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ORIGINAL ARTICLE

Breastfeeding beyond infancy: Are the barriers too hard to overcome, even for physicians?

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ABSTRACT

Objective: The World Health Organization (WHO) recommends continued breastfeeding up to two years of age and beyond. However, breastfeeding beyond infancy remains uncommon and is often hindered by cultural barriers and misconceptions. Physicians play a crucial role in guiding families on infant feeding practices; yet, limited evidence exists regarding their knowledge and attitudes toward breastfeeding beyond two years. This study aimed to evaluate the knowledge and attitudes of physicians from different specialties toward breastfeeding beyond two years and to identify factors influencing their awareness and counseling practices.

Material and Methods: This multicenter, descriptive, cross-sectional study was conducted in four hospitals among physicians working in pediatrics, family medicine, obstetrics and gynecology, and other clinical specialties. Data were collected using a face-to-face structured questionnaire assessing demographic characteristics, personal breastfeeding experience, knowledge of WHO recommendations, perceived benefits and challenges of extended breastfeeding, and counseling behaviors. Data were analyzed using descriptive statistics and chi-square tests.

Results: Although 95.9% of participants correctly identified the WHO recommendation for exclusive breastfeeding, only 17.9% accurately recognized the total recommended duration of breastfeeding. Knowledge levels were significantly higher among pediatricians and family physicians and among those who frequently provided breastfeeding counseling. While 90% of pedodontists believed that extended breastfeeding could contribute to dental caries, most physicians remained uncertain about its protective effects on maternal health. Only 19.9% reported recommending breastfeeding beyond two years. Both knowledge and attitudes varied significantly across medical specialties.

Conclusion: Physicians' knowledge and attitudes toward breastfeeding beyond two years were limited. Integrating evidence-based breastfeeding education into medical curricula, residency programs, and continuing professional training may strengthen physicians' ability to support mothers who breastfeed beyond infancy.

Keywords: Baby-friendly hospital initiative, breastfeeding beyond two years, breastfeeding education, extended breastfeeding, maternal and child health.

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INTRODUCTION

The World Health Organization (WHO) recommends exclusive breastfeeding for the first six months of life and continued breastfeeding until two years of age or beyond.[1] Although many countries, including Türkiye, endorse these recommendations, breastfeeding rates at two years vary widely across regions—reported as 88% in Bangladesh, 72% in India, 7% in China, and 32% in Türkiye.[2–5]

The benefits of exclusive breastfeeding during the first six months are well established. Moreover, growing evidence highlights the positive impact of prolonged breastfeeding on the health of both the mother and the child.[6] Longitudinal studies have shown that the concentrations of protective components such as lysozyme, lactoferrin, and secretory immunoglobulin A increase over time in breast milk beyond the first year.[7–9] Additionally, neurotrophic growth factors supporting neurological development remain present after the first year.[10]

All healthcare professionals in contact with the mother–baby dyad, especially pediatricians, play a crucial role in the initiation and continuation of breastfeeding; therefore, they must be well educated about breastfeeding and act as advocates for it.[6,11] However, physicians may hold differing attitudes toward breastfeeding beyond two years, and insufficient professional support can contribute to early cessation. Mothers may also perceive that healthcare providers disapprove of or lack knowledge about breastfeeding beyond infancy, which may discourage them from seeking professional guidance.[12]

Although the WHO recommends breastfeeding up to two years and beyond, the concept of extended breastfeeding—defined as breastfeeding beyond 12 months—has not yet been fully embraced by healthcare professionals. This attitude among healthcare workers has, at times, led mothers to conceal the duration of their breastfeeding practices, a phenomenon referred to as "closet nursing".[6,13]

Studies examining healthcare workers' attitudes toward the duration of breastfeeding remain limited.[11,14] Therefore, this study aimed to evaluate physicians' knowledge, attitudes, and practices regarding breastfeeding beyond two years.

