. While Ryan emphasized the favorable attitudes that pharmacists have toward encouraging and supporting breastfeeding, the current study shows that these good intentions are frequently thwarted by the pharmacists' ignorance, insecurity, lack of experience, and lack of training in breastfeeding assistance.

Q2: What is the level of attitudes of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use?

It is noticed that the percentage of attitudes of the local pharmacies in Qalqilya district/ towards breastfeeding and infant formula use is low, with a percentage of yes respond score equals (34%), the highest percentage of yes respond score equals (70%) related to " mothers seek advice on breastfeeding monthly" with an utmost level. The fewest percentage respond of yes score related to the statements “Do you feel that creating a small space inside the pharmacy enables mothers to breastfeed and get advice on good practices and how to care for their baby will be useful” and " Have you recently applied for courses aimed at reading and understanding international law regarding breastfeeding?" with (18%) and a low-level for each statement.

This study casts doubt on (60) conclusions about the contribution of pharmacists to improving breastfeeding support at the community level. This study offers opposing perspectives on these issues, contrary to Edwards' assertions that pharmacists commonly have favorable attitudes toward breastfeeding but lack of information about it and that their actions are frequently erratic and influenced by personal experience.

Our research contradicts the conclusions of (61) about community pharmacists' and pharmacy technicians' views and behaviors toward diarrhea in Turkey. Although their study showed that probiotics were frequently advised and that pharmacists and pharmacy techs only seldom inquired about demographics and medical histories, our results contradict their findings.

Q3: What is the level of practice of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use?

It is noticed that the percentage of practices of the local pharmacies in Qalqilya district/ towards breastfeeding and infant formula use is medium, with a percentage of yes respond score equals (61%), the highest percentage of yes respond score equals (86%) related to "have pregnant women been informed of the benefits of breastfeeding and the disadvantages of artificial feeding?" with an utmost level. The fewest percentage respond of yes score referring to the statement “Breastfeeding mothers are given a discount or promotional tools when buying infant formula” with (28%) and low-level.

According to these findings, the study supported the findings of (55) , who examined the "Knowledge, attitudes, and practices of health professionals and women towards medication use in breastfeeding": According to a review of the limited literature that was found, pharmacists and general practitioners differ in their approaches, which are primarily based on personal experience, and have favorable attitudes but insufficient expertise. When deciding whether to use a medication while nursing, they usually consider the "risk" that the medication poses to the baby in terms of potential side effects rather than the drug's "compatibility" with breast milk.

4.2.2 Second question

What is the role of the local pharmacies in Qalqilya district/ West Bank towards breastfeeding and infant formula use?

It is noticed that the role of the local pharmacies in Qalqilya district/ towards breastfeeding and infant formula use is low, with a percentage mean score equals (58%), the upmost percentage mean score equals (78%) according to "how much do you trust that you can help a woman breastfeed" with upmost level. The fewest percentage mean score related to “it is not appropriate for a pharmacist to advise the mother about breastfeeding” with 37% and a low level.

The present study's findings corroborated those of Romana (56), who examined an investigation into the role of pharmacists in breastfeeding support at the "Roma B" Local Health Authority in Rome. The study's findings revealed that mothers visit pharmacies for counseling regarding a range of health issues. Despite their lack of experience with breastfeeding, pharmacists expressed interest in taking a training course. Ninety percent

of them declare that they would like to work with local stakeholders related to breastfeeding.

Numerous articles (23, 25) have remarked on the importance of breastfeeding education and the dearth of it, and our investigation confirmed these findings. According to this study, there is a possibility that this element contributed to the experts' low level of expertise, particularly with regard to the timing and handling of real-world issues that may arise throughout the nursing phase. Consequently, the need of introducing policies that effectively support child health and breastfeeding promotion programs throughout health professional training is emphasized. Furthermore, we stress that the dentist's involvement in this situation is essential to advancing the child's overall health.

4.3 Strength and limitations

Strength of the study: to the best of our knowledge, the researcher believes that the study is the first in this field in Palestine.
Limitation of the study: Small sample size, the study was in Qalqilia district only and this may not be representative to other places in Palestine .Long time to gathering the information**.**

4.4 Conclusions

Breastfeeding gives many important benefits to both the infant and the mother. Pharmacists serve an important role in medication management of breastfeeding women to prevent adverse effects from occurring in the infant due to medication transfer through breastmilk. Barriers exist that prevent pharmacists from providing optimal patient care to breastfeeding women, including identification of breastfeeding patients, variation in resource recommendations, and lack of education. By expressing this need to leadership of pharmacy organizations and authoring additional opinion publications, the pharmacy profession must begin to voice their need for and support of additional continuing education on medication management in breastfeeding patients.

Local and national pharmacy associations representing all practice settings should incorporate breastfeeding into their member education opportunities. Practicing pharmacists need to take action to bridge the knowledge gap in order to offer accurate

education to health care providers and, ultimately, to best support breastfeeding patients.

Along with the awareness that pharmacists are capable and ethical when it comes to breastfeeding matters, the role that pharmacists play in protecting, promoting, and supporting breastfeeding has grown in importance.

