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ΔΙΠΛΩΜΑΤΙΚΗ ΕΡΓΑΣΙΑ

**«Evaluation of the knowledge, attitudes and perceptions of
Gynecology healthcare professionals in Greece towards
breastfeeding in order to improve the educational
breastfeeding curriculum of Greek Obstetrics & Gynecology
Departments»**

Του

ΘΕΟΔΩΡΙΔΗ ΘΕΟΔΩΡΟΥ ΤΟΥ ΔΗΜΗΤΡΙΟΥ

**Υποβλήθηκε ως αιτούμενο για την απόκτηση του μεταπτυχιακού
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Abstract

Objectives: This study tried to investigate the knowledge level, attitudes and perceptions of healthcare professionals in Greece towards breastfeeding with a questionnaire focusing especially on various relative objectives. In fact, in this study of the knowledge, attitudes and practices of established Greek healthcare professionals in relation to breastfeeding, we evaluated 3 themes: the first one concerned their knowledge about breastfeeding, the second one concerned their attitudes and perceptions towards breastfeeding and the last one their breastfeeding education.

Results: Over 70% of the participants supported that their level of knowledge about breastfeeding was moderate at best and could be further improved. A significant percentage (30%) lacked knowledge concerning the management of special breastfeeding scenarios such as mastitis development, Hepatitis B or HIV status or high fever appearance. However, despite admitting their low knowledge levels, almost half of the participants (n=150, 48.3%) stated that they were very confident concerning the management of any breastfeeding related issues in their everyday practice. Most participants had previous personal breastfeeding experience or at least are willing to do so in the future (themselves or their partners) (262 out of 312 respondents) with most of them aiming to breastfeed approximately for one year (39.1%). The same pattern was observed in terms of their recommendations regarding breastfeeding to other mothers regardless of their sex. Moreover, the vast majority was in favor of public breastfeeding (88.2%) and breastfeeding while returning to work (87.5%) despite the fact they considered that breastfeeding could become an obstacle for the social and professional obligations of mothers (70.3%). Most healthcare professionals admitted that they do not have the necessary time to properly inform mothers about the benefits of breastfeeding (186 out of 312 participants) while at the same time most of them acknowledged improper breastfeeding information as an important contributing factor for the low breastfeeding rates among Greek mothers (226 out of 312 participants). Finally, 251 out of 312 participants stated that although they had been taught the basic principles and theoretical background associated with breastfeeding by their departments, their education was lacking in didactic depth and their training in hands-on experience while the vast majority (88.8%) clearly underlined that there was definitely room for

improvement in their education/training curriculum. Expert teams, well-organized educational programs and advanced computing could contribute to the personnel's harmonization with the various breastfeeding objectives in order to create a "breastfeeding-friendly" social environment.

Conclusions: This study revealed that although most Greek gynecology healthcare professionals have very positive attitudes towards breastfeeding, their breastfeeding knowledge was moderate at best and could be further improved. They had hardly received any formal breastfeeding training by their department and they lacked knowledge concerning the management of special breastfeeding scenarios. Most of the participating healthcare professionals stated that their education and training about breastfeeding was more of superficial instead of being substantial either in theoretical background or technical skills making the improvement of current educational breastfeeding curriculum in the Obstetrics and Gynecology Departments an urgent necessity.

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1. Introduction

The term “Breastfeeding” is used to describe the process through which the baby receives any breast milk (World Health Organization, 2007) and is considered to be highly important both for infants and their mothers for nutritional, immunologic, psychologic, and other health-related reasons.

For the optimal health and development of infants, today WHO and UNICEF recommend that all infants should be exclusively breastfed for the first 6 months and continue to receive breast milk until 2 years of age to supplement other foods (WHO, 2017). In addition, the policy statement of American Academy of Pediatrics recognizes breastfeeding as the ideal form of infant nutrition, providing health benefits for both mothers and infants (Gartner et al., 2005).

Studies in Greece have shown that during the decade 2007–2017 revealed a substantial improvement in all breastfeeding indicators. In 2017, most mothers initiated breastfeeding in the first 24hrs from birth, while rates of any breast-feeding remained above 50% by the end of the 4th month (Iliodromiti et al., 2020). Increasing breastfeeding rates have been observed in other European countries as well during the same period, including among others, Scotland (Skafida, 2014), France (Bonet, Kaminski, & Blondel, 2007), Ireland (Brick & Nolan, 2014), England (Oakley, Kurinczuk, Renfrew, & Quigley, 2016) and Germany (Libuda, Bolzenius, & Alexy, 2017). However, it seems that despite the slight improvements that have been recorded in breastfeeding rates during the last decade, they continue to fall short of global recommendations, and many mothers, who initially chose to breastfeed, abandon breastfeeding because of the easy solution of formula-feeding (Tavoulari et al., 2016).

Literature has shown that one of the most important determinants of the maternal decision to breastfeed is, apart from her knowledge and family attitudes, the support and involvement of healthcare professionals (Bai, Middlestadt, Peng, & Fly, 2009; McInnes & Chambers, 2008; Schmied, Beake, Sheehan, McCourt, & Dykes, 2011). In fact, there is strong evidence suggesting that support from a trained healthcare professional can have a positive effect on initiation, duration and experiences of breastfeeding (Battersby, 2014).

It is therefore important that nursing, medical and other students in other healthcare professions, acquire knowledge about breastfeeding, and develop skills to achieve effective support and appropriate care to pregnant women, and to new mothers with infants, towards breastfeeding (Lewin & O'Connor, 2012). However, healthcare professionals do not always receive sufficient breastfeeding education during their foundational education program which makes them unable in effectively supporting mothers with breastfeeding (Azza Ahmed, Bantz, & Richardson, 2011; Yang, Schmied, Burns, & Salamonson, 2019). A significant lack in breastfeeding knowledge among healthcare professionals can lead women to receive inappropriate and often conflicting information that may result in premature weaning and causation of breastfeeding (Bäckström, Wahn, & Ekström, 2010; Nelson, 2007; Verd, De Sotro, González, Villalonga, & Moll, 2007).

Additionally, although the importance of knowledge has been underlined, knowledge about breastfeeding and its benefits alone is not enough for sufficient breastfeeding support; a positive attitude is also essential (Church, 2014).

Few studies, to date, have investigated the nature of professionals' beliefs, instead relying on simple statements of support or agreement (Furber & Thomson, 2008). The analysis of attitudes in much literature can be seen as being mainly descriptive without exploring the breadth and depth of health professionals' attitudes in this domain (Marks & O'Connor, 2015) and all those studies focused on healthcare professionals of different geographic regions (especially US and Europe) without, to the best of our knowledge, any study analyzing the attitudes of Greek healthcare professionals towards this crucial and interesting objective.

Given these issues, it is important to investigate in a qualitative manner Greek healthcare professionals' views regarding breastfeeding, to obtain a clearer image of the depth, nature, and complexity of underlying attitudes. The aim of this study is to investigate the knowledge, attitudes and perceptions and education of Gynecology healthcare professionals in Greece associated with breastfeeding through the completion of a well-structured self-administered questionnaire asking the participating Greek healthcare professionals to answer multiple choice questions. Based on the findings of this study, the paper proposes potential strategies to improve the breastfeeding educational curriculum of Obstetrics and Gynecology Departments for a more "breastfeeding-friendly" social environment.

2. Literature review

2.1 History of Breastfeeding

Breastfeeding is defined as process through which the baby receiving any breast milk (even if only once) and, exclusive breastfeeding as when the infant receives only breast milk and no other liquids or solids with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines (World Health Organization, 2007).

