

Are Pediatric Residents in Saudi Arabia Equipped to Provide Breastfeeding Care? A Cross-Sectional Study

Yara O. Bahawi, Heidi K. Al-Wassia¹, Saud A. Bahaidarah², Faisal S. Aloufi, Mohammed A. Aljehani, Rafah A. Alfaydi, Jana S. Alghamdi

College of Medicine, Department of ¹Pediatrics, Division of Neonatology, ²Department of Pediatrics, Division of Cardiology, Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia

Abstract

Background: There is a progressive reduction in breastfeeding rates in Saudi Arabia. Counseling and support from health-care providers are useful in overcoming barriers to continuing breastfeeding. However, medical education and residency programs often do not adequately provide breastfeeding training.

Objective: To determine the knowledge, comfort level, perception, and clinical practices of pediatric residents regarding breastfeeding in Saudi Arabia and to measure the level and type of education received during their residency training.

Materials and Methods: This cross-sectional study included pediatric residents from across Saudi Arabia who were registered with the Saudi Commission for Health Sciences and was conducted from February 2021 to January 2022. A validated self-reported questionnaire was used to elicit information from the respondents. Knowledge score was calculated as a percentage of correct answers.

Results: A total of 253 residents completed the survey. The mean knowledge score was $58.4\% \pm 22.7\%$, which was lower than the cut-off threshold of good knowledge. Almost half of the residents (49.4%) were confident about addressing breastfeeding-related concerns. Although nearly all residents (91.7%) agreed that breastfeeding promotion is part of their role, 35% never or rarely met the mother before birth to discuss breastfeeding. Didactic teaching was the most prevalent educational tool during their training (34.3%); however, most residents preferred learning through interactive workshops (83.7%) and following lactation consultants (82.8%).

Conclusion: Despite positive perceptions and confidence in providing breastfeeding care, pediatric residents in Saudi Arabia lack optimal knowledge of breastfeeding. These findings indicate the need for enhancing breastfeeding curricula in pediatric residency programs to improve breastfeeding consultation and management.

Keywords: Attitude, breastfeeding, comfort, infant, knowledge, pediatrics, practice, physician's role, residency, Saudi Arabia

Address for correspondence: Dr. Faisal S. Aloufi, 8383, Sa'ed Bin Raja' Street, Abraq Ar Rughamah Dist., Jeddah 22261, Saudi Arabia.

E-mail: faisalsalemaloufi@gmail.com

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INTRODUCTION

Breastfeeding (BF) is the optimal method of infant feeding that provides various benefits to both the infant and the mother.^[1] Besides the immeasurable nutritional value of breast milk, breastfed infants have a lower incidence of atopic dermatitis^[2] and acquire defense against infectious diseases^[3] and have a higher IQ later in life.^[2] Moreover, BF is associated with a lower risk of obesity and diabetes mellitus type 1 in young children and adolescents.^[4] It has also been proven to strengthen the mother–infant bond due to the release of oxytocin.^[5] According to the World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF) recommendations, BF should be continued for at least 2 years, with the initiation of weaning and the introduction of complementary foods after 6 months of the initial period of exclusive BF.^[6]

In Saudi Arabia, there has been a progressive reduction in BF practice and duration,^[7] with the rapid introduction of formula milk.^[8] Some of the factors that contribute to the early termination of BF in Saudi Arabia are maternal misconceptions of having insufficient breast milk and inability to breastfeed during maternal illness.^[9] Such misconceptions can be resolved through proper BF counseling, which also influences exclusive BF practice.^[10] However, misinformation or lack of knowledge support from health-care providers could contribute to the premature termination of BF.^[11,12]

Training physicians to provide BF support considerably increases BF rates.^[13,14] However, numerous studies have revealed that many physicians lack knowledge, confidence, and practice in BF, and thus are unable to provide BF counseling to the mothers.^[11,15–18] This is likely attributable to the fact that physicians and residents, including those in pediatric residency, often do not receive formal BF training during medical schooling or residency training.^[15,17,19–21] For instance, in an online survey of 201 pediatric residents across Canada, <50% reported receiving BF education during their residency, and 28% did not observe a mother breastfeeding.^[15] These discrepancies are despite BF being promoted by many pediatric associations worldwide, including the Saudi Pediatric Association.

To the best of our knowledge, no study from Saudi Arabia has assessed the level of BF knowledge among pediatric residents. Accordingly, this study was conducted to determine the BF knowledge, comfort level, perception, and clinical practices of pediatric residents in Saudi Arabia and to measure the level and type of education they receive during their residency training. Findings from this study

would help policymakers identify any gaps in residency training programs, and potentially take measures toward rectifying the same.