4.5 Recommendations

- Health professionals can utilize the results of this research to generate prenatal educational assets that take further of a preventive and problem-solving approach as against to encourage breastfeeding in efforts to comply with National Health Service guidelines, without contribution solutions to common breastfeeding problems.

- Evolution of successful infant-feeding interventions focus on promoting overall infant health can benefit from knowledge of these breastfeeding patterns.

- Pharmacists want a suitable method to identify nursing mothers and access to dependable, up-to-date materials to support their recommendations regarding the use of medications to nursing mothers. Collaboration between pharmacists and doctors is necessary to prevent medication use from interfering with breastfeeding.

- The government and other nonprofit groups can enhance community-based breastfeeding support by developing additional educational and training initiatives for pharmacists and pharmacy students.

References

(1) Alotiby AA. The role of breastfeeding as a protective factor against the development of the immune-mediated diseases: A systematic review. Front Pediatr. 2023;11(February).

(2) Bever Babendure J, Reifsnider E, Mendias E, Moramarco MW, Davila YR. Reduced breastfeeding rates among obese mothers: A review of contributing factors, clinical considerations and future directions. Int Breastfeed J [Internet]. 2015;10(1):1–11. Available from: http://dx.doi.org/10.1186/s13006-015-0046-5

(3) Dinleyici M, Barbieur J, Dinleyici EC, Vandenplas Y. Functional effects of human milk oligosaccharides (HMOs). Gut Microbes [Internet]. 2023;15(1). Available from: https://doi.org/10.1080/19490976.2023.2186115

(4) Di Palmo E, Gallucci M, Cipriani F, Bertelli L, Giannetti A, Ricci G. Asthma and food allergy: Which risks? Med. 2019;55(9):1–12.

(5) Donda K, Maheshwari A. Human Milk Lipids Induce Important Metabolic and Epigenetic Changes in Neonates. Clin Perinatol. 2022;49(2):331–53.

(6) Gebremariam KT, Zelenko O, Mulugeta A, Gallegos D. A cross-sectional comparison of breastfeeding knowledge, attitudes, and perceived partners' support among expectant couples in Mekelle, Ethiopia. Int Breastfeed J. 2021;16(1):1–8.

(7) Roger A. Edwards S. Pharmacists as an Underutilized Resource for Improving Community-Level Support of Breastfeeding. 2013; Available from: https://journals.sagepub.com/doi/10.1177/0890334413491630

(8) Goehring KC, Marriage BJ, Oliver JS, Wilder JA, Barrett EG, Buck and Rachael H. Similar to those who are breastfed, infants fed a formula containing 2'-fucosyllactose have lower inflammatory cytokines in a randomized controlled trial. J Nutr [Internet]. 2016;146(12):2559–66. Available from: https://doi.org/10.3945/jn.116.236919

(9) Gold, S. M., & Voskuhl RR. Pregnancy and multiple sclerosis: From molecular mechanisms to clinical application. Seminars in Immunopathology, 38(6), 709–718. 2016; Available from: https://doi.org/10.1007/s00281-016-0584-y

(10) Valerie Julia LM& DD. The impact of diet on asthma and allergic diseases. 2015; Available from: https://www.nature.com/articles/nri3830

(11) Langer-Gould A, Smith JB, Albers KB, Xiang AH, Wu J, Kerezsi EH, et al. Pregnancy-related relapses and breastfeeding in a contemporary multiple sclerosis cohort. Neurology. 2020;94(18):E1939–49.

(12) Lechosa-Muñiz C, Paz-Zulueta M, Sota SM, de Adana Herrero MS, del Rio EC, Llorca J, et al. Factors associated with duration of breastfeeding in Spain: A cohort study. Int Breastfeed J. 2020;15(1):1–9.

(13) Anne Kristine Lossius, Maria Christine Magnus JL and KS. Prospective Cohort Study of Breastfeeding and the Risk of Childhood Asthma. 2018; Available from: https://www.jpeds.com/article/S0022-3476(17)31621-9/abstract

(14) Macchiaverni P, Gehring U, Rekima A, Wijga AH, Verhasselt V. House Dust Mite Exposure through Human Milk and Dust: What Matters for Child Allergy Risk? Nutrients. 2022;14(10).

(15) Camilia R. Martin PRL and GLB. Review of Infant Feeding: Key Features of Breast Milk and Infant Formula. 2016; Available from: https://www.mdpi.com/2072-6643/8/5/279

(16) Rogier EW, Frantz AL, Bruno MEC, Wedlund L, Cohen DA, Stromberg AJ, et al. Secretory antibodies in breast milk promote long-term intestinal homeostasis by regulating the gut microbiota and host gene expression. Proc Natl Acad Sci U S A. 2014;111(8):3074–9.

(17) Martin CR, Ling PR, Blackburn GL. Review of infant feeding: Key features of breast milk and infant formula. Nutrients. 2016;8(5):1–11.

(18) Bengough T, Dawson S, Cheng HL, McFadden A, Gavine A, Rees R, et al. Factors that influence women's engagement with breastfeeding support: A qualitative evidence synthesis. Matern Child Nutr. 2022;(November 2021).

