

Material awareness on natural feeding

Katarzyna Plagens-Rotman¹, Sławomira Kubiak², Beata Pięta¹, Katarzyna Wszolek¹,
Grażyna Iwanowicz-Palus³, Tomasz Opala¹

¹ Department of Mother's and Child's Health, University of Medical Sciences, Poznań, Poland

² Department of Neonatology, University of Medical Sciences, Poznań, Poland

³ Department of Practical Obstetric Skills Faculty of Nursing and Health Sciences, Medical University, Lublin, Poland

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Abstract

Introduction. Natural breastfeeding is the only proper way to feed newborns and infants because it ensures their proper development. Breastfeeding enhances health and protects against the development of many diseases in childhood and adulthood. The primary benefits of breastfeeding include reduced incidences of infection in the respiratory system as well as a reduction in gastrointestinal and systemic infections. The benefits of breastfeeding also include decreased inflammation and improved immunity to disease in the infant. Further benefits of breastfeeding are reduced incidences of type 1 diabetes, Crohn's disease, and rheumatoid arthritis.

Objective. The aim of the study was to assess the degree of knowledge on maternal breastfeeding among current expecting mothers.

Materials and method. The study comprised 147 mothers hospitalized in the Gynecology-Obstetrics Hospital University of Medical Sciences in Poznań, Poland, during late July – August 2012.

Results. For 139 (93.88%) of the surveyed women, breastfeeding was a priority regarding the health of the child. Respondents most often used professional literature in order to gain knowledge about breastfeeding (63.27%). The least popular way of acquiring knowledge was through the media (27.21%).

Conclusions. Analysis of the collected material on the surveyed women showed that women have a diverse range of knowledge about breastfeeding. Currently, breastfeeding is required to be promoted and supported by midwives, paediatricians and other health professionals.

Key words

maternal, breast milk, breastfeeding

INTRODUCTION

According to current knowledge, breastfeeding is the best method for feeding infants and young children. Prior to World War II, breastfeeding was common; however, within the last half of the 20th century the percentage of breastfed infants fell naturally, not only in Poland but also in other European countries and the USA.

Great advances in medicine began to take place in the last three decades of the 20th century, leading to a deeper understanding and knowledge of the physiology of development and quality of food, which led to the rebirth of this method of feeding.

The World Health Organization (WHO) played a valuable role in restoring breastfeeding in the year 1981 when it stipulated, within the milk replacer product marketing code, that: 'Breastfeeding [...] is an irreplaceable biological and emotional basis for mother and infant health.' The next major step, made by the activities of the WHO, was the creation of the so-called 'Innocenti Declaration' in 1990, which formulated a comprehensive strategy to restore the idea of breastfeeding [1].

It is recommended that a woman's breast milk be the only food for the infant in the first six months of life, and that it extends until the age of 12 months beyond the introduction

of additional food supplements, or until the period when the child and mother resign from breastfeeding. It should be noted that the WHO recommends breastfeeding for two years or longer.

Recommendations of the American Academy of Pediatrics (AAP) in 1997 and 2005 highlight the benefits of breast milk for premature and high-risk infants [2], and studies in recent years have done much to deepen knowledge on the subject and the results confirm the nutritional and therapeutic benefits of breast milk [3].

Modern technologies used in molecular medicine, clinical diagnostics and clinical therapy have helped to discover new biological components of breast milk, as well as its mechanisms of action and the multiple benefits for an infant who receives such a diet. Infants who receive breast milk exclusively within the first week of life have twice as low risk of pyloric stenosis than those fed with a mixed diet, and are almost three times at lower risk from those whom are artificially fed. A diet exclusively based on breast milk has also been shown to reduce an infant's risk of respiratory diseases, urinary problems, gastrointestinal problems (diarrhea, necrotizing enterocolitis, otitis media, meningitis), and bacteraemia. Additionally, it has been shown to prevent allergic diseases in childhood and adolescence [4,5,6]. Another such benefit to be emphasized is the halving of the risk of an infant's developing cancer before 15 years of age in those children who were breastfed for at least six months. A nearly 50% decrease has also been found in the incidence of diabetes in children who did not receive a diet based on cow's milk before the age of two months [5].

