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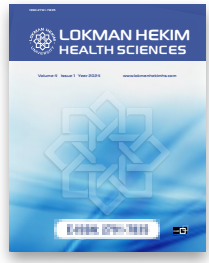

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REVIEW

Use of Information and Communication Technologies in Initiating and Continuing Breastfeeding: Good Practices

Emzirmenin Başlatılması ve Sürdürülmesinde Bilgi ve İletişim Teknolojilerinin Kullanılması: İyi Uygulama Örnekleri

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Abstract

Breast milk is regarded to be the gold standard of baby nutrition. That is why, breastfeeding is the only recommended form of nutrition for the first 6 months of life. The World Health Organization supports initiatives to increase breastfeeding rates. Nevertheless, in Türkiye and worldwide, the rate of babies receiving only breast milk for the first six months is not at the intended level. Despite that the breastfeeding process is considered physiological, the initiation and continuation of breastfeeding are affected by several factors. To initiate breastfeeding and increase the rate of exclusive breastfeeding of babies, breastfeeding education and counseling as well as the appropriate approach to mothers must start from the prenatal period and continue during the childbirth and postpartum period. Recently, technological developments and the use of information and communication technologies in the health field have demonstrated that breastfeeding interventions can extend beyond traditional care. The use of technology to encourage breastfeeding, enhance breastfeeding skills, ensure the continuation of breastfeeding, and support breastfeeding has been observed to lead to improvements in the breastfeeding process. Preliminary information suggests that the use of telephone, internet, social media, and virtual reality-based applications as well as standard educational materials by nurses who educate and counsel women regarding the breastfeeding process during pregnancy, birth, and postpartum period may improve the initiation and maintenance of breastfeeding. This study focuses on the use of information and communication technologies within the scope of nursing care to initiate and continue breastfeeding.

Keywords: Breast milk; Breastfeeding; Information and communication technologies; Nurse

Breast milk is a complex bioactive fluid that contains numerous micro and macro components, both nutritional and nonnutritious, which can vary depending on endogenous and exogenous factors.[1–3] Breastfeeding is a physiological process that positively affects the mother, baby, social health, and economy in the short and long

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term. It is also considered the gold standard of infant nutrition in the first six months of life. Thus, only breast milk is recommended for the first 6 months of baby nutrition.[4–8] Breastfeeding and breast milk have several benefits for babies. Breast milk is safe, clean, and protective against various diseases of infancy due to the immune globules it contains. Additionally, asthma, obesity, type I diabetes, respiratory system diseases, middle ear infections, sudden death syndrome, necrotizing enterocolitis, diarrhea, and vomiting are less common in breastfed babies.[9–11] Although breastfeeding and breast milk have several benefits for the baby, they also have important benefits for breastfeeding women's health. The risk of ovarian cancer, breast cancer, type II diabetes, and high blood pressure is reduced in breastfeeding women.[6,7] Despite all its benefits and all the work of the World Health Organization (WHO), the rates of exclusive breastfeeding in the first 6 months of life remain below the desired level. Globally, 44% of babies under 6 months are exclusively breastfed. If children aged 0–23 months are breastfed well, the lives of more than 820,000 children under 6 years of age could be saved each year.[12] Therefore, to transform global targets on infant nutrition into national targets and increase breastfeeding rates, nutritional profiles, risk factor trends, demographic changes, experience in developing and implementing nutrition policies, and the development of the health system must be considered. In this regard, WHO established six global nutrition targets in 2012 to improve maternal, infant, and child nutrition, and WHO member states have endorsed these targets.[13] Within the scope of the six targets set by the WHO to improve maternal, infant, and child nutrition, it aims to "increase the rates of exclusive breastfeeding in the first six months by at least 50%" by 2025.[13] In Türkiye, 41% of babies are exclusively breastfed for the first six months, which is lower than the WHO's target for 2025. Additionally, as babies grow in Türkiye, the percentage of those receiving only breast milk rapidly decreases. In Türkiye, 59% of 0–1-month-old babies and 14% of 4–5-month-old babies are fed exclusively breast milk.[14]

Despite that the breastfeeding process is considered physiological, various physiological, psychological, and cultural factors affect the initiation and continuation of breastfeeding.[15–17]

Factors Effective in Initiating and Continued Breastfeeding

In most cases, the decision to initiate and continue breastfeeding is regarded as a physiological process. Nonetheless, the behavior of initiating and continuing the breastfeeding process is a complex process that is affected by several factors. Among these factors are socioeconomic and cultural factors, obstetric characteristics, infant health, presence of postpartum social support systems, maternal adaptation to the postpartum period, employment status, and access to healthcare services. Furthermore, the mother's attitude toward breastfeeding, her level of knowledge, and breastfeeding self-efficacy affect the decision to initiate and continue breastfeeding.[7,15,17–23] To ensure breastfeeding reaches the desired level, breastfeeding counseling is recommended to be offered also to women and their families, during the pregnancy process in both the prenatal and postnatal periods[23,24] Health institutions, families, and society must be involved in the process so that interventions to initiate and continue breastfeeding become effective. Breastfeeding interventions may occur in hospitals or communities, face-to-face or via technology-based approaches. Studies show that breastfeeding education and support positively affect women's ability to initiate and continue breastfeeding, regardless of how it is given.[23,25–29]

In order to initiate breastfeeding and increase exclusive breastfeeding rates, mothers must be supported with education and consultancy activities on breastfeeding in all contacts, which include vaccination and routine control, during the prenatal and postnatal period.[7] Potential ways to help women achieve their breastfeeding goals include involvement in family-centered group studies and peer support groups and technology-based approaches to breastfeeding.[18] In this review, good practice examples concerning the use of information and communication technologies in the initiation and continuation of breastfeeding will be examined in accordance with the literature.