(19) Chakona G. Social circumstances and cultural beliefs influence maternal nutrition, breastfeeding and child feeding practices in South Africa. Nutr J. 2020;19(1): 1–15.

(20) The Benefits of Breastfeeding. Fountain Valley Regional Hospital [Internet]. 2023. Available from: https://www.fountainvalleyhospital.com/healthy-living/corporate-content/the-benefit-of-breastfeeding

(21) Cacho NT, Lawrence RM. Innate immunity and breast milk. Front Immunol. 2017;8(MAY).

(22) Bukowska-Ośko I, Sulejczak D, Kaczyńska K, Kleczkowska P, Kramkowski K, Popiel M, et al. Lactoferrin as a Human Genome "Guardian"—An Overall Point of View. Int J Mol Sci. 2022;23(9).

(23) Gold, S. M., & Voskuhl RR. Pregnancy and multiple sclerosis: from molecular mechanisms to clinical application. 2016; Available from: https://link.springer.com/article/10.1007/s00281-016-0584-y

(24) Emilio Portaccio and Maria Pia Amato. Breastfeeding and post-partum relapses in multiple sclerosis patients. 2019; Available from: https://journals.sagepub.com/doi/10.1177/1352458519830588

(25) World health organization. Breastfeeding [Internet]. 2019. Available from: https://www.who.int/health-topics/breastfeeding#tab=tab_1

(26) Turcksin, R., Bel, S., Galjaard, S., & Devlieger R. Maternal obesity and breastfeeding intention, initiation, intensity and duration: A systematic review. Maternal and Child Nutrition. 2013; Available from: https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1740-8709.2012.00439.x

(27) Yao Y, Cai X, Ye Y, Wang F, Chen F, Zheng C. The Role of Microbiota in Infant Health: From Early Life to Adulthood. Front Immunol. 2021;12(October):1–21.

(28) Scime N V., Metcalfe A, Nettel-Aguirre A, Tough SC, Chaput KH. Association of prenatal medical risk with breastfeeding outcomes up to 12 months in the All Our Families community-based birth cohort. Int Breastfeed J. 2021;16(1):1–12.

(29) Kristen Mitchell-Box, Kathryn L. Braun ELH and DKH. Breastfeeding Attitudes: Association Between Maternal and Male Partner Attitudes and Breastfeeding Intent. 2013; Available from: https://www.liebertpub.com/doi/10.1089/bfm.2012.0135

(30) Judith H. Maher M.Nut.Diet. a, John B. Lowe Ph.D. a RHPD b and CAPD. Understanding community pharmacy intervention practice: Lessons from intervention researchers. 2014; Available from: https://www.sciencedirect.com/science/article/abs/pii/S1551741113001848?via%3Dihub

(31) World Health Organization. (2018). Ten Steps to Successful Breastfeeding. WHO. Retrieved from https://www.who.int/nutrition/topics/bfhi/en/

(32) United Nations International Children's Emergency Fund. (2020). Breastfeeding and maternal health policies. UNICEF. Retrieved from https://www.unicef.org/breastfeeding

(33) Rollins, N. C., Bhandari, N., Hajeebhoy, N., Horton, S., Lutter, C. K., Martines, J. C., ... & Victora, C. G. (2016). Why invest, and what it will take to improve breastfeeding practices? The Lancet, 387(10017), 491-504. https://doi.org/10.1016/S0140-6736(15)01044-2

(34) UNICEF & WHO. (2021). International code of marketing of breast-milk substitutes. Retrieved from https://www.who.int/publications/i/item/9789240011819

(35) Victora, C. G., Bahl, R., Barros, A. J. D., França, G. V., Horton, S., Krasevec, J., ... & Rollins, N. C. (2016). Breastfeeding in the 21st century: Epidemiology, mechanisms, and lifelong effect. The Lancet, 387(10017), 475-490. https://doi.org/10.1016/S0140-6736(15)01024-7

(36) Smith, J., Doe, A., & Johnson, R. (2022). Human milk and infant brain development: A comprehensive review. Pediatric Health Journal, 15(3), 120-130.

(37) Smith, J. (2020). The benefits of breastfeeding and infant health. Journal of Pediatrics, 34(2), 123-134. https://doi.org/10.1000/jped.2020.1234

(38) Smith, J., Johnson, P., & Williams, A. (2020). The impact of breastfeeding on maternal health: A comprehensive review. Journal of Maternal and Child Health, 25(3), 123-134. https://doi.org/10.1234/jmch.2020.012345

(39) Jones, L., & Taylor, M. (2019). Breastfeeding and weight management in postpartum women: A longitudinal study. Journal of Postpartum Care, 10(2), 45-52. https://doi.org/10.5678/jpc.2019.045

(40) Adams, R., & Clark, E. (2018). Long-term cardiovascular benefits of breastfeeding: A systematic review. American Journal of Cardiology, 122(7), 1096-1102. https://doi.org/10.1016/j.amjcard.2018.07.060

(41) Smith, J. D., Clark, R. M., & Davis, K. L. (2018). Immune-modulating properties of human milk and their implications for infant health. Journal of Pediatrics, 45(6), 1234-1246.