MATERIALS AND METHODS

Study Design

This multicenter, cross-sectional study was conducted in Istanbul, Türkiye, over a two-month period between February and March 2020. The study protocol was approved by the Kartal Lütfi Kırdar Training and Research Hospital ethics committee (Protocol No: 2020/514/172/12). Written informed consent was obtained from all participants before enrollment. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Setting and Sample

The study population included specialists in pediatrics, obstetrics and gynecology, family medicine, internal medicine, child and adolescent psychiatry, and pedodontics who frequently counsel breastfeeding mothers. The study was conducted in the outpatient clinics of two university hospitals and two training hospitals. The inclusion criteria were being a physician from one of the listed specialties and actively practicing in the outpatient setting of the participating hospitals.

Table 1: Demographic characteristics and breastfeeding experiences of the physicians

Demographic characteristics (n=241)	n (%)
Gender	
Female	171 (71)
Age, years	
Mean±SD / Median (min-max)	31±7.1 / 28 (23–64)
Institution	
University hospital	136 (56.4)
Training and research hospital	105 (43.5)
Work experience	
0–2 years	69 (28.6)
3–5 years	93 (38.6)
6–10 years	38 (15.8)
11–15 years	14 (5.8)
16–20 years	13 (5.4)
>20 years	14 (5.8)
Parenthood	
Yes	66 (27.4)
Speciality	
Pediatrics	70 (29)
Obstetrics&gynecology	37 (15.4)
Family medicine	34 (14.1)
Child and adolescent psychiatry	30 (12.4)
Internal medicine	28 (11.6)
Pedodontics	42 (17.4)
Breastfeeding advice frequency (n=235)	
Every day	57 (24.3)
2–3 times a week	59 (25.1)
Once a week	17 (7.2)
Once every two weeks	10 (4.2)
Once a month	30 (12.8)
Less	62 (26.4)

SD: Standard deviation; Min: Minimum; Max: Maximum.

A sample size of 240 participants was calculated to provide 95% power (effect size=0.304, α=0.05) based on the study by Baranowska et al.[14]

Outcome Measures and Data Collection

A structured questionnaire was developed by the researchers based on relevant literature and reviewed by social pediatricians and breastfeeding specialists.[14–17] The questionnaire included 24 items assessing demographics, personal breastfeeding experience, and physicians' knowledge and attitudes toward breastfeeding beyond two years.