Although modern women may be selectively chastised for abandoning breastfeeding because of the easy solution of formula-feeding, this is not a new issue. Breastmilk has been revered since ancient times. Meticulous combing of civilized history reveals that almost every generation had to provide alternatives when the mother was unable (for various reasons) to breastfeed her baby. Most ancient tribes let several days pass before putting the baby to the breast offering herbal teas to the babies as substitute. Breast-shaped clay bottles have been found in ancient sites in Europe that date back to 3500BC. Some historians believe that cows and goats were actually domesticated for the reason of providing a human breast milk substitute to infants (Lawrence & Lawrence, 2016).

Hammurabi's Code from about 1800 BC contained regulations on the practice of "wet nursing", the process of nursing another woman's infant, often for hire. Throughout Europe, spouted feeding cups have been found in the graves of infants dating from about 2000 BC. In ancient Egypt, wet nurses were exalted, despite their station as servants. They were invited to royal events. The children of royal wet nurses were considered kin to the king. In Spartan times a woman, even if she was the wife of a king, was required to nurse her eldest son; plebeians were to nurse all their children (Victora, 1996). Plutarch reported that a second son of King Themistes inherited the kingdom of Sparta only because he was nursed with his mother's milk while the eldest son had been nursed by a stranger and therefore was rejected. In the great tale of Odysseus, only two individuals recognized the protagonist after his long absence from home, his loyal dog and his wet nurse (Lawrence & Lawrence, 2016).

No known written works describe infant feeding from ancient times to the Renaissance. In 1472, the first pediatric incunabulum by Paul Bagellardus, was printed in Padua, Italy. It described the characteristics of a good wet nurse and provided counseling about

hiccups, diarrhea, and vomiting. In 1584, Thomas Moffat wrote about the medicinal and therapeutic use of human milk for men and women describing the milk of the ass as being the best substitute for human milk at any age when nourishment was an issue (Mennella, Ziegler, Briefel, & Novak, 2006; Wright, Holberg, & Taussig, 1988).

Toward the end of the eighteenth century in England, the trend of wet nursing and artificial feeding changed, partially because medical writers drew attention to health and well-being and mothers made more decisions about feeding their babies. In eighteenth-century France, infant feeding included maternal nursing, wet nursing, artificial feeding with the milk of animals, and feeding of pap and panada (Lawrence & Lawrence, 2016). The majority of infants born to wealthy and middle-income women were placed with wet nurses. A more extensive historical review would reveal other examples of social problems in achieving adequate care of infants (Reamer & Sugarman, 1987). Long before our modern society, some women failed to accept their biologic role as nursing mothers, and society failed to provide adequate support for nursing mothers. Breastfeeding was more common and of longer duration in stable eras and rarer in periods of “social dazzle” and lowered moral standards. Urban mothers have had greater access to alternatives, and rural women have had to continue to breastfeed in greater numbers (Wickes, 1953).

In the 1920s, women were encouraged to raise their infants scientifically. Raising by the book” was commonplace. The U.S. government published *Infant Care*, referred to as the “good book,” which was the bible of child rearing read by women from all walks of life. It emphasized cod liver oil, orange juice, and artificial feeding. The acceptance or rejection of breastfeeding is being influenced in the Western world to a greater degree by the knowledge of the benefits of human milk and breastfeeding. Cultural rejection, negative attitudes, and lack of support from health professionals are being replaced by well-educated women’s interest in child rearing and preparation for childbirth. This has created a system that encourages a prospective mother to consider the options for herself and her infant (Lawrence & Lawrence, 2016).

In the second half of the twentieth century, women sought to be well informed, and many wanted the right to choose how they fed their infants. The first action began in the 1940s when Edith Jackson, MD, of Yale University School of Medicine and the Grace-New Haven Hospital was awarded a federal grant to establish the First Rooming-In Unit in the United States. This project included the first program to prepare women for

childbirth modeled after the British obstetrician Grantly Dick-Read's Child Birth Without Fear. This was developed with the Department of Obstetrics to reduce maternal medication during birth and keep mother and baby alert and together. Of course, it included breastfeeding. Trainees from this program in Pediatrics and Obstetrics spread across the country starting programs elsewhere (Lawrence & Lawrence, 2016).

Mothers chimed in when La Leche League was organized in the late 1950s. The great success of the mother-to-mother program of the La Leche League and other women's support groups in helping women breastfeed or, as with International Childbirth Education Association (ICEA), in helping women plan and participate in childbirth, is an example of the power of social relationships (Howard, Weitzman, Lawrence, & Howard, 1994).

The trend in infant feeding among mothers who participated in the Women, Infants, and Children (WIC) program in the late 1970s and early 1980s was analyzed by Martinez et al from the data collected by questionnaires mailed quarterly as part of the Ross Laboratories Mothers Survey (Martinez & Krieger, 1985; Martinez & Stahle, 1982). The responses represented 4.8% of the total births in the United States in 1977 and 14.1% of the total births in the United States in 1980. WIC participants in 1977, including those who supplemented with formula or cow milk, were breastfeeding in the hospital in 33.6% of cases. A steady and significant increase occurred in the frequency of breastfeeding; it rose to 40.4% in 1980 ($p < 0.5$). WIC data continue to be collected, and the trends have paralleled other groups. The WIC program, through the extensive actions of the directors and staff, has increased the numbers of WIC mothers choosing to breastfeed. Many programs have hired and trained peer support mothers with breastfeeding experience to help other clients (Martinez & Krieger, 1985; Martinez & Stahle, 1982).

In 1985, the United Nations Children's Fund (UNICEF) and WHO initiated the Baby Friendly Hospital Initiative with the 10 criteria to becoming a designated Baby Friendly Hospital, which has been implemented in developing countries with considerable success. The Baby Friendly Hospital Initiative, aims to create a healthcare environment where breast-feeding is the norm. A joint WHO/UNICEF statement, protecting, promoting, and supporting breastfeeding, describes suggested actions for maternity services, the so called "International Code of Marketing of Breast-milk Substitutes". Compliance of maternity hospitals with this Code is an integral aspect of the Baby

Friendly Hospital Initiative (Pérez-Escamilla, Martinez, & Segura-Pérez, 2016). In 1996, Evergreen Hospital in Kirkland, Washington, was the first Baby Friendly Hospital designated in the United States. This initiative has been reorganized and reestablished through Healthy Children, a not-for-profit organization that created Baby Friendly, USA. The program is slowly expanding. For certification for Baby Friendly, the hospital must provide evidence that it has met the 10 criteria and must demonstrate its effectiveness to a visiting team of assessors. In 2014, hospitals in the United States with the Baby Friendly designation reached 200 (Lawrence & Lawrence, 2016). Gradually, more than 160 countries have implemented this initiative worldwide (Pérez-Escamilla et al., 2016).

For the optimal health and development of infants, today WHO and UNICEF recommend that all infants should be exclusively breastfed for the first 6 months and continue to receive breast milk until 2 years of age to supplement other foods (WHO, 2017). In addition, the policy statement of American Academy of Pediatrics recognizes breastfeeding as the ideal form of infant nutrition, providing health benefits for both mothers and infants (Gartner et al., 2005).

2.2. Breastfeeding and its advantages

2.2.1 Breastfeeding and health advantages

Early writings on infant care in the 1800s and early 1900s described the hazards of serious infection in bottle-fed infants revealing an alarming difference in mortality risk between breastfed and bottle-fed infants (Grulee, Sanford, & Herron, 1934).