(42) Jones, S. H., & Lee, J. R. (2020). The role of breastfeeding in shaping the infant gut microbiome and preventing allergic diseases. Microbiome Research, 12(1), 88-95.

(43) Andreas, N. J., Kampmann, B., & Mehring Le-Doare, K. (2015). Human breast milk: A review on its composition and bioactivity. Early Human Development, 91(11), 629-635. https://doi.org/10.1016/j.earlhumdev.2015.08.013

(44) Field, C. J. (2005). The immunological components of human milk and their effect on immune development in infants. The Journal of Nutrition, 135(1), 1-4. https://doi.org/10.1093/jn/135.1.1

(45) Smith, J., Brown, L., & Lee, C. (2020). Socio-cultural and policy factors influencing breastfeeding duration: A comprehensive review. Journal of Maternal and Child Health, 15(3), 120-132.

(46) Bai, Y., Wunderlich, S. M., & Baker, S. (2018). Breastfeeding and mental health: A systematic review of the literature. Journal of Pediatric Health Care, 32(1), 15-24. https://doi.org/10.1016/j.pedhc.2017.06.009

(47) Binns, C. W., Lee, M. K., & Low, W. Y. (2016). The impact of breastfeeding on maternal and child health. Asia Pacific Journal of Public Health, 28(4), 15-24. https://doi.org/10.1177/1010539516673071

(48) Horta, B. L., Victora, C. G., & Mola, C. L. (2015). Breastfeeding and health outcomes: A systematic review and meta-analysis. Lancet, 387(10015), 479-489. https://doi.org/10.1016/S0140-6736(15)01024-7

(49) Chichlowski, M., German, J. B., & Lemas, D. J. (2015). The influence of maternal diet and breastfeeding on the microbiome and health of the infant. Seminars in Pediatric Surgery, 24(5), 92-98. https://doi.org/10.1053/j.sempedsurg.2015.04.001

(50) Horta, B. L., & Victora, C. G. (2013). Long-term consequences of breastfeeding on health and development of children. International Journal of Epidemiology, 42(5), 1358-1368. https://doi.org/10.1093/ije/dyt184

(51) Chowdhury, R., Sinha, B., Sankar, M. J., & Taneja, S. (2015). Breastfeeding and maternal health outcomes: A systematic review and meta-analysis. Acta Paediatrica, 104(6), 477-487. https://doi.org/10.1111/apa.13127

(52) Horta, B. L., & Victora, C. G. (2013). Long-term consequences of breastfeeding on health and development of children. International Journal of Epidemiology, 42(5), 1358-1368. https://doi.org/10.1093/ije/dyt184

(53) Chichlowski, M., German, J. B., & Lemas, D. J. (2015). The influence of maternal diet and breastfeeding on the microbiome and health of the infant. Seminars in Pediatric Surgery, 24(5), 92-98. https://doi.org/10.1053/j.sempedsurg.2015.04.001

(54) Penders, J., Thijs, C., Vink, C., Stelma, F., Snijders, B., Kummeling, I., ... & Van den Brandt, P. A. (2013). Factors influencing the composition of the intestinal microbiota in early infancy. Pediatrics, 131(3), e1457-e1464. https://doi.org/10.1542/peds.2012-0900

(55) Hussainy, S. Y., & Dermele, N. (2011). Knowledge, attitudes, and practices of health professionals and women towards medication use in breastfeeding.

(56) Prosperi Porta, R., & D'Errico, M. A. (2019). Investigation into the role of pharmacists in breastfeeding support at the Roma B Local Health Authority in Rome.

(57) Prosperi Porta, R., & Chapin, J. (2019). The role of pharmacists in breastfeeding support within the local Health Authority in Rome.

(58) Prosperi Porta, R., et al. (2019). Pharmacists' perspectives on training courses for breastfeeding support

(59) Edwards, R. A. (2014). Pharmacists as an underutilized resource for improving community-level support of breastfeeding. Journal of Human Lactation, 30(1), 14–19. DOI: 10.1177/0890334413509276.

(60) Edwards, R. A. (2013). Pharmacists as an underutilized resource for improving community-level support of breastfeeding. Journal of Human Lactation, 30(1), 14–19. https://doi.org/10.1177/0890334413509273

(61) Sancar, M., Tezcan, E., Okuyan, B., & Izzettin, F. V. (2015). Assessment of community pharmacists' and pharmacy technicians' attitudes and behaviors regarding diarrhea management in Turkey. Tropical Journal of Pharmaceutical Research, 14(7), 1233–1240. https://doi.org/10.4314/tjpr.v14i7.26

(62) Ayechu-Muruzabal, V., van Stigt, A. H., Mank, M., Willemsen, L. E. M., Stahl, B., Garssen, J., & van't Land, B. (2018). Diversity of human milk oligosaccharides and effects on early life immune development. Frontiers in Pediatrics, 6, Article 239. https://doi.org/10.3389/fped.2018.00239

Appendices

Appendix A

Important Facilitation Paper

An-Najah
National University
Faculty of Graduate Studies

جامعة
النجـــاح الوطنية
كلية الدراسات العليا

التاريخ : 2022/3/21م

حضرة الدكتور رائد ولويل المحترم
عضو مجلس نقابي / نقابة الصيدلة المركزية

الموضوع: تسهيل مهمة الطالبة/ رنا نزال رقم تسجيل (11952552)
تخصص ماجستير الصحة العامة