Address for correspondence: Katarzyna Plagens-Rotman, Department of Mother's and Child's Health, University of Medical Sciences, Poznań, Poland
e-mail: plagens.rotman@gmail.com

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Perfectly balanced breast milk, in terms of quality and quantity, and with a specific blend of nutrients, is therefore crucial for the optimal physical, mental and emotional development of a child [7].

Objective. The aim of this study is to assess the state of knowledge about breastfeeding and to research problems in lactation among mothers hospitalized in the Department of Obstetrics and Gynecology in the University of Medical Sciences Teaching Hospital of Poznań, Poland.

MATERIALS AND METHOD

The presented study was conducted during the period 11 July – 30 August 2012 in the Obstetrics and Gynecology Department in the University of Medical Sciences Teaching Hospital of Poznań, Poland, and involved 147 randomly-selected women in the process of childbirth.

A diagnostic survey was used as the method of collecting data, and a questionnaire consisting of 14 questions in the field of knowledge about breastfeeding and 3 questions regarding early lactation problems, was developed specially for this purpose. The survey also included questions about socio-demographic data (age, marital status, place of residence), pregnancy, delivery and time of feeding. Completion of the survey was anonymous and voluntary. Before each of the women received the questionnaire, she was informed about the study and was given additional information about the survey.

Within the analysis of the collected material was the frequency of replies to questions and statistical evaluation developed by the Fisher-Freeman-Halton test. The accepted statistical significance level was $p < 0.05$.

RESULTS

Among the respondents were 113 (76.87%) married women, 26 (17.69%) unmarried women and 6 (4.08%) divorced women. Accounted for was also a small group of widows – 1.36%.

The majority of women respondents (42.17%) were in the age bracket of 31 years and above, the next being 26–30 years (38.78%) (Fig. 1).

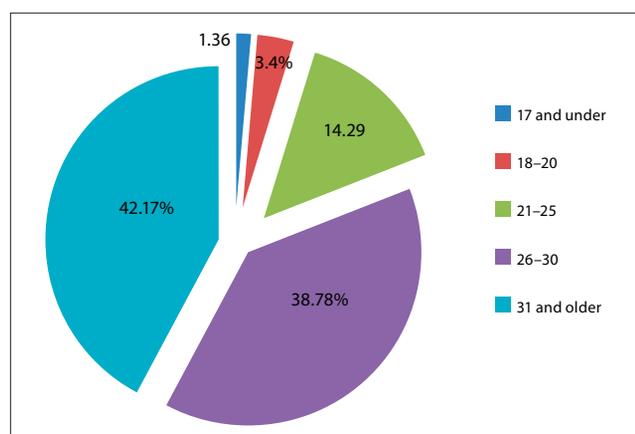


Figure 1. Age of respondents

Research showed that 57.83% of the respondents (85 women) had higher education. 2.72% of the respondents had completed primary level education.

While analyzing the place of residence, it was found that 50.34% of the women were from a town of more than 100,000 inhabitants; 13.6% were living in rural areas, and about one-third were living in cities of less than 100,000 inhabitants.

The financial situation of families analyzed varied: almost a half of the women surveyed (48.30%) had good social conditions; 36.74% identified their living conditions as average, and 4 (2.72%) stated their family social living conditions were bad. 18 families surveyed stated they had a very good financial condition, which accounts for 12.24% of the population of women studied.

When analyzing the length of time of breastfeeding, it was found that 51.02% of respondents declared they will breastfeed until the infant is six months of age, while 7.49% of the respondents refrained from such a diet, even during the postnatal period.