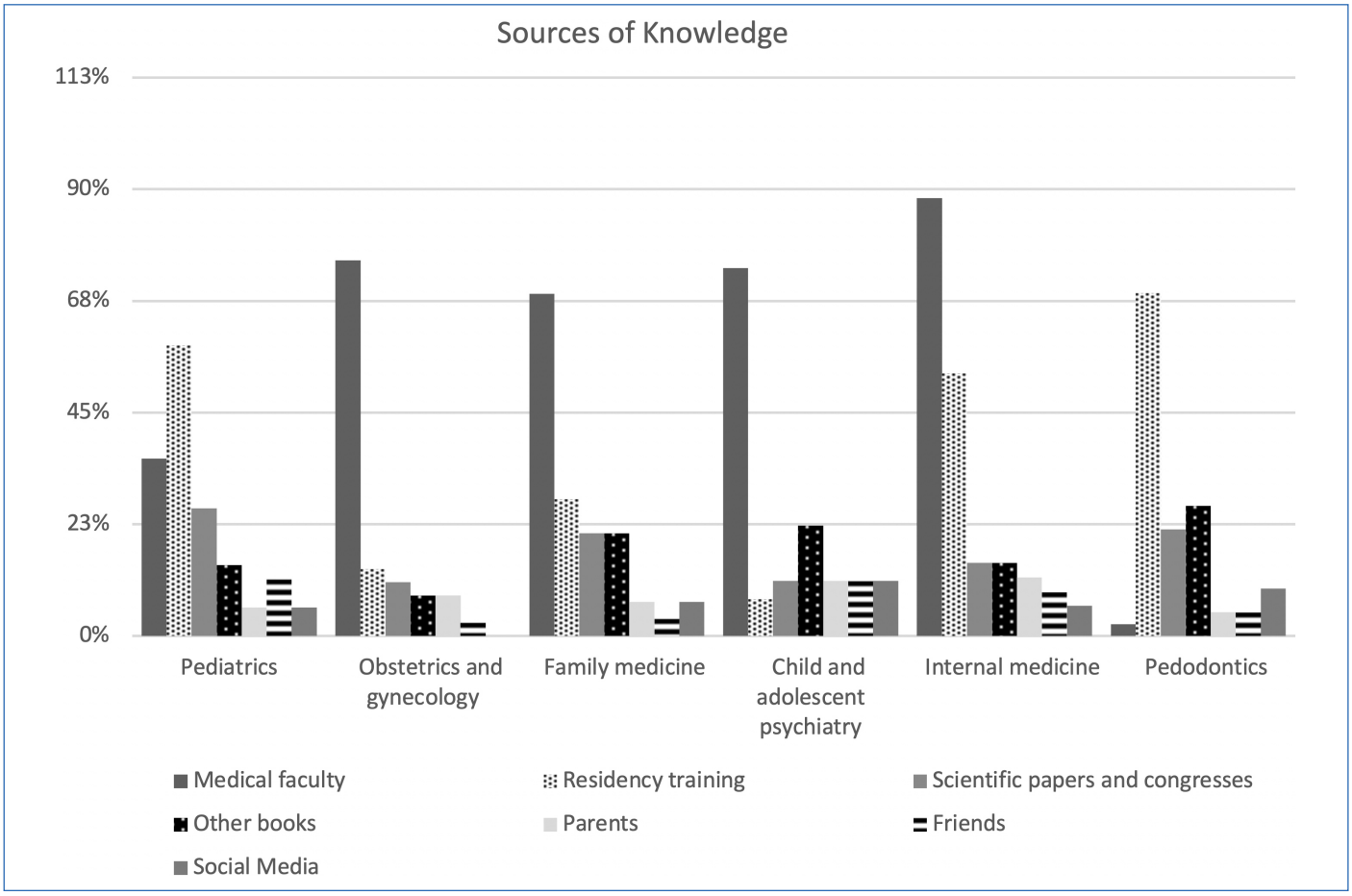


Figure 1: Sources of knowledge about breastfeeding.

Ten items addressed demographic and social characteristics. Two questions evaluated personal experience, including the longest breastfeeding duration for one's own child and the frequency of providing breastfeeding counseling in clinical practice. Knowledge was assessed through four questions covering the WHO recommendations for exclusive breastfeeding duration (EBD) and total breastfeeding duration (TBD), sources of information about breastfeeding beyond two years, and awareness of their institution's "Baby-Friendly Hospital (BFH)" status.

Attitudes were evaluated through eight questions: two addressed physicians' recommendations regarding weaning time and breastfeeding beyond two years in healthy mother–infant dyads, while the remaining six used a five-point Likert scale (strongly agree, agree, undecided, disagree, strongly disagree) to assess beliefs about the effects of breastfeeding beyond two years on mother–infant attachment, dental caries, sleep problems, appetite, maternal breast and ovarian cancer risk, and the child's later obesity risk.

Unanswered questions were considered missing data. Physicians were visited in their outpatient clinics and asked to complete the questionnaire, which required approximately seven minutes. After completion, participants were informed about WHO recommendations and the dose-dependent effects of breastfeeding duration.

Statistical Analysis

Descriptive statistics were used to summarize the characteristics of the study population. Relationships between categorical variables were analyzed using Fisher's exact test, Yates' correction test, or Pearson's chi-square test, as appropriate. A p-value<0.05 was considered statistically significant. All statistical analyses were performed using SPSS software (version 20.0; IBM Corp., Armonk, NY, USA, 2010).

RESULTS

A total of 241 voluntary physicians completed the questionnaire. The median age was 28 years (range: 23–64 years), and 71% were female. Sixty-six participants (27%) had at least one child. Fifty-three physicians (22%) had personal breastfeeding experience: 20.8% (n=11) breastfed for less than 12 months, 43.4% (n=23) breastfed for 12–24 months, and 35.8% (n=19) breastfed beyond two years. The demographic characteristics and breastfeeding experience of participants are summarized in Table 1.