Maternal breast milk is considered to be the gold standard for baby-feeding and as such breastfeeding is ‘the natural and advisable way of supporting the healthy growth and development of young children’ (Chung, Raman, Trikalinos, Lau, & Ip, 2008; Shamir, 2016). Breast milk is ideal for the infant’s nutritional needs with its unparalleled immunological and anti-inflammatory properties offering protection against various diseases threatening both mothers and babies (Lawrence & Lawrence, 2016) such as middle ear infections, diarrhea, respiratory infections, sudden infant death syndrome,

diabetes mellitus and malocclusion, and is associated with increased intelligence in the child (Guise & Freed, 2000; Victora et al., 2016).

The Agency for Healthcare Research and Quality (AHRQ) published in 2007 a summary concerning breastfeeding and maternal and infant health outcomes in developed countries (Ip, Chung, Raman, Trikalinos, & Lau, 2009). The authors of this summary reaffirmed the health risks associated with formula-feeding and early weaning from breastfeeding. With regard to short-term risks, formula-feeding is associated with increases in common childhood infections, such as diarrhea and acute otitis media when compared with babies exclusively breastfed during the first six months (Ip et al., 2009). In terms of some relatively rare but serious infections and diseases including severe lower respiratory infections and leukemias, the risk is again lower for breastfed compared to formula-fed infants (Bachrach, Schwarz, & Bachrach, 2003; Ip et al., 2009; Kwan, Buffler, Abrams, & Kiley, 2004) while the risk of hospitalization for lower respiratory tract disease in the first year of life is more than 250% higher among babies who are formula fed than in those who are exclusively breastfed at least four months (Bachrach et al., 2003). Also, the risk of sudden infant death syndrome (SIDS) is 56% percent higher among infants who are never breastfed (Ip et al., 2009). Furthermore, formula-fed premature infants have higher incidence of necrotizing enterocolitis (NEC) (Ip et al., 2009). The AHRQ summary concludes that formula-feeding is associated with higher risks for major chronic diseases including type 2 diabetes, asthma, and childhood obesity (Arenz, Ruckerl, Koletzko, & Von Kries, 2004; Ip et al., 2009; Owen, Martin, Whincup, Smith, & Cook, 2006).

Concerning the mothers, breastfeeding is beneficial for them as well. In fact, mothers who breastfeed experience lower risks for certain poor health outcomes compared with those who do not breastfeed. In the mother, breastfeeding has been shown to decrease the frequency of breast cancer (Newcomb et al., 1994; Victora et al., 2016), ovarian cancer and endometrial cancer (Rosenblatt & Thomas, 1993, 1995; Victora et al., 2016), as well as facilitating weight loss (Dewey, Heinig, & Nommsen, 1993), providing protection against type 2 diabetes and conferring temporary contraception (Victora et al., 2016). Several studies have shown that the risk of breast cancer is higher for women who have never breastfed. Similarly, the risk of ovarian cancer was found to be 27% higher for women who had never breastfed than for those who had breastfed for some time (Fishman, 2010). A significant protective effect of breastfeeding against breast cancer was reported in BRCA1 mutation carriers in a case-control study. Breastfeeding

for more than 1 year was associated with 40% cancer risk reduction compared with those who breastfed for a shorter period. For BRCA1 mutation carriers, there was some indication that breastfeeding may be protective for ovarian cancer (Jernström et al., 2004). In general, exclusive breastfeeding and longer durations of breastfeeding are associated with better maternal health outcomes (Ip et al., 2009).

It is estimated that 823,000 child deaths and 20,000 breast cancer deaths per year at a global level could be avoided by implementing breast-feeding promotion policies (Victora et al., 2016).

2.2.2 Breastfeeding and psychosocial advantages

Apart from the health advantages for both mother and her child as major reasons for breastfeeding, another important factor is the desire to experience a sense of bonding or closeness with her baby (Bai et al., 2009; Guttman & Zimmerman, 2000; Neifert, Gray, Gary, & Camp, 1988). Indeed, many mothers indicate that the psychological benefit of breastfeeding (bonding) is the most important influence on their decision to breastfeed (Bai et al., 2009). In a study with mothers who exclusively formula feed it was shown that even they believe that breastfeeding is more likely to create a close bond between mother and child compared to formula-feeding (Guttman & Zimmerman, 2000). Also, breastfeeding may help to lower the risk of postpartum depression, a serious condition that appears in almost 13% of all mothers and may have a deep impact not only to the mother's health but also to the health of her child, particularly when she is unable to take full care for it her infant (O'Hara & Swain, 1996). In fact, women who have breastfed and women with longer durations of breastfeeding have been associated with lower risk for postpartum depression (Dennis & McQueen, 2009; Green, Broome, & Mirabella, 2006; Mancini, Carlson, & Albers, 2007).

2.2.3 Breastfeeding and economic advantages

Breastfeeding has economic benefits as well through the replacement of formula-feeding. In fact, a study estimated that families who followed optimal breastfeeding practices could save more than \$1,200–\$1,500 in expenditures for infant formula in the first year alone (Ball & Wright, 1999). Apart from the core financial cost, better infant health means fewer health insurance claims, increasing rates of breastfeeding can reduce the prevalence of various illnesses and health conditions, which in turn results in lower

health care costs, less employee time-off to care for sick children, and higher productivity.

A study conducted in 2001 on the economic impact of breastfeeding for three illnesses (otitis media, gastroenteritis, NEC) revealed that increasing the proportion of children who were breastfed in 2000 to the targets established in Healthy People 2010 would have saved an estimated \$3.6 billion annually (Center for Health Statistics, 2010). These savings were based both on direct costs including costs for formulas, physician, hospital, clinic, laboratory, and procedural fees and indirect costs as well including wages parents lose while caring for an ill child and the estimated cost of premature death (Weimer, 2001). Another study that evaluated costs associated with additional diseases (sudden infant death syndrome, hospitalization for lower respiratory tract infection in infancy, atopic dermatitis, childhood leukemia, childhood obesity, childhood asthma, and type 1 diabetes mellitus) concluded that if 90% of families breastfeed their babies exclusively for six months, the U.S.A. would save \$13 billion annually from reduced direct medical and indirect costs and the cost of premature death and in case of 80% the estimated savings would be \$10.5 billion annually (Bartick & Reinhold, 2010)

2.2.4 Breastfeeding and environmental advantages

Breastfeeding also has global environmental benefits. In fact, human milk is a natural, renewable food that acts as a complete source of babies' nutrition for about the first six months of life (Gartner et al., 2005). Also, there are no packages involved, as opposed to infant formulas and other substitutes that require packaging that ultimately may be deposited in landfills. It has been estimated that for every one million formula-fed babies, 150 million containers of formula are consumed. While some of those containers could be recycled, many end up in landfills. In addition, infant formulas must be transported from the manufacturer to the retail stores, so that they can be purchased by families. Although breastfeeding requires mothers to consume a small amount of additional calories, it generally requires no containers, no paper, no fuel to prepare, and no transportation to deliver, and it reduces the carbon footprint by saving precious global resources and energy (U.S. Department of Health and Human Services, 2011).