Use of Information and Communication Technologies in Initiating and Continued Breastfeeding

Information and communication technologies, often known as technological tools, enable data exchange via the internet, wireless networks, mobile phones, computers, video conferencing applications, and social networks. Aside from data exchange, information and communication technology tools enable users to access, save, and modify information on digital platforms.[30,31] Today, the use of information and communication technology in various areas of life improves people's access to and usage of information and remote support systems and health services. With the use of information and communication technologies in the health field, individuals can now reach

out to health professionals, including nurses, faster; receive individually focused services; and take an active role in determining their health needs. Moreover, there has been a transition from the "age of face-to-face healthcare services" to the "age of information and communication technologies in healthcare services."[31] This transition has also been expedited by the COVID-19 pandemic, during which, severe measures were implemented to prevent contamination and information and communication technology became widely available to assure the sustainability of healthcare.[29]

The use of information and communication technologies in the health field allows for breastfeeding-related interventions to be utilized as an alternative to traditional education and consultancy services. Web-based interventions, short message services (SMS), and interactive computer agents are utilized to support women with breastfeeding-related issues.[32,33] It is stated in the literature that phone-, web-, social media-, and virtual reality-based interventions are among the frequently used information and communication technologies that have positive effects on the breastfeeding process.[25,26,29,32,33]

Phone-Based Interventions: The most commonly used phone-based interventions for breastfeeding promotion, support, or counseling are SMS, phone calls, and mobile apps. SMS and phone calls, particularly via mobile phones, are commonly used because of their cost-effectiveness and widespread usage. It is stated that these interventions make it easier to support women who live in rural areas and have limited access to health institutions during breastfeeding.[34] When the literature is explored, there are studies in which SMS are used alone or phone calls are added to SMS.[33] When the studies conducted by sending SMS are examined, it is clear that SMS are generally utilized as a one-way communication tool, with no requirement for women to respond to SMS. SMS-based breastfeeding interventions have been shown to enhance breastfeeding continuity.[33,35] Moreover, supporting breastfeeding education and counseling given in the hospital during the postpartum period with text messages and phone calls after discharge positively affects women's breastfeeding self-efficacy and exclusive breastfeeding behavior.[34,36]

Mobile applications are another example of a phone-based breastfeeding intervention. They are communication tools that offer online interaction and information sharing.[33] Mobile applications that are developed to support the breastfeeding process provide guidance on the promotion of breastfeeding, the physiology of breastfeeding, breast milk expression, breast milk storage, baby nutrition, breastfeeding crisis, prevention of alcohol use during breastfeeding, and breastfeeding positions.[37,38] Furthermore, mobile applications that evaluate the obstacles to breastfeeding and the breastfeeding process are available. Nonetheless, evidence regarding the quality and acceptability of the content of mobile applications and whether they are based on scientific literature is insufficient. However, aside from breastfeeding interventions that begin in the antenatal period, phone-based interventions are still recommended to be utilized to support breastfeeding in the postpartum period.[38]

Web-Based Interventions: Video calling, video conferencing, and online discussion forums are considered web-based interventions.[33,39] Web-based interventions are applications frequently employed to evaluate and follow up breastfeeding.[39] Alternative applications that can eliminate distance-related obstacles for groups living in rural areas and with limited access to health institutions include video calling and video conferencing.[33] Particularly, the interactive web-based breastfeeding program positively impacts women's breastfeeding knowledge, self-efficacy, and intention in rural areas and with limited access to health institutions. Through Web-based interventions, women at critical intervention times, such as the sixth week and third month postpartum can be reached out, ensuring the continuity of breastfeeding.[40] Video calls/conference calls enable healthcare professionals to observe, evaluate, and follow up on the breastfeeding process directly and one-on-one.[33] In this way, by following up on the breastfeeding process, health professionals can detect and resolve breastfeeding problems as early as possible, which contributes positively to breastfeeding continuity.[39] Web-based breastfeeding interventions are considered attractive, up-to-date, practical, cost-effective, and sustainable in increasing women's breastfeeding self-efficacy in the comfort of their homes, supporting the breastfeeding process, and ensuring the continuity of breastfeeding.[34]