The reasons given to stop breastfeeding or to introduce the use of a mixture model modified diet were, among others: too small amount of milk in the breast (39.52%), unwillingness of baby to suck the breast (17.69%) and a lack of weight gain (6.12%).

Mothers asked about the benefits of breastfeeding their children claimed the child's health as the most important reason (93.88%) (Tab. 1).

Table 1. Knowledge about benefits of breastfeeding

	N	%
Child's health	139	93.88
Ideal composition of milk	98	66.67
Availability	81	55.10
Convenience	78	53.06
Financial benefits	67	45.57
Do not know	2	1.36

Analysis of the research showed that the majority of women (82.99%), referring to the question of the impact of breastfeeding on the health of the child, claimed that breast milk naturally benefits the child's resistance to disease and sickness (Tab. 2).

Table 2. Knowledge about the effects of maternal feeding on child's health

	N	%
Beneficial effect on general condition	91	61.90
Gaining resistance	122	82.99
Prevents allergies	70	47.61
Ideal composition	76	51.70
Positive impact on intellectual and emotional development of the child	78	53.06
Do not know	3	2.04

When asked about who in the family made the decision to breastfeed, the women surveyed stated that they, themselves, had had the greatest influence on the decision to breastfeed, 112 women (76.19%) answered that the decision was made independently, and 17 women (11.56%) confirmed that the husband, or father of the child, urged her to breastfeed.

Analysis of the impact of environmental factors on the process of the decision to breastfeed made it clear that a woman cannot ignore the important issue of postnatal care.

The results showed that more than three-quarters (89.12%) of respondents believe that medical help for breastfeeding is needed. In addition, 75.51% of the women stated that information given in the hospital ward and knowledge of the subject was sufficient. 11.56% of women surveyed expressed the opinion that the knowledge of paediatricians and midwives was contradictory.

40.82% of the women knew that breastfeeding has an effect on the fertility of lactating women (Fig. 2).

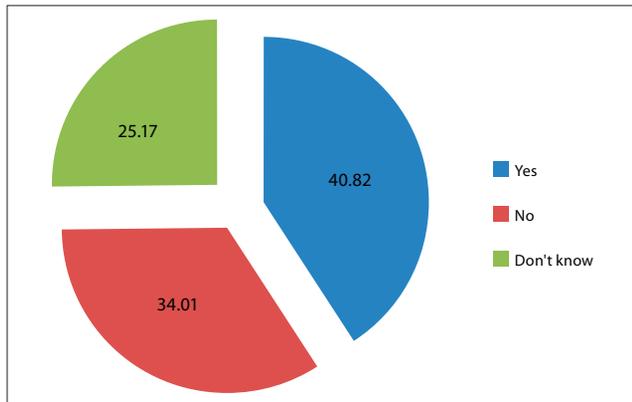


Figure 2. Fertility and breastfeeding

Most women knew the characteristics of normal sucking the breast of the infant (Tab. 3).

Table 3. Knowledge of the characteristics of a normal sucking infant

	N	%
Tip of nose and chin touching the chest	80	54.42
Child's mouth wide open; lips curled	79	53.74
A large part of the nipple in the infant's mouth	93	63.27
Cheeks not puckered	32	21.77
You cannot hear sucking/smacking	41	27.89
Sucking is not painful	52	35.37
Do not know	9	6.12

When gaining knowledge about breastfeeding, respondents most often used professional literature (63.27%) and the experience of the medical staff at the hospital (58.50%). The least popular way of acquiring knowledge among the respondents was attending birthing school – 15.65%.

Figures 3 and 4 show that most women know how to deal with the most common lactation problems, such as breast fullness and painful, cracked nipples.

79.58% of the respondents stated the use of ointments and creams for cracked nipples.

An excess of milk is a physiological condition. Milk production in the first days postpartum may be unstable and excessive in relation to the needs of the newborn. 51.02% of the women surveyed stated that in the case of excess milk, the woman must repeatedly pull on the breast to relieve smaller amounts of milk. 41.49% of the women stated that after feeding, a mother should apply cool moisture to the breast.