MATERIALS AND METHODS

Study design, setting, and participants

This cross-sectional study was conducted between February 22, 2021, and January 31, 2022, among pediatric residents across Saudi Arabia. Pediatric residents of all levels (R1–R4) registered with the Saudi Commission for Health Specialties (SCFHS), the governing body for all residency training programs in Saudi Arabia, were included in this study. The study was approved by the Institutional Review Board of King Abdulaziz University Hospital, Jeddah.

All participants provided digital informed consent before completing the survey. No identifying information was collected, and participants were assured that the responses would remain confidential, accessible only to the research team members, and only be used for research purposes. In addition, respondents were informed that participation was voluntary, and no incentives were offered.

Data collection and survey instrument

A self-reported electronic survey was used in this study, and it was hosted on SurveyMonkey. The SCFHS sent the survey through emails to all registered pediatric residents across Saudi Arabia. To enhance participation, our Pediatric Residency Training Program (RTP) Director contacted their counterparts at multiple centers to request them to encourage residents to complete the survey. Follow-up emails were sent every week or every other week to the residents who had not completed the survey. In addition, we also sent the survey to these residents on their social media accounts.

To prevent responses from non-pediatric residents, we refrained from randomly sending the survey to any resident groups on social media platforms. Moreover, the objective of the research, which was written in the consent form before undertaking the survey, clearly stated that this research was directed only toward pediatric residents, and thus should only be filled by this population. In addition, throughout the data collection period, residents remained in the same training year they were in when the data collection had begun.

The survey used in this study has previously been developed and validated by Esselmont *et al.*,^[15] who developed it by drawing items from the American Academy of Pediatrics’ BF curriculum^[22,23] and a previous physician survey on

BF.^[17] Permission was obtained from the original author before using the survey, which was administered in English, the original language in which it was developed. The survey included 32 closed-ended questions divided into the following six domains: BF knowledge, comfort level, clinical practices, perceptions, educational experiences, and educational preferences. The remaining questions addressed the participants' eligibility and demographics. Responses to the questions were yes/no or multiple-choice answers. In addition, we piloted the survey on 10 pediatric residents to test its clarity, and their feedback was confirmatory. The pilot sample was included in the final pooled results.

The usability and technical functionality of the questionnaire was tested before it was administered. To avoid duplicate responses, we enabled using IP addresses of the participants so that if, for instance, they enter the survey again, they will receive a message stating, "You have already taken this survey." Moreover, participants were requested to use their work emails registered in the SCFHS program to further ensure that no participant filled out the survey twice.

Data entry and analysis

All responses were automatically extracted onto an Excel sheet, and only completed surveys were included in the final analysis. All statistical analysis was performed using SPSS version 26.0. The knowledge score was calculated as a percentage of correct answers. We defined a global knowledge score of 71.4% (5 out of 7 questions) as acceptable because this cut-off score is equivalent to what was used in the previous physician BF surveys conducted in Canada.^[15,17] Frequencies were used to describe categorical variables, whereas measures of central tendency were used to describe continuous variables. The Chi-square test and independent samples *t*-test were used to determine various interdomain associations. Statistical significance was set at $P < 0.05$.

RESULTS

A total of 1836 surveys were emailed and sent through social media accounts, of which 340 responded (response rate: 18.5%). However, 87 residents had only filled the demographics section and were excluded, and thus responses from 253 residents were included in the final analysis. Of these, 145 responses had been received through emails and 108 through social media accounts. The demographic data of the included residents are available in Table 1.

Knowledge

The mean knowledge score was 58.4% ($\pm 22.7\%$). Table 2 presents the results for each question in the knowledge

Table 1: Participant's characteristics (N=253)

Characteristic	n (%)
Age (years)	28.0 \pm 2.2*
Gender	
Female	147 (58.1)
Male	106 (41.9)
Residency level	
R1	66 (26.1)
R2	83 (32.8)
R3	52 (20.6)
R4	52 (20.6)
Province in Saudi Arabia	
Riyadh	61 (24.1)
Makkah	114 (45.1)
Eastern	41 (16.2)
Madinah	12 (4.7)
Al Baha	4 (1.6)
Al Jawf	0
Northern Borders	1 (0.4)
Qassim	5 (2.0)
Ha'il	0
Tabuk	5 (2.0)
Aseer	7 (2.8)
Jazan	3 (1.2)
Najran	0