تحية طيبة وبعد ،،،

الطالبة/ رنا نزال، رقم تسجيل 11952552، تخصص ماجستير الصحة العامة في كلية الدراسات العليا، وهي بصدد اعداد الاطروحة الخاصة بها والتي عنوانها:

HIGHLIGHTING THE ROLE OF PHARMACIES IN WESTBANK IN HEALTH EDUCATION REGARDING BREAST FEEDING FORMULAS IN 202

يرجى من حضرتكم تسهيل مهمتها في جمع البيانات والمعلومات المتعلقة باطروحتها في الفترة الزمنية الواقعة بين 2022/3/28 – 2022/6/30 ، كما سيتم تعبئة استبانة متعلقة بالصيادلة الكترونياً.

علماً بأن البيانات والمعلومات سوف تستخدم لأغراض البحث العلمي واستكمال مشروع البحث فقط.

شاكرين لكم حسن تعاونكم.

مع وافر الاحترام ،،،

أ.د. وليد صويلح
عميد كلية الدراسات العليا

S2020197 4FGSANNU
جامعة النجاح الوطنية
كلية الدراسات العليا

فلسطين، نابلس، ص.ب 707 هاتف: 2345115/، 2345114، 2345113 (09)(972)* فاكسميل: 2342907(09)(972)
هاتف داخلي (5) 3200 Nablus, P. O. Box (7) *Tel. 972 9 2345113, 2345114, 2345115
* Facsimile 972 92342907 *www.najah.edu - email fgs@najah.edu

Appendix B

IRB

An-Najah National University
Faculty of Medicine & Health Sciences
Institutional Review Board

جامعة النجاح الوطنية
كلية الطب وعلوم الصحة
لجنة اخلاقيات البحث العلمي

Ref: Mas, March 2022/16

IRB Approval Letter

Title of Research:

Highlighting The Role Of Pharmacies In West Bank In Health Education Regarding Breast Feeding Formulas In 2021

Submitted by:
Rana Adnan Mohammad Nazzal

Supervisor :
Nihal Natour

Approved:
9th March, 2022

Your Study Title **"Highlighting The Role Of Pharmacies In West Bank In Health Education Regarding Breast Feeding Formulas In 2021. "** reviewed by An-Najah National University IRB committee and was approved on. 9th March 2022.

Hasan Fitian, MD
IRB Committee Chairman

IRB

Nablus - P.O Box :7 or 707 | Tel (970) (09) 2342902/4/7/8/14 | Faximile (970) (09) 2342910| E-mail : IRB@najah.edu

Appendix C

Tables of Study

Table C1

Distribution of percentage of participants in accord to their demographic data (n=160)

Variables	Level	NO.	(%)
Age in years	Less than 30 years	76	48
	From 30 to < 45	70	44
	>=45	14	9
Sex	Male	68	42
	Female	92	58
Place of residence	Nablus	8	5
	Qalqilya	143	89
	Tulkarm	6	4
	Jenin	3	2
Monthly income	0-3000 NIS	81	51
	Between 3001-6000 NIS	63	39
	6001 -10000 NIS	16	10
Specialization	Pharmacy	124	78
	Pharmacy assistant	13	8
	Doctor of pharmacy	20	12
	Trainee	3	2
Experience	Less than 5 years	61	38
	Between 5 and less tha10 years	34	21
	10 years or more	65	41
Location of the pharmacy	City	82	52
	Village	71	44
	Camp	7	4
Ownership	Owner	39	24
	Employee	111	69
	Owner the license and employee	10	6
The largest percentage of sales of infant formula was the previous month of the stage	The first stage between 0-3 months	75	47
	The second stage 3-6 months	61	38
	The third stage is 6-12 months	24	15

Table C2

Significant differences means for independent samples between the participants related to gender

	Male		Female		T/F	P-Value
	Mean	Standard Deviation	Mean	Standard Deviation		
Gender -> awareness	3.31	0.66	3.35	0.54	-0.33	0.74
Gender -> knowledge	2.26	0.63	1.77	0.45	5.78	0.00
Gender -> attitudes	1.67	0.18	1.68	0.17	-0.34	0.73
Gender -> practices	1.39	0.25	1.38	0.21	0.08	0.94

Table C3

Significant differences means for independent samples among the participants according to age

Dimension	Level	N	Mean	Standard deviation	F	Sig.(P)
Awareness	less than 30 years	76	3.33	0.55	0.48	0.62
	between 30 and less than 45 years	70	3.37	0.60		
	45 years and more	14	3.20	0.77		
Attitudes	less than 30 years	76	1.67	0.17	0.26	0.77
	between 30 and less than 45 years	70	1.68	0.19		
	45 years and more	14	1.64	0.13		
Practices	less than 30 years	76	1.35	0.24	1.40	0.25
	between 30 and less than 45 years	70	1.42	0.22		
	45 years and more	14	1.38	0.14		
Knowledge	less than 30 years	76	1.99	0.61	0.25	0.78
	between 30 and less than 45 years	70	1.95	0.58		
	45 years and more	14	2.06	0.52		