Analysis of research showed that there is a statistically significant relationship between the level of education and age

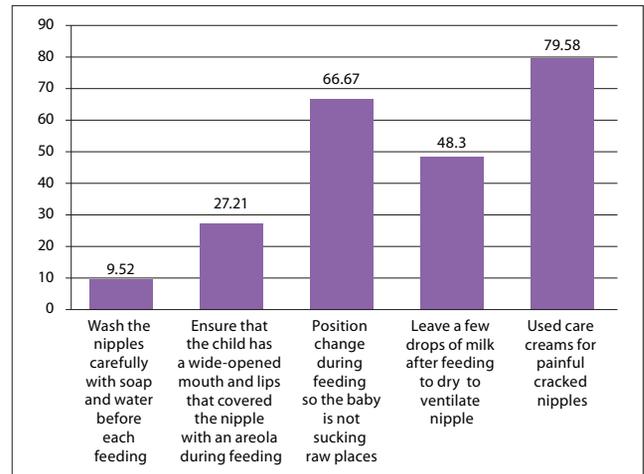


Figure 3. Ability to Resolve Lactation Problems – Painful, Cracked Nipples

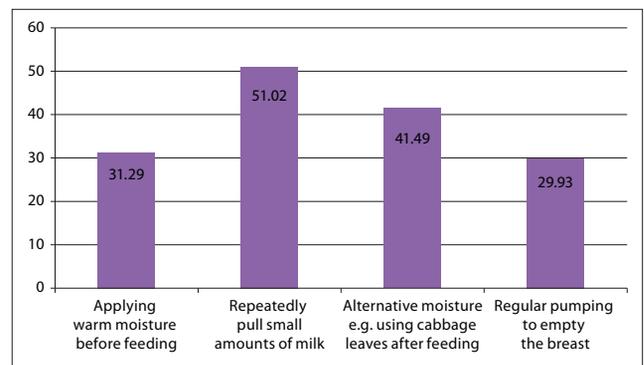


Figure 4. Ability to Resolve Lactation Problems – Breast Fullness

of respondents, as well as the way problems within lactation are solved (Fig. 5).

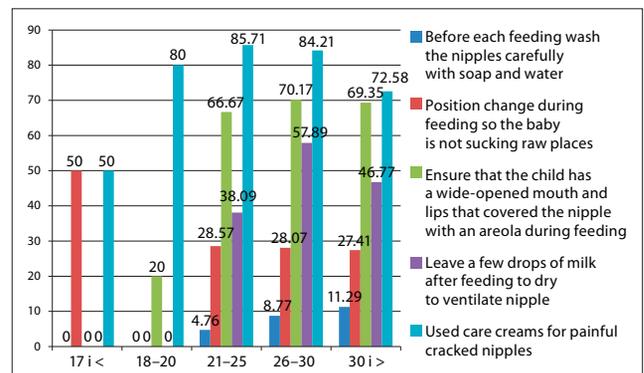


Figure 5. Knowledge of Respondents Regarding Lactation Problems Depending on Age – Painful, Cracked Nipples

Analysis showed there was no statistical relationship between the time of feeding and education ($p = 0.5299$), place of residence ($p = 0.5883$), living conditions ($p = 0.5484$) and age ($p = 0.2421$) within the group of surveyed women.

DISCUSSION

The increased interest in breastfeeding at the turn of the last two decades has led to a rapid development of knowledge about breastfeeding. This area is based on the knowledge

of the subjects in physiology, immunology, endocrinology, suction mechanisms, clinical observations, and sociological aspects.

The knowledge and mechanisms to encourage breastfeeding should be widely available among both mothers and medical personnel. One of the major factors leading to the decision to breastfeed is to understand the role of natural breast milk [8]. An important property of natural milk is the content of immunologically active components, such as antibodies, lysozyme, lactoferrin, fibronectin, growth factors, and others [8,9,10]. SIgA adhering to the walls of the gastrointestinal tract, which are involved in both the elimination of pathogens and prevention of contact with many allergens. Research shows that breastfed babies are less prone to allergic diseases, such as asthma, atopic dermatitis and allergic rhinitis [10,11].