2.3 Breastfeeding in Greece

In Greece, during the period 2007–2017, various breastfeeding promotion activities took place. In detail, the national breastfeeding promotion program ‘ALKYONI’ was organized and implemented by the Institute of Child Health. This program included national awareness campaigns, educational activities for healthcare professionals and parents, and a breastfeeding helpline (Iliodromiti et al., 2020). In October 2014, the first public breastfeeding area in Greece, located at the “Athens Heart Mall” in central Athens was established. Also, technical support for the Baby Friendly Hospital Initiative was provided to healthcare facilities and at that time five maternity hospitals in Greece have been designated as “baby-friendly”, while at the same several other promoting breastfeeding practices including, rooming-in and skin-to-skin contact during the first hour from birth, were gradually applied. Due to this nationally-organized plan to promote breastfeeding in the community, more than 250 businesses (restaurants, shops, pharmacies) were designated as “baby-friendly” as well (Iliodromiti et al., 2020). Furthermore, with regard to policy changes, new legislation was put in motion by the Ministry of Health and the Ministry of Labor including, among others, laws aiming at maternity leave protection, breastfeeding promotion in the workplace, and the introduction of a written informed consent signed by the mother for the provision of a breast-milk substitute prior to discharge from the maternity hospital. In 2015, a new child health booklet adopting the WHO growth charts was implemented (Institute of Child Health, 2015) and new guidelines for the follow-up of children in primary healthcare were applied (Antoniadou-Koumatou, I. Panagiotopoulos & Attilakos, 2015). In 2018 the Ministry of Health published guidelines with regard to complementary feeding initiation, recommending exclusive breastfeeding for the first 6 months of age (Ministry of Health, 2018).

Studies have shown that during the decade 2007–2017 a substantial improvement in all breastfeeding indicators studied have appeared. In 2017, the great majority of mothers initiated breast-feeding in the first 24 h from birth, while rates of any breast-feeding remained above 50 % by the end of the 4th month (Iliodromiti et al., 2020).

Increasing breastfeeding rates have been observed in other European countries during the last 20 years, including Scotland (Skafida, 2014), France (Bonet et al., 2007), Ireland (Brick & Nolan, 2014), England (Oakley et al., 2016) and Germany (Libuda et

al., 2017). Appositively, in the already high Swedish breastfeeding rates, an opposite trend has been observed (Magnusson, Lagerberg, & Wallby, 2016). According to Iliodromiti et al, the Greek breastfeeding rates in 2017 tend to be higher than those in some other European countries like France or the UK, but remain lower than in Scandinavian countries or Japan (Iliodromiti et al., 2020). In fact, exclusive breastfeeding at the age of 6 months is lower than the median estimate for WHO European Region countries (Bagci Bosi, Eriksen, Sobko, Wijnhoven, & Breda, 2016) and lags behind WHO targets (Iliodromiti et al., 2020) although consistent with findings reported in other European countries (Economou et al., 2018; Erkkola et al., 2010; Grimshaw et al., 2015) where the low prevalence of breastfeeding after the age of 4 months in the WHO European Region has been attributed to early introduction of complementary feeding (Bagci Bosi et al., 2016). It seems that despite the slight improvements that have been recorded in breastfeeding rates during the last decade, they continue to fall short of global recommendations, and many mothers, who initially chose to breastfeed, shift to formula-feeding, and finally cease breastfeeding (Tavoulari et al., 2016)

2.4 Health professionals' attitudes towards breastfeeding

In 1984, the Surgeon General's Workshop on Breastfeeding and Human was held in Rochester, New York, the first scientific meeting to focus exclusively on breastfeeding in USA (Galson, 2009). The workshop represented a milestone in efforts to improve maternal and child health, and highlighted breastfeeding as a public health priority. Representatives from major professional and voluntary organizations met to assess the state of breastfeeding and to develop breastfeeding strategies. The breastfeeding strategies that were designed at that time were the basis of today's breastfeeding strategies and opened the way for the breastfeeding objectives in the Healthy People program, a program of a nationwide health-promotion and disease-prevention goals set by the US Department of Health and Human Services, which were subsequently updated for Healthy People 2000, Healthy People 2010, and Healthy People 2020 (Lawrence & Lawrence, 2016).

Since 1984, remarkable progress has been made toward better protection, promotion, and support for breastfeeding mothers and children throughout the United States.

Whereas 59% of women adopted breastfeeding in 1984, roughly 75% of women in 2009 start breastfeeding, according to the Centers for Disease Control and Prevention's National Immunization Survey (Centers for Disease Control and Prevention (US), 2008; Ryan, Wenjun, & Acosta, 2002).

Due to the important maternal and child health benefits of breastfeeding, healthcare professional organizations, including the American Academy of Pediatrics, American Academy of Family Physicians, American College of Obstetricians and Gynecologists, American College of Nurse-Midwives, American Dietetic Association, and American Public Health Association, officially recommend that most infants should breastfeed for at least 12 months (ACOG, 2007; Galson, 2009; Gartner et al., 2005; James & Dobson, 2005). These organizations also recommend that for about the first six months infants be exclusively breastfed, meaning that they not be given any foods or liquids other than breast milk. Today, more than 50 national health professional, educational, and other nonprofit organizations, as well as federal government agencies, participate in the United States Breastfeeding Committee, whose mission is “to improve the nation's health by working collaboratively to protect, promote, and support breastfeeding”(Galson, 2009).

Literature has shown that one of the most important determinants of the maternal decision to breastfeed is, apart from her knowledge and family attitudes, the support and involvement of healthcare professionals (Bai et al., 2009; McInnes & Chambers, 2008; Schmied et al., 2011).

Healthcare professionals have been identified as having a significant influence on breastfeeding decision and even on initiation rates and duration (Radzimirski & Callister, 2015) with pediatric interns being more likely to encourage breastfeeding and recognize early formula implementation than older residents (Freed, Jones, & Fraley, 1992). Another study reported that women who discontinued breastfeeding within the early postpartum weeks reported that they were mostly affected by their healthcare professional to take that decision and implement formula supplementation (Taveras et al., 2004). A Cochrane Review concluded that breastfeeding support from healthcare professionals can be effective in extending the duration of breastfeeding (Mcfadden et al., 2017).

In fact, there is strong evidence suggesting that support from a trained healthcare professional can have a positive effect on initiation, duration and experiences of breastfeeding (Battersby, 2014). A significant lack in breastfeeding knowledge among healthcare professionals can lead women to receive inappropriate and often conflicting information that may result in premature weaning (Bäckström et al., 2010; Nelson, 2007; Verd et al., 2007). Another study revealed that the advice and encouragement that their healthcare professionals provided to new mothers was superficial and insufficient (Dillaway & Douma, 2004; Szucs, Miracle, & Rosenman, 2009). Szucs et al organized focus groups with various healthcare professionals, finding that there were gaps in their knowledge, communication skills and support of breastfeeding. Lack of skill and inadequate time needed to manage breastfeeding problems also affect the level of health providers' involvement (Szucs et al., 2009).

It is therefore important that nursing, medical and other students in other healthcare professions, acquire knowledge about breastfeeding, and develop skills to achieve effective support and appropriate care to pregnant women, and to new mothers with infants, towards breastfeeding (Lewin & O'Connor, 2012). However, healthcare professionals do not always receive adequate breastfeeding education during their foundational education program becoming ineffective in supporting mothers with breastfeeding (Azza Ahmed et al., 2011; Yang et al., 2019). There have been two reviews of breastfeeding educational interventions to build capacity in healthcare professionals (Spiby et al., 2009; Watkins & Dodgson, 2010). Spiby et al identified a range of educational interventions for healthcare professionals aiming to increase knowledge and support breastfeeding, however due to methodological limitations, they were not able to support any specific approach (Spiby et al., 2009) while Watkins et al supported that educational interventions that mostly focused on increasing women's knowledge about breastfeeding, and how to best support breastfeeding, may be effective in modifying maternal behavior and healthcare providers' understanding (Watkins & Dodgson, 2010). To date there have been no reviews of interventions to increase the capacity of nursing or other health professional students to support breastfeeding mothers (Yang, Salamonson, Burns, & Schmied, 2018).