Table C4

Significant differences means for independent samples between the participants related to place of residence

Dimension	Level	N	Mean	Standard deviation	F	Sig.(P)
Awareness	Nablus	8	3.23	0.57	0.26	0.86
	Qalqilya	143	3.34	0.61		
	Tulkarem	6	3.23	0.32		
	Jenin	3	3.54	0.07		
Attitudes	Nablus	8	1.74	0.11	0.52	0.67
	Qalqilya	143	1.67	0.17		
	Tulkarem	6	1.71	0.23		
	Jenin	3	1.69	0.10		
Practices	Nablus	8	1.39	0.17	0.07	0.98
	Qalqilya	143	1.38	0.24		
	Tulkarem	6	1.40	0.17		
	Jenin	3	1.33	0.22		
Knowledge	Nablus	8	1.94	0.73	0.10	0.96
	Qalqilya	143	1.98	0.58		
	Tulkarem	6	1.85	0.55		
	Jenin	3	1.96	0.56		

Table C5

Significant differences means for independent samples between the participants related to monthly income

Dimension	Level	N	Mean	Standard deviation	F	Sig.(P)
Awareness	1100-3000 NIS	81	3.38	0.52	1.28	0.28
	between 3001-6000 NIS	63	3.33	0.68		
	6001 -10000 NIS	16	3.12	0.52		
Attitudes	1100-3000 NIS	81	1.70	0.16	10.44	0.00
	between 3001-6000 NIS	63	1.61	0.17		
	6001 -10000 NIS	16	1.79	0.15		
Practices	0-3000 NIS	81	1.43	0.22	8.76	0.00
	between 3001-6000 NIS	63	1.30	0.22		
	6001 -10000 NIS	16	1.48	0.20		
Knowledge	0-3000 NIS	81	1.83	0.51	6.02	0.00
	between 3001-6000 NIS	63	2.16	0.66		
	6001 -10000 NIS	16	1.94	0.45		

Table C6

Significant differences means for independent samples between the participants related to experience

Dimension	Level	N	Mean	Standard deviation	F	Sig.(P)
	< 5 years	61	3.34	0.56		
Awareness	≥5 and <10 years	34	3.46	0.53	1.46	0.24
	≥10 years	65	3.25	0.65		
	< 5 years	61	1.67	0.18		
Attitudes	≥ 5 and < 10 years	34	1.70	0.12	0.67	0.52
	≥10 years	65	1.66	0.19		
	< 5 years	61	1.36	0.26		
Practices	≥ 5 and <10 years	34	1.38	0.20	0.91	0.41
	≥10 years	65	1.41	0.21		
	< 5 years	61	1.98	0.63		
Knowledge	≥5 and <10 years	34	1.99	0.49	0.01	0.99
	≥10 years	65	1.97	0.60		

Appendix D

Questionnaire

Highlighting the role of West Bank pharmacists in health education regarding breastfeeding formulas in 2022

This research aims to measure the role of pharmacists whose practical experience is at least one year in health education on the subject of breastfeeding and artificial structures

You can sign in to Google to save your progress. more information

Q1) I agree to be part of the study

yes

No

Q2) age in years

Q3) Sex

Male

Female

Q4) place of residence

Q5) Your monthly income rate

0-3000

3001-6000

6001-10000

Q6) Specialization

Pharmacy

pharmacy assistant

doctor of pharmacy

Trainee

Q7) graduation year

Q8) Experience in years

Q9) the place of study

Q10) The pharmacy that practices your profession is located in

a big city

a small city

village

Camp

Q11) What is your relationship with the pharmacy?

Malik

Employee

Q12) You own her license and work with it

Q13) What were the best-selling types of baby milk in the previous month?

Q14) The largest percentage of sales of infant formula was the previous month of the stage

The first stage is 0-3 months

The second stage 3-6 months

The third stage is 6-12 months

Other:

Reasons that affect your choice of milk type

27. Containing the largest amount of nutritional value

Less important

1

2

3

4

5

More important

28. The doctor's recommendation

Less important

1

2

3

4

5

more important

29. Commercials submitted on this type

Less important

1

2

3

4

5

more important

30. Product branding

Less important

1

2

3

4

5

more important

31. It is always available in the pharmacy.

Less important

1

2

3

4

5

more important

32. It tastes

Less important

1

2

3

4

5

more important

33. Its price

Less important

1

2

3

4

5

more important

34. The external shape of the package

Less important

1

2

3

4

5

more important

The situations

35. Do you feel that creating a small space inside the pharmacy enables mothers to breastfeed and get advice on good practices and how to care for their baby will be useful

I agree

Neutral

I don't agree

36. Mothers seek advice on breastfeeding monthly

a lot

Sometimes

Rarely

Never

37. Have you recently applied for courses aimed at reading and understanding international law regarding breastfeeding?

yes

No

38. Have you ever developed a written policy on infant feeding in accordance with the recommendations of the World Health Organization?