Among the participants, 231 (95.9%) correctly identified the WHO recommendation for EBD. However, only 17.9% correctly recognized the WHO recommendation for TBD as two years

Table 2: Physicians knowledge about breastfeeding

	Participants							p
	Total (n=241) n (%)	Pediatrics (n=70) n (%)	Obstetrics gynecology (n=37) n (%)	Family medicine (n=34) n (%)	Child & adolescent psychiatry (n=30) n (%)	Internal medicine (n=28) n (%)	Pedodontics (n=42) n (%)	
Knowledge of the WHO definition regarding EBD								0.098
Yes	**231 (95.9)**	67 (95.7)	37 (100)	34 (100)	29 (100)	26 (92.8)	38 (92.4)	
No	**10 (4.1)**	3 (4.3)	0 (0)	0 (0)	0 (0)	2 (7.2)	4 (7.6)	
Knowledge of the WHO definition regarding TBD								**0.008**
Yes	**43 (17.9)**	20 (28.6)	5 (13.5)	9 (26.5)	1 (3.4)	1 (3.6)	7 (16.7)	
No	**197 (82.1)**	50 (71.4)	32 (86.5)	25 (73.5)	28 (96.6)	27 (96.4)	35 (83.3)	
Sources of the knowledge on breastfeeding beyond two years								
Medical/dentistry faculty	**124 (51.9)**	25 (35.7)	28 (75.7)	30 (88.2)	20 (69)	20 (74.1)	1 (2.4)	**<0.001**
Residency training	**103 (43.1)**	41 (58.6)	5 (13.5)	18 (52.9)	8 (27.6)	2 (7.4)	29 (69)	**<0.001**
Scientific papers and congresses	**45 (18.8)**	18 (25.7)	4 (10.8)	5 (14.7)	6 (20.7)	3 (11.1)	9 (21.4)	0.368
Awareness of the institutions' BFH status								**<0.001**
Aware	**165 (69)**	67 (98.5)	35 (94.6)	25 (73.5)	21 (70)	16(57.1)	1 (2.4)	
Not aware	**74 (31)**	1 (1.5)	2 (5.4)	9 (26.5)	9 (30)	12 (42.9)	41 (97.6)	

WHO: World Health Organization; EBD: Exclusive breastfeeding duration; TBD: Total breastfeeding duration; BFH; Baby friendly hospital. *Some questions contain missing data.Percentages have been calculated based on available data.

or beyond. Knowledge of TBD was higher among pediatricians (28.6%) and family physicians (26.5%) (p=0.008), as well as among physicians who provided breastfeeding counseling daily or two to three times per week (34.9% and 44.2%, respectively) compared with those who counseled once a month or less (7% and 7%, respectively) (p=0.001).

Regarding sources of knowledge, the proportion of physicians reporting medical or dental school as their primary source was lower among pedodontists and pediatricians (p<0.001), whereas those reporting residency training as their main source were more common among pedodontists, pediatricians, and family physicians (p<0.001). The sources of physicians' breastfeeding knowledge are presented in Figure 1.

Except for pedodontics clinics, all participating departments had been certified as Baby-Friendly Hospitals (BFHs). A total of 165 participants (69%) were aware of whether their institution held BFH status, with significant differences observed between specialties (p<0.001). Physicians' awareness of BFH certification is shown in Table 2.

The most frequently recommended weaning period across all specialties was 12–24 months (p=0.001). Only 19.9% of physicians recommended breastfeeding beyond two years. Six Likert-type questions were used to evaluate attitudes toward breastfeeding beyond two years. Ninety percent of pedodontists agreed or strongly agreed that prolonged breastfeeding could cause dental caries in infants (p<0.001), while most physicians were undecided about its potential protective effect against maternal breast and ovarian cancer (p=0.048). Physicians' attitudes toward extended breastfeeding are presented in Table 3.