Although the importance of knowledge has been underlined, knowledge about breastfeeding and its benefits alone is not enough for sufficient breastfeeding support; a positive attitude is also essential (Church, 2014). As mentioned above, UNICEF and WHO founded the Baby Friendly Hospital Initiative in 1991 in order to appropriately

train healthcare professionals to provide standardized high quality support to mothers and newborns (Lawrence & Lawrence, 2016). Pediatricians showing an interest in plans for infant feeding had a positive impact on the decision to breastfeeding. While those who were ambivalent had a negative impact (Gartner et al., 2005).

In general, views about breastfeeding are positive. Many studies have revealed positive attitudes and beliefs of healthcare professionals found general positive attitudes towards breastfeeding across a variety of professional groupings (Bagwell, Kendrick, Stitt, & Leeper, 1993; Chen & Chen, 2004; Ekström, Widström, Nissen, & Matthiesen, 2005; Spear, 2004) including even student midwives (Darwent & Kempenaar, 2014).

However, this positivity towards breastfeeding does not seem to be universal. In fact, Tennant et al revealed concerns among healthcare professionals who claimed that their day-to-day practice is informed by training and personal experience (with research evidence having a more limited influence) with experiencing tensions between these influences on their practice being quiet often mainly due to practical problems (Tennant, Wallace, & Law, 2006). Furthermore, Cockerham-Colas et al reported negative attitudes towards extended breastfeeding at baseline, with negative attitudes increasing as the age of the breastfed child increased (Cockerham-Colas, Geer, Benker, & Joseph, 2012). Additionally, despite the fact that healthcare professionals are usually described as having consistent, evidence-based, and rational professional beliefs, it is likely that their health beliefs may be formed by factors other than research-based evidence (Marks & O'Connor, 2015).

Few studies, to date, have investigated the nature of professionals' beliefs, instead relying on simple statements of support or agreement (Furber & Thomson, 2008). The analysis of attitudes in much literature can be seen as being mainly descriptive without exploring the breadth and depth of health professionals' attitudes in this domain (Marks & O'Connor, 2015) and all those studies focused on healthcare professionals of different geographic locations (especially US and Europe) without, to our knowledge, any study analyzing the attitudes of Greek healthcare professionals towards this objective. Given these issues, it is important to investigate in a qualitative manner Greek healthcare professionals' views regarding breastfeeding, to obtain a clearer image of the depth, nature, and complexity of underlying attitudes.

3. Research Methodology

For the purpose of this study, a survey during 2019 was carried out, in which healthcare professionals including midwives, midwife interns, physicians and others, were recruited to express their opinions about breastfeeding, its benefits, its principles and approaches. A well-structured self-administered questionnaire was provided to every participant asking to answer multiple choice questions.

After studying the available literature of former relative studies, a draft version of the study questionnaire was designed covering most of the important evaluating objectives of the study. Then, for the needs of the study, based on personal effort and initiative, a designated team of healthcare professionals was formed to further improve the draft version of the questionnaire and develop its initial version during a preparative period in the second semester of 2018. During that preparative period, discussion with the form of informal communications during normal working hours was made concerning the nature of a hypothetical questionnaire, associated mainly with breastfeeding in Greece, which could be administered to working personnel asking for their opinions and attitudes towards the objectives of this study. More specifically, valuable information was exchanged from own working experience in Obstetrics and Gynecology Departments resulting in some important observations and recommendations, which were added to the draft questionnaire and the initial version was ready.

Before its administration, the initial questionnaire was pre-tested through a control group of healthcare professionals at a private Obstetrics and Gynecology Clinic with highly educated and skilled healthcare professionals completely aware of the breastfeeding and all its related objectives. The personnel of this hospital were asked to evaluate the comprehension level of the questionnaire and suggest possible modifications for better understanding. The comments from this “reviewing” group were evaluated and assessed leading at the end to some slight alternations made to a few questions for better clarity. This initial group of respondents was excluded from this study.

The final version of this anonymous self-administered questionnaire was distributed to working personnel through three different ways: a) during staff meetings in Hippokration

General Hospital of Thessaloniki b) during academic activities in Thessaloniki Medical Faculty and c) during educational seminars where healthcare professionals from public and private sector in Greece participated. Before completing the questionnaire, each participant was asked to read and sign an informed consent form.

The introductory part of the questionnaire (6 questions) explored demographic characteristics of the respondents. In detail, participants were questioned about their age, educational level, profession, marital status, and numbers of offspring. The core part of the questionnaire consisted of three different thematical sections: the first one that was associated with their knowledge about breastfeeding (15 questions), the second one associated with their attitudes and perceptions towards breastfeeding (15 questions) and the last one with their education associated with breastfeeding (3 questions).

The questions were based on a Linkert scale where the respondents were asked to specify their level of agreement or disagreement on an agree-disagree scale for a series of statements addressed by the questions. The Linkert format was a typical five-level Likert item where: 1* corresponded to “Strongly disagree” (St/Dis), 2* to “Somewhat Disagree” (Sm/Dis), 3* to “Either agree or disagree” (Ag/Dis), 4* to “Somewhat Agree” (Sm/Ag) and 5* to “Strongly agree” (St/Ag).

The data obtained from the responses of the participants who answered the questionnaires were collected and analyzed with the help of the Statistical Package for the Social Sciences (SPSS) Version 24.0 (IBM).

4. Results and Discussion

4.1 Sample Characteristics and Demographics

The questionnaire was administered to a total of 344 healthcare professionals. From this initial group of 344 participants, a total of 312 agreed to answer (90.7% response rate) the questionnaire of the study. This group of 312 respondents mainly consisted of nurses and students (nursing or medical ones). In detail, the final study group included 112 nurses, 134 students, 57 physicians and 9 other healthcare professionals working in gynecological departments of public or private sector in Greece with the vast majority being women (274 out of 312) (Table 1).

Regarding the age of the study group, more than half of the respondents (59.6%) were at most in their early twenties followed by a 30.4% of them being between 30 and 50 years old and a mere 10% were older than 50 years old. Because of the relative low average age, more than 60% of the participants were single and without any children (192 and 209 out of 312 respectively) while only 38.5% were married and 33% had families of at least one child. Regarding educational level and status, 244 out of 312 had attended or were attending a Nursing Technical Institute (78.2%), 46 had attended or were attending a University Department (2.6%) and 22 had obtained a higher educational post-graduate status (MSc or PhD) (7.1%).

Table 1. Demographic characteristics of participants.

Demographics	%	n=312
Sex		
<i>Male</i>	12.2	38
<i>Female</i>	87.8	274
Age (years)		
<20	14.4	45
20-29	45.2	141
30-39	18.2	57
40-49	12.2	38
50-59	10.0	31
Educational level		
<i>Technological Educational Institute</i>	78.2	244
<i>University</i>	14.7	46
<i>Post-Graduate (MSc / PhD)</i>	7.1	22
Profession		
<i>Nurse</i>	35.9	112
<i>Student (nursing / medical)</i>	42.9	134
<i>Physician</i>	18.3	57
<i>Other</i>	2.9	9
Marital status		
<i>Single</i>	61.5	192
<i>Married</i>	38.5	120

Number of children		
<i>0</i>	67.0	209
<i>1</i>	10.9	34
<i>2</i>	18.2	57
<i>3</i>	2.9	9
<i>>3</i>	1.0	3

4.2 Knowledge, attitudes and perceptions of healthcare professionals in Greece towards breastfeeding

Table 2 presents the questions that were asked to respondents with the form of an anonymous self-administered questionnaire along with the received answers in the three thematical subsections: a) knowledge about breastfeeding b) attitudes and perceptions towards breastfeeding and c) education associated with breastfeeding.