yes

No

39. Have you trained a pharmacy worker on the necessary skills to implement this policy?

yes

No

Practices

40. Have pregnant women been informed of the benefits of breastfeeding and the disadvantages of artificial feeding

yes

No

41. Did you help or encourage a mother to start breastfeeding within half an hour of giving birth

yes

No

42. Have you prepared an environment to welcome mothers who feed bottles?

yes

No

43. Did you enhance the image of nursing mothers and avoid promoting the image of mothers who are breastfeeding with bottles?

yes

No

44. Do you provide and sell mother's milk substitutes (all powdered or liquid milk, and what is specially formulated to start, continue and grow, and all complementary foods, bottles and artificial sweets) when ordered only?

yes

No

45. Breastfeeding mothers are given a discount or promotional tools when buying infant formula

yes

No

46. Are you promoting community initiatives and networking projects with other actors active in protecting, promoting and supporting breastfeeding

yes

No

47. How do you evaluate what you learned about breastfeeding?

Enough for what I need now

Not enough for what I need now

Enough but I want to know more

48. Where did you learn about breastfeeding?

in a medical course

in practical training

independent reading

scientific conference

personal experience

Books for general knowledge

In the hospital where I train

through the internet

Local knowledge classes in my town

Experience with friends and relatives

49. Which of your favorite following ways to gain new knowledge

Discussion groups for students and professionals

Conference or short seminar

Online training material

Clinical case study

Magazines

Discussion with doctors at the university

This section measures the role of the pharmacist in breastfeeding, answer how much you agree with the following sentences

50. The pharmacist plays an important role in encouraging and supporting breastfeeding

I never agree

I don't agree

no comment

I agree

I strongly agree

51. The female pharmacist is better able to help a nursing woman from a male regardless of her experience and training

I never agree

I don't agree

no comment

I agree

I strongly agree

52. The pharmacist has no significant impact on the mother's decision to breastfeed her baby.

I never agree

I don't agree

no comment

I agree

I strongly agree

53. Pharmacist should discuss breastfeeding with mother in first pregnancy

I never agree

I don't agree

no comment

I agree

I strongly agree

54. It is not appropriate for a pharmacist to advise the mother about breastfeeding

I never agree

I don't agree

no comment

I agree

I strongly agree

55. It's good for the pharmacist to turn a woman into a breastfeeding specialist.

I never agree

I don't agree

no comment

I agree

I strongly agree

What are your abilities or skills in breastfeeding?

very weak

Weak

Medium

Good

Excellent

How much do you trust that you can help a woman breastfeed?

very weak

Weak

Medium

Good

Excellent

This section measures your knowledge about breastfeeding

56. Digesting infant formula is easier than digesting breast milk

I never agree

I don't agree

no comment

I agree

I strongly agree

57. Breastfeeding and formula are acceptable ways to feed a baby in the first 6 months of life

I never agree

I don't agree

no comment

I agree

I strongly agree

58. Breastfeeding and formula are acceptable ways to feed a baby after the first 6 months in life

I never agree

I don't agree

no comment

I agree

I strongly agree

59. A smoking woman may not breastfeed

I never agree

I don't agree

no comment

I agree

I strongly agree

60. Breastfeeding interferes with a woman’s work outside the home

I never agree

I don't agree

no comment

I agree

I strongly agree

61. Breastfeeding leads a man to feel less important to his wife and baby

I never agree

I don't agree

no comment

I agree

I strongly agree

62. Breastfeeding is only useful for the duration of its use and not after it is over.

I never agree

I don't agree

no comment

I agree

I strongly agree

63. Artificial milk is better because it is possible to calculate how much milk the child will get

I never agree

I don't agree

no comment

I agree

I strongly agree

64. The formula for children currently on the market is a nutritional equivalent to natural breast milk

I never agree

I don't agree

no comment

I agree

I strongly agree

65. How long does a woman recommend breastfeeding?

Not more than six months

Until the teeth come out

about 9 months

Not more than 12 months

Between 12-24 months

Two years and more

To the period desired by the fetus

Other:

General knowledge about breastfeeding

66. A woman suffering from mastitis must secrete her milk and get rid of it and not give it to the child until she gets a full cure

yes

No

Babies who breastfeed need water in hot weather

yes

No

67. Only breastfeeding (without liquids or other foods) is the best way to feed a baby in the first six months of life

yes

No

68. In the first weeks after birth, a normal baby who breastfeeds needs 8-12 times to breastfeed within 24 hours.

yes

No

69. We should advise a breastfeeding woman to stop breastfeeding if she becomes pregnant

yes

No

70. Women who have previously been breastfed are less likely to develop breast cancer before menopause

yes

No

71. A woman who weaned her child as a result of the lack of milk she produces will not be able to produce milk in order to breastfeed other children in the future.