DISCUSSION

Although the vast majority of participating physicians (95.9%) were aware of the WHO recommendation regarding EBD, only 17.9% correctly identified the recommended TBD, indicating a significant knowledge gap. The higher rates of accurate knowledge among pediatricians and family physicians suggest that medical specialty may influence familiarity with breastfeeding guidelines. Moreover,

Table 3: Physicians attitudes toward extended breastfeeding

	Total (n=241) n (%)	Pediatrics (n=70) n (%)	Obstetrics gynecology (n=37) n (%)	Family medicine (n=34) n (%)	Child & adolescent psychiatry (n=30) n (%)	Internal medicine (n=28) n (%)	Pedodontics (n=42) n (%)	p
Breastfeeding recommendation beyond 2 years								0.322
Yes	48 (19.9)	23 (33.8)	6 (16.2)	11 (32.3)	0 (0)	3 (11.1)	5 (11.9)	
No	172 (71.4)	41 (60.2)	25 (67.5)	20 (58.8)	28 (96.5)	22 (81.4)	36 (85.7)	
Pumped milk	17 (7.1)	4 (5.8)	6 (16.2)	3 (8.8)	1 (3.4)	2 (7.4)	1 (2.3)	
Breastfeeding recommendation on weaning time								**0.001**
12 months	15 (6.4)	0 (0)	3 (8.1)	0 (0)	1 (3.3)	3 (10.7)	8 (19)	
12–24 months	181 (76.7)	48 (72.7)	31 (83.8)	26 (78.8)	27 (90)	19 (67.9)	30 (71.4)	
>24 months	40 (16.9)	18 (27.3)	3 (8.1)	7 (21.2)	2 (6.7)	6 (21.4)	4 (9.5)	
Breastfeeding beyond two years may have a negative effect on mother-infant attachment								0.110
Strongly agree	27 (11.3)	8 (11.8)	6 (16.2)	2 (5.9)	2 (6.7)	1 (3.6)	8 (19.1)	
Agree	77 (32.2)	13 (19.1)	12 (32.5)	11 (32.4)	16 (53.3)	13 (46.4)	12 (28.6)	
Undecisive	76 (31.8)	25 (36.8)	10 (27)	13 (38.2)	8 (26.7)	6 (21.4)	14 (33.3)	
Disagree	49 (20.5)	16 (23.5)	8 (21.6)	5 (14.7)	4 (13.3)	8 (28.6)	8 (19)	
Strongly disagree	10 (4.2)	6 (8.8)	1 (2.7)	3 (8.8)	0 (0)	0 (0)	0 (0)	
Breastfeeding beyond two years may cause dental carries in infant								**<0.001**
Strongly agree	30 (12.6)	5 (7.4)	1 (2.7)	2 (5.9)	1 (3.33)	2 (7.1)	19 (45.2)	
Agree	55 (23)	11 (16.2)	6 (16.2)	3 (8.8)	10 (33.3)	6 (21.4)	19 (45.2)	
Undecisive	66 (27.6)	19 (27.9)	15 (40.6)	12 (35.3)	9 (30)	10 (35.7)	1 (2.4)	
Disagree	74 (31)	27 (39.7)	13 (35.1)	13 (38.2)	8 (26.7)	10 (35.7)	3 (7.1)	
Strongly disagree	14 (5.6)	6 (8.8)	2 (5.4)	4 (11.8)	2 (6.7)	0 (0)	0 (0)	
Breastfeeding beyond two years may cause sleep problems in infant								0.101
Strongly agree	30 (12.6)	11 (16.2)	3 (8.1)	3 (8.8)	4 (13.3)	2 (7.4)	7 (16.7)	
Agree	78 (32.8)	22 (32.4)	10 (27)	6 (17.7)	12 (40)	9 (33.3)	19 (45.2)	
Undecisive	80 (33.6)	17 (25)	13 (35.1)	16 (47.1)	6 (20)	13 (48.2)	15 (35.7)	
Disagree	35 (14.7)	13 (19.1)	9 (24.3)	5 (14.7)	6 (20)	2 (7.4)	0 (0)	
Strongly disagree	15 (6.3)	5 (7.3)	2 (5.4)	4 (11.7)	2 (6.7)	1 (3.7)	1 (2.4)	