The evaluation of the first thematical section revealed that half of the participants (50.3%) characterized their self-confidence in terms of their knowledge about breastfeeding as moderate while less than one third (32.7%) was not confident at all and only 17% were highly confident. 232 out of 312 respondents (74.5%) reported that that they had hardly received any formal breastfeeding training from their department or school and admitted that their current level of knowledge has been achieved almost entirely by their own personal research and everyday working experience while over 80% of them supported that there was definitely room for improvement in terms of their breastfeeding knowledge. To this direction, for every 10 healthcare professionals who completed the questionnaire, at least 3 of them lacked knowledge concerning the management of special breastfeeding scenarios such as mastitis development, Hepatitis B or HIV status, high fever appearance or safe use of medication from the breastfeeding mothers. However, despite admitting their low knowledge levels, almost half of the participants (n=150, 48.3%) stated that they were very confident concerning the management of any breastfeeding related issues in their everyday practice. As expected, the vast majority were of the opinion that breastfed milk is the ideal meal for an infant

while being more nutritious than ready meals (formulas) (94.5% and 61.5% respectively).

The evaluation of the second thematical section revealed that most participants had previous personal breastfeeding experience or at least are willing to do so in the future (themselves or their partners) (262 out of 312 respondents) with most of them aiming to breastfeed approximately for one year (39.1%) followed by those either willing to extend breastfeeding up to 2 years or reduce it down to 6 months (29.5% and 28% respectively). The same pattern was observed in terms of their recommendation of breastfeeding to other mothers with 270 out of 312 Greek healthcare professionals being supportive of breastfeeding up to 1 year (50%) with a balance between the supporters of either 6 months or 24 months (26.9% and 20.5% respectively). Most of them strongly supported the option of exclusive breastfeeding (76.2%) and showed their disagreement over a potential combination of breastfeeding and formulas (75.4%). Moreover, the vast majority was in favor of public breastfeeding (88.2%) and breastfeeding while returning to work (87.5%) despite the fact they considered that breastfeeding could become an obstacle for the social and professional obligations of mothers (70.3%). In terms of bonding, it was widely believed that breastfeeding is better than formulas for creating a strong emotional bond between the baby and the mother while at the same time it is highly likely that the process may isolate the father from the bonding process (90% and 76.9% respectively). 262 out of the 312 participants underlined the superiority of breastfeeding over formula-feeding in terms of convenience and cost. Also, a clear support over donation of maternal milk was reported from over 80% of the participants. Finally, most healthcare professionals (186 out of 312 participants) admitted that they do not have the necessary time to properly inform the mothers about the benefits of breastfeeding while at the same time most of them (226 out of 312 participants) acknowledged their improper breastfeeding informing as an important contributing factor for the low breastfeeding rates among Greek mothers.

The evaluation of the last thematical section showed that most participants basically had not received any breastfeeding education/training from their departments or that their education/training was superficial as reported from the 71.9% of the participants. In fact, 251 out of 312 participants stated that although having been taught the basic principles and theoretical background associated with breastfeeding from their departments, their education was lacking in didactic depth and their training in hands-on

experience while the vast majority (88.8%) clearly underlined that there was definitely room for improvement in their education/training curriculum.

Table 2. Evaluating the knowledge, attitudes and perceptions of healthcare professionals in Greece towards breastfeeding.

n=312					
<u>KNOWLEDGE ABOUT BREASTFEEDING</u>	1* (St/Dis)	2* (Sm/Dis)	3* (Ag/Dis)	4* (Sm/Ag)	5* (St/Ag)
<i>Are you confident with your knowledge about breastfeeding?</i>	49 (15.7%)	53 (17%)	157 (50.3%)	28 (8.9%)	25 (8.1%)
<i>Have you obtained most of your knowledge about breastfeeding through your own personal research?</i>	12 (3.6%)	20 (6.4%)	48 (15.5%)	89 (28.6%)	143 (45.9%)
<i>Could your level of knowledge be improved?</i>	9 (2.9%)	8 (2.6%)	38 (12.2%)	95 (30.4%)	162 (51.9%)
<i>Are you confident concerning the management of any breastfeeding related issues in your everyday practice?</i>	12 (3.6%)	52 (16.6%)	98 (31.5%)	102 (32.8%)	48 (15.5%)
<i>Is breastfed milk the ideal meal for an infant?</i>	0 (0%)	2 (0.7%)	15 (4.8%)	54 (17.2%)	241 (77.3%)
<i>Are ready meals (formulas) as nutritious as the maternal milk?</i>	22 (7.1%)	33 (10.6%)	65 (20.8%)	124 (39.7%)	68 (21.8%)
<i>Are formulas easier to digest than maternal milk?</i>	64 (20.5%)	68 (21.8%)	79 (25.3%)	52 (16.7%)	49 (15.7%)
<i>Should a mother/casual drinker avoid breastfeeding?</i>	27 (8.6%)	52 (16.7%)	88 (28.2%)	64 (20.5%)	81 (26%)
<i>Can a mother/carrier of Hepatitis B that has been vaccinated, safely breastfeed her baby?</i>	58 (18.6%)	71 (22.7%)	84 (26.9%)	50 (16.1%)	49 (15.7%)
<i>Can a mother/carrier of HIV transfer the virus to her baby through breastfeeding?</i>	67 (21.5%)	54 (17.3%)	91 (29.2%)	64 (20.5%)	36 (11.5%)
<i>Should a mother with fever > 38°C</i>	47	45	84	64	72

<i>interrupt breastfeeding temporarily?</i>	(15.1%)	(14.4%)	(26.9%)	(20.5%)	(23.1%)
<i>In case of mastitis, should a mother stop breastfeeding?</i>	51 (16.4%)	49 (15.7%)	69 (22.1%)	72 (23.1%)	71 (22.7%)
<i>Should mothers/ regular smokers be encouraged to stop breastfeeding?</i>	47 (15.1%)	71 (22.8%)	79 (25.4%)	56 (18%)	58 (18.7%)
<i>Can a mother make safe use of medication in breastfeeding?</i>	74 (23.7%)	78 (25%)	79 (25.3%)	52 (16.7%)	29 (9.3%)
<i>Do breast plastic surgeries make breastfeeding difficult?</i>	62 (19.9%)	67 (21.5%)	81 (25.9%)	71 (22.8%)	31 (9.9%)
<u>ATTITUDES AND PERCEPTIONS TOWARDS BREASTFEEDING</u>	1* (St/Dis)	2* (Sm/Dis)	3* (Ag/Dis)	4* (Sm/Ag)	5* (St/Ag)
<i>Have you breastfed your children or do you intend to do so in the future (yourselves or your partners)?</i>	11 (3.5%)	21 (6.7%)	18 (5.8%)	89 (28.5%)	173 (55.5%)
<i>For how long have you breastfed your children or do you intend to do so in the future (yourselves or your partners)?</i>	1month	3months	6months	12months	24months
	2 (0.7%)	8 (2.8%)	88 (28%)	122 (39.1%)	92 (29.5%)
<i>Do you recommend breastfeeding to mothers?</i>	5 (1.6%)	6 (1.9%)	31 (9.9%)	81 (26%)	189 (60.6%)
<i>For how long would you recommend breastfeeding?</i>	1month	3months	6months	12months	24months
	2 (0.7%)	6 (1.9%)	64 (20.5%)	156 (50%)	84 (26.9%)
<i>Are you in favour of exclusive breastfeeding?</i>	3 (1%)	2 (0.7%)	69 (22.1%)	74 (23.7%)	164 (52.5%)
<i>Are you in favour of breastfeeding combined with formulas?</i>	94 (30.2%)	65 (20.8%)	45 (14.4%)	50 (16%)	58 (18.6%)
<i>Are you in favour of public breastfeeding?</i>	5 (1.6%)	6 (1.9%)	26 (8.3%)	91 (29.2%)	184 (59%)
<i>Are you in favour of breastfeeding while returning to work?</i>	7 (2.2%)	9 (2.9%)	23 (7.4%)	97 (31%)	176 (56.5%)
<i>Is breastfeeding an obstacle for the social and professional obligations of mothers?</i>	17 (5.4%)	18 (5.7%)	58 (18.6%)	71 (22.8%)	148 (47.5%)