Due to the high content of oligosaccharides, mother's milk is of crucial importance for the physiological composition of the bacterial flora, with a predominance of *Bifidobacterium*, which protects against the invasion of pathogens, thereby reducing the risk of gastrointestinal infections and diarrheal diseases. There was also a correlation between the low percentage of breastfed infants and a higher incidence of coeliac disease in the population.

Breastfeeding is an important environmental factor in the prevention of cardiovascular disease. Owen and meta-analysis [12] indicates that adults who in infancy were breastfed have lower total cholesterol in the blood. A risk factor for cardiovascular disease is high blood pressure. The results of the presented study show that breastfeeding in infancy protects against the development of adolescent hypertension. Also, breast milk may protect against the development of type 2 diabetes later in life.

According to Montgomery et al. [13], breastfeeding increases an infant's resistance to stress and contributes to the development of a deeper emotional bond with the mother.

Vitamin D, present in human milk, helps maintain a proper balance between calcium and phosphorus by adjusting its absorption in the small intestine. Vitamin D deficiency can cause rickets, osteomalacia, osteopenia and osteoporosis. Analysis of studies suggests that vitamin deficiencies increase the risk of diseases such as type 1 diabetes, mellitus, metabolic syndrome, cancer, autoimmune diseases (multiple sclerosis, rheumatoid arthritis, systemic lupus erythematosus) and cardiovascular problems [14].

The content of vitamin D in breast milk varies. The amount is dependent on the concentration in the mother's body, and the ability to synthesize its presence in the diet. The supply to a newborn and infant body of vitamin D also depends on maternal reserves during foetal life, which is why the vitamin supplementation should be started from the second trimester of pregnancy [14]. Furthermore, the use of the appropriate amount of calcium and the proportions of calcium and phosphorus in the natural diet, combined with administration of the recommended dosage of vitamin D, is optimal in the process of bone formation.

Breastfeeding is subject to the decision of a woman, and an appropriate level of knowledge on the subject is needed to help her make a sound choice. Examination of maternal knowledge about breastfeeding can specify which direction to educate medical staff and prepare women on breastfeeding.

A subject assessment on the awareness of women regarding the benefits of breast-feeding is not widespread in the literature. Sources of information subject to similar issues in the analysis

were taken in the study by Cierpkę et al. [1] in 2006. The analysis included 103 women randomly-selected from the Maternal Obstetrics Department in the Polish Red Cross Marine Hospital in Gdynia, northern Poland. Comparing the results obtained in 2006 and their own knowledge of the benefits of breastfeeding, it can be seen that the awareness of women about breastfeeding increases each year. Lactation consultants and the training of midwives and nurses in maternity wards and neonatal units have a high impact.

In 2006, mothers asked about the benefits of breastfeeding reported primarily the child's health (99.02%). This was followed by convenience (74.26%), the perfect composition (72.55%), ease of availability (67.65) and faster recovery of the mother (59.80%). A priority for women in childbirth in the presented study was the health of the infant (93.88%), followed by the perfect composition of the milk (66.67%), easy availability (55.10%), convenience (53.06%) and financial benefits (45.57%).

Cierpki's analysis [1] showed that the extent of knowledge about breastfeeding was dependent on education, place of residence, participation in birthing schools, number of children, and the experience of the previous child, but does not depend on age. The presented findings do not support this thesis.

In Cwiek's studies [15], it was found that when women were questioned about how long an infant should be fed only breast milk: 68% of respondents stated a period of six months; in the presented study, 51.02% of the surveyed women also reported breastfeeding for six months, 36.05% for the infant's first year of life, and 5.44% made the decision to feed their infant for up to two years of age. According to Cwiek et al. [15], 8% of women did not attempt breastfeeding after birth; 8.7% of mothers fed for the first month after birth, and the percentage of those who fed from birth to three months was 24%. More than 66% of mothers breastfed children over six months of age [15].