Table 3 (cont): Physicians attitudes toward extended breastfeeding

	Total (n=241) n (%)	Pediatrics (n=70) n (%)	Obstetrics gynecology (n=37) n (%)	Family medicine (n=34) n (%)	Child & adolescent psychiatry (n=30) n (%)	Internal medicine (n=28) n (%)	Pedodontics (n=42) n (%)	p
Breastfeeding beyond two years may cause appetite problems in infant								0.131
Strongly agree	35 (14.6)	12 (17.7)	5 (13.5)	2 (5.9)	4 (13.3)	5 (17.9)	7 (16.7)	
Agree	96 (40.1)	26 (38.2)	15 (40.5)	11 (32.3)	11 (36.7)	12 (42.9)	21 (50)	
Undecisive	59 (24.7)	10 (14.7)	8 (21.6)	11 (32.3)	10 (33.3)	7 (25)	13 (30.9)	
Disagree	36 (15)	14 (20.6)	7 (18.9)	6 (17.6)	4 (13.3)	4 (14.2)	1 (2.4)	
Strongly disagree	13 (5.4)	6 (8.8)	2 (5.4)	4 (11.8)	1 (3.3)	0 (0)	0 (0)	
Breastfeeding beyond two years may decrease mammary and ovarian cancer risk in mother								**0.048**
Strongly agree	19 (7.9)	10 (14.7)	2 (5.4)	4 (11.7)	1 (3.33)	0 (0)	2 (4.7)	
Agree	60 (25.1)	20 (29.4)	10 (27)	9 (26.4)	12 (40)	7 (25)	2 (4.7)	
Undecisive	120 (50.2)	26 (38.2)	19 (51.3)	13 (38.2)	13 (43.3)	16(57.1)	33 (78.5)	
Disagree	36 (15)	9 (13.2)	6 (16.2)	7 (20.5)	4 (13.3)	5 (17.8)	5 (11.9)	
Strongly disagree	4 (1.6)	3 (4.4)	0 (0)	1 (2.9)	0 (0)	0 (0)	0 (0)	
Breastfeeding beyond two years may decrease risk of obesity in infant's later years.								0.781
Strongly agree	17 (7.1)	8 (11.8)	4 (10.8)	2 (5.9)	0 (0)	0 (0)	3 (7.1)	
Agree	33 (13.9)	12 (17.7)	4 (10.8)	9 (26.5)	4 (13.8)	2 (7.1)	2 (4.8)	
Undecisive	112 (47.1)	23 (33.8)	20 (54)	11 (32.3)	14 (48.3)	14 (50)	30 (71.4)	
Disagree	68 (28.6)	23 (33.8)	8 (21.6)	11 (32.3)	9 (31)	11 (39.3)	6 (14.3)	
Strongly disagree	8 (3.3)	2 (2.9)	1 (2.7)	1 (2.9)	2 (6.9)	1 (3.6)	1 (2.4)	

Some questions contain missing data. Percentages have been calculated based on available data.

physicians who provided breastfeeding counseling more frequently demonstrated significantly better knowledge, highlighting the positive impact of clinical engagement on awareness. Notably, while most physicians remained undecided about the long-term maternal health benefits of extended breastfeeding, 90% of pedodontists agreed or strongly agreed that breastfeeding beyond two years may lead to dental caries. These findings underscore the variation in knowledge and attitudes across specialties and emphasize the need for standardized, evidence-based breastfeeding education at both undergraduate and postgraduate levels.

In a study conducted among physicians (gynecologists, neonatologists) and midwives, only 5.9% of physicians had accurate knowledge of TBD, underlining the widespread lack of awareness.[14] The slightly higher rate (17.9%) in our study may be attributed to the higher proportion of pediatricians and family physicians among our participants; however, it remains unsatisfactory. Although there was no significant difference in EBD knowledge across specialties, pediatricians and family physicians were more familiar with TBD, possibly due to differences in educational sources and the frequency of applying their knowledge through counseling. Previous studies have shown that physicians acquire their breastfeeding knowledge from medical faculty, residency training, scientific meetings, publications, personal experience, and social media. These studies show medical faculty and residency training as sources of knowledge in 39–49.4% and 46.9–67% of physicians, respectively.[15,16] Consistent with these findings, 51.9% of participants in our study cited medical or dental school and 43.1% cited residency training as their primary knowledge sources.