<i>Does breastfeeding make the father feel isolated from raising of his child?</i>	19 (6.1%)	15 (4.8%)	38 (12.2%)	89 (28.5%)	151 (48.4%)
<i>Is breastfeeding better than formulas in the promotion of bonding between the mother and her baby?</i>	2 (0.7%)	2 (0.7%)	27 (8.6%)	92 (29.5%)	189 (60.5%)
<i>Is breastfeeding more convenient and cheaper than formulas?</i>	11 (3.5%)	21 (6.7%)	18 (5.7%)	89 (28.6%)	173 (55.5%)
<i>Should mothers with excess of milk be encouraged to donate their milk to maternal milk banks?</i>	15 (3.5%)	17 (6.7%)	24 (5.7%)	94 (28.6%)	162 (55.5%)
<i>Do you have the time to properly inform the mothers about the benefits of breastfeeding?</i>	101 (32.6%)	85 (27.1%)	61 (19.5%)	42 (13.5%)	23 (7.3%)
<i>Are the low breastfeeding rates in Greece associated, to an important degree, with the fact that healthcare professionals do not properly inform mothers about breastfeeding?</i>	25 (8%)	27 (8.6%)	34 (10.9%)	84 (27%)	142 (45.5%)
<u>BREASTFEEDING</u> <u>EDUCATION & TRAINING</u>	1* (St/Dis)	2* (Sm/Dis)	3* (Ag/Dis)	4* (Sm/Ag)	5* (St/Ag)
<i>Was the education and training you received from your department detailed and accurate?</i>	107 (34.4%)	117 (37.5%)	57 (18.3%)	18 (5.7%)	13 (4.1%)
<i>Did the education and training you received from your department lack in didactic depth and hands-on experience?</i>	11 (3.5%)	16 (5.1%)	34 (10.9%)	86 (27.6%)	165 (52.9%)
<i>Could your education and training provided from your department have been of higher quality?</i>	11 (3.5%)	11 (3.5%)	13 (4.2%)	96 (30.8%)	181 (58%)

5. Discussion

The aim of this study was to investigate the knowledge level, attitudes and perceptions of Gynecology healthcare professionals in Greece towards breastfeeding with a questionnaire focusing especially on various relative objectives. In fact, this study of the knowledge, attitudes and practices of established Greek healthcare professionals in relation to breastfeeding, by evaluating: their knowledge, their attitudes and perceptions and their education regarding breastfeeding.

In terms of the first theme, most participants supported that their level of knowledge about breastfeeding was moderate at best and could be further improved. Many of them reported that they had hardly received any formal breastfeeding training from their department or school and admitted that their current level of knowledge has been achieved almost entirely by their own personal research and everyday working experience. These findings are on agreement with various studies in other countries where healthcare professionals admitted that they were significant knowledge gaps in their background which made them ill-prepared to counsel breast-feeding mothers (Al-Nassaj, Al-Ward, & Al-Awqati, 2004; Finneran & Murphy, 2004; Freed et al., 1995; Guise & Freed, 2000; Holtzman & Usherwood, 2018; Ingram, 2006; Nakar et al., 2007). Most participants lacked knowledge about the safe use of medication from mothers during breastfeeding, something that has been reported by Amir et al for Australian healthcare professionals as well (Amir & Pirotta, 2009). Additionally, a significant number lacked knowledge concerning the management of special breastfeeding scenarios such as mastitis development, Hepatitis B or HIV status or high fever appearance, a finding that has also been reported by Brodribb et al for Australian healthcare professionals (Brodribb, Fallon, Jackson, & Hegney, 2008a).

However, despite admitting their low knowledge levels, most of the participants stated that they were very confident concerning the management of any breastfeeding related issues in their everyday practice. This high level of confidence was in contrast to other studies where healthcare professionals wondered whether their lack of breastfeeding knowledge could have a negative impact on their ability to handle effectively any breastfeeding related issues (Brodribb et al., 2008a). This difference could possibly be explained by the fact that most participants in this study were of relative low age. Their age-related enthusiasm and energy combined with their lack of working experience

could result in higher levels of confidence compared to those of experienced fully qualified older healthcare professionals that participated in other studies (Al-Nassaj et al., 2004; Brodribb et al., 2008a; Finneran & Murphy, 2004; Freed et al., 1995; Guise & Freed, 2000; Ingram, 2006; Nakar et al., 2007). In fact, Ahmed et al found that despite Egyptian healthcare students having low knowledge scores and not holding strongly positive attitudes towards breastfeeding, more than 70% of the students indicated they were confident or very confident about their ability to support breastfeeding (A. Ahmed & El Guindy, 2011).

In terms of their attitudes and perceptions regarding breastfeeding, most participants generally supported breastfeeding up to 1 year of age followed by those supporting the breastfeeding up to 2 years of age. Furthermore, the vast majority was in favor of public breastfeeding and breastfeeding while returning to work. The same picture has been painted by previous studies evaluating healthcare professionals from other countries around the globe including United States, Mexico, United Kingdom (Ireland, Scotland, England), Iraq, Israel, Taiwan and Australia which revealed very positive attitudes towards breastfeeding (Al-Nassaj et al., 2004; Anchondo et al., 2012; Finneran & Murphy, 2004; Holtzman & Usherwood, 2018; Ingram, 2006; Nakar et al., 2007; Williams & Hammer, 1995), although one study found that over one third of nursing American students were against public breastfeeding and another reported that all students held this belief (Cricco-Lizza, 2006; Spear, 2006).

In terms of their education regarding breastfeeding, most participants admitted that basically they have not received any breastfeeding education/training by their departments, or that their education/training was superficial. This was in agreement with Freed et al who reported that only 38% had received any education from their departments about breastfeeding and indicated what little they knew came from other residents and nurses (Freed et al., 1992). In fact, most participants in this study stated that although having learned basic principles about breastfeeding from their departments, their education was lacking in didactic depth and their training in hands-on experience and that there was definitely room for improvement in their education/training curriculum. This is very much in line with other studies, where healthcare professionals stated that their education and training about breastfeeding was more of superficial instead of being substantial either in theoretical background or technical skills (Anchondo et al., 2012; Power, Locke, Chapin, Klein, & Schulkin, 2003).

It has been found that breastfeeding education for healthcare professionals results in greater knowledge, improved use of resources, and a more proactive approach to breastfeeding support and the creation of a breastfeeding-friendly environment (Burt, Whitmore, Vearncombe, & Dykes, 2006; Holmes, Mcleod, Thesing, Kramer, & Howard, 2012). A subsequent study confirmed that healthcare professionals' knowledge was low and their misinformation disturbingly high making the need for the design of educational & training programs that would provide comprehensive education on breastfeeding (Lawrence & Lawrence, 2016). Another study revealed a reported low level of confidence in their skills underlying the need for the need for didactic and clinical training in breastfeeding (Williams & Hammer, 1995).