Social Media-Based Interventions: Social media platforms that allow users to create and share content include Facebook©, Instagram©, WhatsApp©, Youtube©, Twitter©, GooglePlus+©, Tumblr©, Pinterest©, and LinkedIn©. These platforms allow users to create personal profiles and communicate with others by sending text updates, videos, and audio files. Social media tools offer breastfeeding support by allowing women to join breastfeeding support groups, socialize, and share information.[41,42] Studies in the literature show that education and consultancy activities via social media tools improve breastfeeding self-efficacy, support, and continuity.[26,41,43] The continuity of face-to-face healthcare services can be complemented and ensured via

social media groups managed and supported by healthcare professionals. Thus, it can be concluded that it positively contributes to improved breastfeeding results.[41] Hence, it can be concluded that the use of social media tools as a social support factor in breastfeeding is important in enhancing women's self-efficiency, knowledge, and attitudes regarding breastfeeding. In this respect, it is believed that social media tools may be among the potential instruments that will increase exclusive breastfeeding, especially during babies' first 6 months of life.[44]

Virtual Reality-Based Interventions: Virtual reality-based interventions emerged as a critique of other technology-based interventions. Notably, breastfeeding interventions using information and communication technologies have not included experiential teachings, and experiential knowledge is also required to initiate and maintain breastfeeding. The use of games or extended reality (augmented reality, virtual reality [VR], and mixed reality) elements in the process of transferring experiences to expectant mothers has come to the fore. VR systems allow users to experience very realistic experiences that are challenging to achieve.[45] The use of VR systems in teaching breastfeeding and transferring the experiential aspects of breastfeeding has an effect by providing the opportunity to explore breastfeeding in different scenarios and encouraging expectant mothers to think about the situations and difficulties they may encounter.[45] There is evidence that gamification generally produces positive effects and results by mobilizing motivational resources and enabling active participation.[46] Gamification is a popular technique for enhancing active participation. Recently, it has been applied in the health field. Evidence shows that participants experience an increased tendency to achieve the goal and reflect on performance when teaching breastfeeding skills is gamified; however, participants are easily distracted from the breastfeeding process due to game success and desire to achieve the goals.[47] Moreover, the use of gamification in expectant fathers increases fathers' knowledge about the breastfeeding process and is perceived as peer support.[48] However, revealing the effects of gamification interventions on the initiation and maintenance of breastfeeding necessitates further research.[49]

Roles and Responsibilities of Nurses in Initiating and Continued Breastfeeding

Nurses are healthcare professionals with a high potential to be effective. They can be caregivers, advocates, educators, and consultants in ensuring that babies receive only breast milk for the first 6 months after childbirth and continue to receive breast milk and complementary feeding until at least the age of 2.[34] Nurses are essential healthcare professionals as they are the ones who communicate with mothers during preconception, antenatal, and postpartum periods and are responsible for protecting and improving these women's health.[50] Breastfeeding women must have access to accurate and reliable information during essential periods that require sensitivity, such as preconception, antenatal, and postpartum periods.[25] Particularly in extraordinary periods such as the pandemic when it is impossible to provide effective face-to-face care, modern technological tools such as information and communication technologies must be used for education and consultancy activities regarding breastfeeding to meet individual needs and adapt to changing conditions.[51] Recently, the use of information and communication technologies as educational and supportive interventions in the perinatal period has become widespread among women.[32] Therefore, the necessity of using information and communication technologies within the scope of nursing care has become inevitable.[34] Nurses use information and communication technologies within the course of providing nursing care, providing new avenues for communication and relationships between the nurse and the person being cared for. Individuals receiving care can actively participate in their processes through the use of information and communication technologies, which eliminates language, distance, and time barriers. Nurses who use information and communication technologies to provide care can manage larger caseloads through remote monitoring, reduce care costs, and make effective referrals to other services, maximizing healthcare resources.[31,52] Nevertheless, there are also some drawbacks to using information and communication technologies in nursing care. Nurses' use of information and communication technologies in providing care may result in artificial healthcare delivery, unmet patient expectations, constrained practice, and inhibited professional judgment. Generally, the increased use of technology, particularly in care processes, may push nurses into a passive and secondary position. Thus, aside from utilizing information and communication technologies, nurses must develop their interest in designing, developing, managing, and analyzing such technologies for use in patient care. They must take an active role in these areas to lead future care activities.[31]

Conclusion

Several international organizations emphasize the importance of feeding babies exclusively with breast milk

for the first 6 months of life. Nonetheless, several factors are effective in initiating and continuing the breastfeeding process. To initiate and continue breastfeeding, nursing interventions during pregnancy, childbirth, and postpartum are crucial. Today, the rapid change in information and communication technologies and the use of technology as a breastfeeding intervention help provide care sensitive to individual needs. Thus, initiation and continuation of the breastfeeding process may benefit from the use of interesting, contemporary, easy-to-use, accessible, and sustainable information and communication technologies. Expectedly, using information and communication technologies aside from standard training tools in the initiation and continuation of breastfeeding benefits nurses who provide training and consultancy to women regarding the breastfeeding process during preconception, antenatal, and postpartum periods.

Thus, information and communication technologies are recommended to be used within the scope of nursing care. However, to determine the experiences of both nurses and women, couples, and families using information and communication technology interventions, more research is required. Therefore, research planning on the acceptability and user satisfaction of breastfeeding interventions via information and communication technologies to ensure initiation and continuation of breastfeeding is recommended.

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