With expanding knowledge of lactation physiology and its importance to the health of the mother and infant, which has been accumulated in recent years, it can be increasingly understood how breastfeeding is built into the female reproductive cycle. This justifies the sense of its restoration efforts on an international scale, in particular countries, or as entities of the care of mother and child [6].

Breastfeeding is included within the female reproductive cycle. In women who use a mixed diet, fertility returns three weeks after giving birth. In women who have used a partially breast milk diet to feed their infant, fertility returns in 3 – 6 weeks after giving birth. In the case of exclusive breastfeeding at least six times a day (also at night), there was no return of fertility during the 12 weeks after giving birth [6].

Meta-analysis conducted in different populations has shown that if all the three basic conditions were met: a woman breastfeeding exclusively, not menstruating, and not menstruating for more than six months after giving birth, the risk of ovulation and fertilization was very small – about 2%. If a woman breastfed very efficiently this risk was only 0.45% [6].

The biological reason for lactation infertility lies in the fact that as long as breast milk is the basis for an infant's diet, another pregnancy does not occur, because it needs to protect the needs of the nursing child [6].

Many studies show that women are aware of the role of diet for the proper development of the infant, while knowledge

about physical activity is unsatisfactory. It is recognized that the level of physical activity during pregnancy has a direct impact on the type of delivery and overall neonatal health. Health professionals caring for pregnant and maternal women should be informed not only about the benefits of breastfeeding, but also of the benefits of physical activity during pregnancy [16,17].

One of the factors that determine success in breastfeeding is perinatal care. The aim of promoting breastfeeding in postpartum care in the hospital is to enable mothers at the start of lactation physiology, to provide basic information on the diet of feeding women [18,19,20,21,22,23] and to achieve the highest rates of exclusive breastfeeding of the newborn [6, 24].

Well-planned prenatal education, active feeding promotion by so-called 'Support Groups' (appropriately trained medical personnel and other nursing mothers) [25], and individual advice from a lactation consultant in lactation counseling should help to extend the duration of breastfeeding and increase the number of women making decisions about breastfeeding after birth.

CONCLUSIONS

The research and analysis of collected data made it possible to draw the following conclusions:

1. Despite the fact that each year the number of breastfed infants rises, continuous efforts should be made to further promote breastfeeding among women.
2. The majority of respondents knew the impact of breastfeeding on the health of the infant.
3. The great majority of women knew what to do in the case of problems during lactation.
4. Place of residence, age, education and living conditions of those surveyed had no effect on prolongation of breastfeeding.