This study also revealed that healthcare professionals that have previous breastfeeding experience (themselves or their partners) or are willing to breastfeed their newborns are most likely to recommend breastfeeding to other mothers, a finding in agreement with previous studies where it was shown that healthcare professionals with breastfeeding experience had more positive attitudes towards breastfeeding than those without any personal experience (Barnett, Sienkiewicz, & Roholt, 1995; Brodribb, Fallon, Jackson, & Hegney, 2008c; Chen & Chen, 2004; Ingram, 2006). Also, this study revealed that the vast majority considered that breastfeeding was more convenient and cheaper than formulas whereas in other former studies there was a balance between the convenience of both feeding methods (Brodribb, Fallon, Jackson, & Hegney, 2008b). Moreover, it was shown that most healthcare professionals agreed that breastfeeding is far more superior to formula feeding in promoting bonding between the mother and her baby matching the opinion of healthcare professionals from other studies (Brodribb et al., 2008b; Holtzman & Usherwood, 2018; Scott, McInnes, Tappin, & Guthrie, 2003). Regarding bonding between the father and his baby, a significant number of the participants (both male and female) stated that the breastfeeding excludes the father from the raising of his child since it basically involves only the mother of the child. This is a finding for which the literature is inconclusive since there are studies that have raised concerns whether breastfeeding might make fathers feel excluded (Holtzman & Usherwood, 2018) whereas there are other ones where most healthcare professionals (either male or female) totally agree that breastfeeding does not affect the bonding process between the father and his baby (Brodribb et al., 2008b).

The above results are very interesting and they can assist in developing breastfeeding policies and professional education to support Greek healthcare professionals in this vital role.

6. Recommendations

It is a well-established fact that breastfeeding is important to infants and their mothers for nutritional, immunologic, psychologic, and other health reasons is an established fact. While all the participating healthcare professionals had positive attitudes towards breastfeeding, they were often lacking in knowledge and training to provide strong support to mothers during their breastfeeding journey.

To solve this educational problem, the existing educational curriculum should be improved since as stated by the participants there is definitely room for improvement. To establish breastfeeding and human lactation as an integral part of medical student education, the topic should be included in the present curriculum at the appropriate natural points, whether it is a class on anatomy, physiology, nutrition, endocrinology, women's health, or infant care, discussing topics such as the properties of breast milk, benefits of breastfeeding for both mother and infant, assessment parameters for effective breastfeeding, maternal support, and achievement of proper latch in a didactic instructional manner (A. Ahmed & El Guindy, 2011; Azza Ahmed et al., 2011; Kakrani, Rathod Waghela, Mammulwar, & Bhawalkar, 2015; Spear, 2006).

A range of formats and educational strategies can be applied including, apart from the didactic lecture style, simulation and clinical placement, evidence-based seminar updates (Spatz & Pugh, 2007) with case studies (Spatz, 2005) in conjunction with, or perhaps replacing, didactic classroom lectures. Specialized training workshops and seminars have been characterized as useful as well (Kakrani et al., 2015; Spatz, 2005; Spatz & Pugh, 2007). Increasingly online education can be applied as well. In fact, studies have shown that the additional online module improved undergraduate nursing students' learning as well as their confidence in the clinical setting (Deloian, Lewin, & O'Connor, 2015).

The program should be taught by healthcare professionals who are qualified faculty members recognized by their colleagues and certified by specialty examining boards. The classes should be part of the total curriculum and not something a student can elect

to do only in the last year of the program, when most of the assignments are by electives since it is highly unlikely that graduate physicians or nurses in practice will attend a teaching day exclusively on breastfeeding which may not serve their educational needs when they are also responsible for keeping up to date on the constant flow of advancements in every field of Modern Medicine. However, what needs to be established here is that much remains to be learned in Modern Medicine, and lactation should be part of it (Lawrence & Lawrence, 2016).

Practical experience should be provided through clinical placement at a hospital based maternity unit where nursing and medical students can have opportunities to observe and interact with lactation consultants, nurses and other healthcare professionals as they provided breastfeeding support to new mothers (A. Ahmed & El Guindy, 2011; Azza Ahmed et al., 2011; Spear, 2006; Vandewark, 2014). Providing students with opportunities to practice breastfeeding management skills before actually caring for clients in a clinical setting may increase confidence (A. Ahmed & El Guindy, 2011).

The ideal educational curriculum should ensure that all participating healthcare professionals will receive accurate breastfeeding education including both the knowledge and skills to support women to breastfeed (Australian College of Midwives, 2016; WHO, 2018; Yang et al., 2018). For facility personnel whose role may involve educating, advising or assisting women in relation to breastfeeding, they should have a minimum of 20 hours of breastfeeding education, consisting of at least 8 hours theoretical education and at least 3 hours relevant supervised clinical experience on breastfeeding (Australian College of Midwives, 2016; WHO, 2018; Yang et al., 2018). The education program may include various delivery options such as workshops, face-to-face or online education (Yang et al., 2018). Two intervention studies were based on the BFHI 20 hr module but both adapted this by either reducing the content to 16 h online (Cianelli et al., 2014) or reducing to 10 h with a significant clinical component of 8 weeks (Dodgson & Tarrant, 2007). Both had positive effects on students' breastfeeding knowledge.

Hospital administrative, medical, nursing, and nutrition staff should establish a strategy that promotes and supports breastfeeding through the formation of an interdisciplinary team responsible for the implementation of hospital policies and provision of ongoing educational activities. There is a need for training which can specifically address feelings of hopelessness and powerlessness in staff with regards the positive impact

they can have on breastfeeding behavior, and for policy makers to acknowledge and address the ambivalence that exists regarding some current promotion practices (Marks & O'Connor, 2015).

Breastfeeding topics should become part of a well-rounded continuing education program that includes a number of other important issues, such as infectious diseases, endocrine problems, growth, development, and perinatology. When breastfeeding is included in programs on infant nutrition and presented by a certified healthcare professional, it will gain the status it needs.

Expert teams, well-organized educational programs and advanced computing could contribute to the personnel's harmonization with the various breastfeeding objectives in order to create a "breastfeeding-friendly" social environment.

7. Conclusions

This study revealed that despite their very positive attitudes towards breastfeeding, the level of breastfeeding knowledge of most Greek gynecology healthcare professionals, was moderate at best and could be further improved. They had hardly ever received any formal breastfeeding training by their departments, while lacking knowledge concerned mainly the management of special breastfeeding scenarios. Most of the participating healthcare professionals stated that their education and training about breastfeeding was more of superficial instead of being substantial either in theoretical background or technical skills making the improvement of current educational breastfeeding curriculum in the Obstetrics and Gynecology Departments an urgent necessity.

This study has two important limitations. The first one is associated with the self-reported nature of the questionnaire, since in case of potential misunderstanding of the questions from the participants, they might be reluctant to request relative elucidations when answering the questionnaire. The second one is associated with the demographics of the participants. More specifically, 246 out of 312 participants were either professional nurses or students (nursing or medical ones). This makes it difficult to generalize the results and extract conclusions about the opinions and attitudes of other healthcare professionals (gynecologists, lactation specialists, pediatricians etc.). Also, the relatively young average age of the participants (134 out of 312 were students) could be considered as another limitation. Furthermore, this study included a sample group

consisting mainly from Greek healthcare professionals from a limited geographical area (Thessaloniki, Greece) and as an outcome it is possible that our findings may not reflect exactly the entire Greek residence. However, it includes a significant number of individuals and the reported findings can cast light on the so far unknown area of breastfeeding knowledge, attitudes and practices of Greek healthcare professionals and provide new and useful insights. Future studies could target a larger number of respondents focusing on a more balanced composition of the responding subgroups that should include if possible equal numbers of all the working personnel employed in Gynecology Departments as well as heads of medical and nursing services, while at the same time trying to achieve a wider variety in the respondents' age and working experience, in order to extrapolate more universal results.

The results of this study are of high importance and could possibly assist in designing and implementing more efficient breastfeeding educational curriculums to support Greek healthcare professionals in their effort to support mothers during their breastfeeding journey.

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