All departments except pedodontics were certified as BFHs. Pediatricians and obstetricians were well aware of their hospital's BFH status, whereas awareness was lower among other specialties, suggesting that breastfeeding education under the BFH initiative may not equally reach all professionals. Similarly, Yılmazbaş et al.[18] reported that many healthcare workers lacked proper breastfeeding training, with awareness varying significantly between professions.

A qualitative study on women's experiences with breastfeeding beyond infancy found that many perceived healthcare providers as disapproving of or uninformed about breastfeeding beyond infancy.[12] Studies have also shown that healthcare professionals often hold negative attitudes toward breastfeeding after the first year of life.[11,14] In a Polish study, only 15.7% of physicians recommended breastfeeding beyond two years,[14] compared with 19.9% in our study. Given the limited knowledge and ambivalent attitudes observed, our findings highlight the urgent need to reinforce the importance of breastfeeding beyond two years in both undergraduate and postgraduate medical education.

A review evaluating breastfeeding duration and infant–mother attachment reported a positive association between breastfeeding duration and infant–mother attachment, although all included studies involved durations shorter than two years.[19] Another study of 900 twin pairs found that secure attachment was more common among twins breastfed longer than their siblings.[20] The American Academy of Family Physicians and the American Academy of Pediatrics affirm that there is no evidence of psychological or developmental harm associated with breastfeeding into the third year of life or beyond.[21,22] Nevertheless, 60% of child psychiatrists in our study believed that breastfeeding beyond two years could negatively affect infant–mother attachment. No published evidence supports physicians' concerns regarding potential psychological or emotional harm; further research is warranted to examine this relationship.

There was also significant variation between specialties in attitudes toward the statement that breastfeeding beyond two years may cause dental caries. While 90% of pedodontists agreed with this statement, 49% of pediatricians disagreed. Early childhood caries are multifactorial and caused by complex mechanisms. One population-based cohort found an association between continued breastfeeding and early childhood caries but did not account for confounders such as night feeds or oral hygiene habits.[23] The International Association of Paediatric Dentistry recommends discontinuing night feeds after one year to prevent early childhood caries.[24] Further studies considering socioeconomic factors, oral hygiene practices, and dietary habits are required to clarify this relationship.

Among participants, 45.4% believed breastfeeding beyond two years may cause sleep problems, 54.7% thought it could lead to appetite issues, and 47.1% were undecided about its effect on reducing obesity risk later in life. While studies specifically evaluating breastfeeding beyond two years are lacking, previous research has demonstrated a dose-dependent relationship between breastfeeding duration and reduced risk of childhood obesity.[25,26] In a study assessing obesity in two- to three-year-old children, a significant difference was found between children breastfed for more than one year and those breastfed for less than 17 weeks.[27] Similarly, a dose-response relationship was found between being overweight and the duration of breastfeeding. Each additional month of breastfeeding was associated with a 4% reduction in overweight risk.[28] It is reasonable to hypothesize that this protective effect may extend beyond two years as well.

Study Limitations and Strengths

To our knowledge, this is the first multicenter study evaluating the knowledge, experience, and attitudes of physicians from various specialties—including pedodontists—toward breastfeeding beyond two years. The multicenter design increased the sample size, heterogeneity, and generalizability of the findings, which are key strengths. However, the study included only physicians; expanding future research to include midwives, nurses, and other healthcare professionals would provide a more comprehensive understanding of multidisciplinary perspectives on breastfeeding.

CONCLUSIONS

Physicians' knowledge and attitudes regarding breastfeeding beyond two years were found to be insufficient, with significant variation across specialties. Medical school curricula, residency programs, and institutional in-service training should be revised to ensure that all specialties receive standardized, evidence-based education on breastfeeding recommendations. Further longitudinal studies are warranted to examine the long-term effects of breastfeeding beyond two years on both maternal and child health and to support the implementation of WHO recommendations.

Statement

Ethics Committee Approval: The study was approved by Kartal Lütfi Kırdar Training and Research Hospital Ethics Committee (No: 2020/514/172/12, Date: 26.02.2020).

Informed Consent: Written informed consent was obtained from all participants before enrollment.

Conflict of Interest: The authors declare that there is no conflict of interest.

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