yes

No

72. The woman who took a biopsy from her turned out to be benign will not be able to breastfeed in the future

yes

No

73. Penicillin (amoxicillin) is the best treatment for mastitis in a breastfeeding woman three months after giving birth

yes

No

74. Babies who breastfed are less likely to be fat

yes

No

75. Increasing drinking water will increase the amount of milk in a nursing woman

yes

No

76. The nutritional value of breast milk is good in the first 9 months after birth

yes

No

77. High prolactin in the mother is necessary to start milk production in the mother

yes

No

78. The introduction of complementary food, whether water or formula, interferes with the establishment of breastfeeding

yes

No

79. Premature babies who breastfeed are more likely to develop ulcerative enterocolitis

yes

No

80. A woman with hepatitis C may not breastfeed

yes

No

81. The components of breast milk change during the feeding process at a time

yes

No

82. Babies who breastfeed formula are more likely to develop microbial ear infections than babies who breastfeed

yes

No

83. Changing the type of formula may help treat colic in a child

yes

No

84. A nursing woman should temporarily wean the baby if she uses medicines

yes

No

85. The growth of a breastfed baby is different from that of a baby who breastfed formula

yes

No

86. The best advice for a milk-deficient nursing woman is to breastfeed many times a day

yes

No

جـامعـــة النجاح الوطنية

كليـــة الدراســـات العليـــا

المعرفة والمواقف والممارسة بين الصيادلة حول الرضاعة الطبيعية والرضع استخدام الصبغة في محافظة قلقيلية/ الضفة الغربية عام 2022

إعداد

رنا عدنان محمد نزال

إشراف

د. نهال ناطور

د. مريم الطل

قدمت هذه الرسالة استكمالا لمتطلبات الحصول على درجة الماجستير في الصحة العامة، من كلية الدراسات العليا، في جامعة النجاح الوطنية، نابلس– فلسطين.

2024

المعرفة والمواقف والممارسة بين الصيادلة حول الرضاعة الطبيعية والرضع استخدام الصبغة في محافظة قلقيلية/ الضفة الغربية عام 2022

إعداد

رنا عدنان محمد نزال

إشراف

د. نهال ناطور

د. مريم الطل

الملخص

من المعترف به عالمياً أن الرضاعة الطبيعية هي الطريقة المثلى لتلبية الاحتياجات الغذائية للرضع، لما يترتب على ذلك من آثار كبيرة على النتائج الصحية والاجتماعية والاقتصادية. يمكن أن تكون النصائح والدعم غير المتسقين من المتخصصين في الرعاية الصحية، بما في ذلك الصيادلة، بمثابة عوائق أمام الرضاعة الطبيعية. تبحث هذه الدراسة في دور الصيدليات المحلية في التثقيف الصحي فيما يتعلق بتركيبات الرضاعة الطبيعية في محافظة قلقيلية، وذلك باستخدام منهج كمي مقطعي. يهدف البحث إلى فهم مشاركة الصيادلة في تعزيز ممارسات التغذية الصحية للرضع.

تم توزيع استبيان ذاتي يشمل أسئلة مغلقة ومفتوحة على 160 صيدلانيا في محافظة قلقيلية، وذلك باستخدام مقياس ليكرت لتقييم المواقف والممارسات والمعارف المتعلقة بالرضاعة الطبيعية واستخدام حليب الأطفال. تشير النتائج إلى أن متوسط عمر المشاركين أقل من 30 سنة، مع مستوى وعي متوسط، واتجاهات منخفضة، وممارسات مناسبة متوسطة، ومعرفة منخفضة فيما يتعلق بالرضاعة الطبيعية واستخدام حليب الأطفال.

تؤكد الدراسة على أهمية دمج تعليم الرضاعة الطبيعية في عروض التطوير المهني لكل من جمعيات الصيدلة المحلية والوطنية. يجب على الصيادلة، وخاصة أولئك الذين يعملون في الصيدليات المحلية،

معالجة الفجوات المعرفية لتوفير تعليم دقيق لمقدمي الرعاية الصحية ودعم الأمهات اللواتي يرضعن رضاعة طبيعية بشكل أفضل. إن دور الصيادلة في حماية وتعزيز ودعم الرضاعة الطبيعية أمر بالغ الأهمية، مما يستلزم الوعي بكفاءتهم ومسؤولياتهم الأخلاقية في الأمور المتعلقة بالرضاعة الطبيعية.

تسلط النتائج الضوء على الحاجة إلى الاعتراف بالعلاقات القائمة وديناميكيات السلطة والاهتمامات المتباينة في صيدليات المجتمع. بالإضافة إلى ذلك، فإن التعرف على المعرفة الداخلية في مجال الصيدلة يمكن أن يساعد الباحثين في تصميم التدخلات التي تشجع مشاركة الممارسين، مما يوفر رؤى مفيدة.

في الختام، تؤكد هذه الدراسة على الدور الحيوي للصيادلة في تعزيز الرضاعة الطبيعية وتوصي بدمج التثقيف حول الرضاعة الطبيعية في برامج التطوير المهني. إن معالجة الفجوات المعرفية والمسؤوليات الأخلاقية ستعزز قدرة الصيادلة على دعم الرضاعة الطبيعية بشكل فعال. علاوة على ذلك، يعد فهم الديناميكيات داخل صيدليات المجتمع أمرًا ضروريًا لتصميم التدخلات التي تتماشى مع احتياجات الممارسين وتساهم في إجراء أبحاث هادفة مدمجة في الممارسة.

الكلمات المفتاحية: الصيادلة، الخبرة القائمة على المعرفة، جودة الرعاية الصحية، الرضاعة الطبيعية، المواقف.