REFERENCES

1. Cierpka A., et al. Wiedza położnic na temat karmienia piersią. *Prob Pielęg.* 2007; 2: 172–178 (in Polish).
2. Gartner LM., et al. American Academy of Pediatrics. Breastfeeding and the Use of Human Milk *Pediatrics.* 2005; 115: 496–506.
3. Henderson G, Anthony MY, McGuire W. Formula milk versus maternal breast milk for feeding preterm or low birth weight infants. *Cochrane Database Syst Rev.* 2007; 17: 4.
4. Gebuza G, et al. Przygotowanie kobiet do karmienia piersią. *Prob Pielęg.* 2010; 4: 406–412 (in Polish).
5. Mikiel-Kostyra K. Karmienie piersią jako element cyklu rozrodczego kobiety. *Gin Pol.* 2000; 71: 641–647 (in Polish).
6. Sybilski AJ. Żywnienie dzieci. *Nowa Pediatría* 2006; 2: 34–40 (in Polish).
7. Cudzińska-Walczyk G. Ocena stanu zdrowotnego niemowląt karmionych naturalnie w rejonie ZOZ Kościan. *Gin Pol.* 1995; 66: 158–162 (in Polish).
8. Jarosz K, et al. Ocena znajomości zagadnień związanych z karmieniem piersią wśród położnic. *Gin Pol.* 2004; 75: 26–34 (in Polish).
9. Hamosh M. Bioactive factors in human milk. *Pediatr Clin North Am.* 2001; 48: 69–86.
10. Mikiel-Kostyra K. Program Promocji Karmienia Piersią w Polsce. Część I: Uzasadnienie programu i informacje wprowadzające *Gin Pol.* 1992; 63: 495–501 (in Polish).
11. Akobeng AK, Heller RF. Assessing the population impact of low rates of Breast feeding on asthma, celiac disease and obesity: the use of a new statistical method. *Arch Dis Child.* 2007; 92: 483–485;
12. Owen CG, Whincup PH, Odoki K, et al. Infant feeding and blood cholesterol: a study in adolescence and a systematic review. *Pediatrics* 2002; 110: 597–608.
13. Montgomery SM, Ehlin A, Sacker A. Breast feeding and resilience against psychosocial stress. *Arch Dis Child.* 2006; 91: 990–994.
14. Stanowisko Zespołu Ekspertów. Polskie zalecenia dotyczące profilaktyki niedoborów witaminy D – 2009. *Gin Pol.* 2010; 81: 149–153 (in Polish).
15. Ćwiek D, et al. Reasons for giving up breastfeeding and support during problems with lactation in the north-western part of Poland. *Ann Acad Med Stetin.* 2010; 2: 129–132.
16. Wojtyła A, Kapka-Skrzypczak L, Paprzycki P, Skrzypczak M, Biliński P. Epidemiological studies in Poland on effect of physical activity of pregnant women on the health of offspring and future generations – adaptation of the hypothesis development origin of health and diseases. *Ann Agric Environ Med.* 2012; 19: 315–326.
17. Bergier J. Studies and measurements of physical activity of the society. *Ann Agric Environ Med.* 2012; 19: 329–331.
18. Stanowisko Zespołu Ekspertów Polskiego Towarzystwa Ginekologicznego dotyczące stosowania preparatu Pharmaton Matruelle u kobiet ciężarnych i karmiących. *Gin Pol.* 2010; 81: 712–714 (in Polish).
19. Stanowisko Zespołu Ekspertów Polskiego Towarzystwa Ginekologicznego w zakresie stosowania preparatów żelaza chylatowego w położnictwie i ginekologii. *Gin Pol.* 2010; 81: 786–788 (in Polish).
20. Karowicz-Bilińska A. Woda i jej znaczenie dla organizmu kobiety. *Gin Pol.* 2011; 82: 455–459 (in Polish).
21. Stanowisko Zespołu Ekspertów Polskiego Towarzystwa Ginekologicznego w zakresie suplementacji witamin i mikroelementów podczas ciąży. *Gin Pol.* 2011; 82: 550–553 (in Polish).
22. Stanowisko Zespołu Ekspertów Polskiego Towarzystwa Ginekologicznego w zakresie stosowania preparatu Chela-Mag B6* Mama w położnictwie i ginekologii. *Gin Pol.* 2011; 82: 792–794 (in Polish).
23. Stanowisko Zespołu Ekspertów Polskiego Towarzystwa Ginekologicznego dotyczące: Znaczenie nawodnienia w prewencji chorób u kobiet w wieku prokreacyjnym. *Gin Pol.* 2011; 82: 943–945 (in Polish).
24. Mikiel-Kostyra K. Program Promocji Karmienia Piersią w Polsce. Część III: Proponowane rozwiązania organizacyjne. *Gin Pol.* 1993; 64: 53–61 (in Polish).
25. Mikiel-Kostyra K. Program Promocji Karmienia Piersią w Polsce. Część II: Proponowane rozwiązania organizacyjne. *Gin Pol.* 1993; 64: 1–8 (in Polish).