*Mean \pm SD. SD – Standard deviation

domain. Participants who attended BF courses had significantly higher knowledge scores than those who did not ($65.7 \pm 19.7\%$ [$N = 67$] vs. $55.8 \pm 23.2\%$ [$N = 186$]; $P = 0.002$). Residents who had the opportunity to follow a lactation consultant (LC) during their residency training did not have better BF knowledge ($60.15 \pm 20.7\%$ [$N = 57$] vs. $59.9 \pm 22.0\%$ [$N = 182$]; $P = 0.973$). In addition, female participants achieved higher scores than male participants (61.6 ± 23.5 [$N = 147$] vs. 54.0 ± 20.95 [$N = 106$]; $P = 0.009$). Residents who received BF education during their residency scored higher in the knowledge domain compared with those who did not ($63.1 \pm 20.2\%$ [$N = 93$] vs. $57.9 \pm 22.3\%$ [$N = 146$]; $P = 0.069$).

Comfort

Nearly half of the residents (49.4%; $N = 122$) felt confident in counseling mothers about BF and addressing BF-related issues. In addition, 66.0% ($N = 163$), 57.9% ($N = 143$), and 71.3% ($N = 176$) of the residents were comfortable evaluating a baby's latch, determining whether there is good milk transfer from the mother to the baby during BF, and counseling mothers on cracked nipples, respectively. As for teaching mothers how to use a breast pump, 59.1% ($N = 146$) of the participants were comfortable, and 58.3% ($N = 144$) felt comfortable with mothers BF their infants/toddlers in front of them.

Residents who attended courses in BF were relatively more confident in teaching mothers how to breastfeed and in addressing BF-related problems compared with residents who did not attend such courses (58.2% [$N = 39$]

vs. 46.1% [$N = 83$]; $P = 0.122$). The effect of attending BF courses and receiving BF education during residency training on the residents' comfort in tackling specific skills is shown in Table 3. Generally, a higher percentage of female participants were comfortable addressing BF skills than male participants, although the difference was not significant.

Clinical practices supporting breastfeeding

When the residents were asked on how often do they typically discuss BF prior to birth, if they got an opportunity to meet an expectant mother, 16.9% "never" discussed BF prior to birth, 16.5% "sometimes," 16.5% "often," and 14.9% "always or almost always;" 35.1% ($N = 85$) had never met expectant mothers before childbirth. However, 41.3% ($N = 100$) of residents always or almost always asked BF mothers how BF was going during their infants' first year of life, while 50% ($N = 121$) encouraged mothers to continue BF after returning to work. In addition, 55% of the residents ($N = 133$; 80 [60%] males and 53 [40%] females) never or seldom asked the mother to breastfeed their infants in front of them to assess the feeding.

Residents' perceptions on breastfeeding

Most residents (91.7%; $N = 220$) agreed that BF promotion is part of their role as pediatric residents and that they could influence the mothers' decision to BF their infants (89.2%; $N = 214$). Moreover, 80.8% ($N = 194$) of residents believed that the child's primary physician is responsible for evaluating BF, including position, latch, and milk transfer in the first 3–5 days after birth.

Breastfeeding education and educational preferences

Residents were educated on BF through various sources [Table 4]. Only 38.9% ($N = 93$) of the participants had received BF education during their residency. Moreover, 51.9% ($N = 124$) of the residents felt that their residency programs had poorly prepared them to support BF mothers. Almost all the residents (92.9%; $N = 222$) agreed that pediatric residency programs should incorporate more BF education into their curricula.

The most common methods of teaching reported by the residents were didactic teaching (34.3%; $N = 82$), grand rounds (33.1%; $N = 79$), and computer-based tutorials (19.7%; $N = 47$). Following LCs and interactive

Table 2: Breastfeeding knowledge ($N=253$)

Question	Residents who answered correctly, n (%)
As a general rule, for an otherwise healthy term baby who is exclusively breastfed and who has not regained birth weight by 2 weeks, is your first recommendation to start supplementing with formula? Do you agree with this statement? Supplementing with formula in the first weeks of life is a major risk factor for BF failure	218 (86.2)
How is the tongue positioned in a baby who is BF effectively?	105 (41.5)
What is the first thing to do when a BF mother complains that her nipples are sore?	133 (52.6)
Which of the following is not a sign that a baby is latched on properly?	52 (20.6)
What do you tell a mother who is complaining that her 6-weeks-old infant has been BF almost every hour for a day or two?	134 (53.0)
In addition to treating the child with phototherapy, what should you do to an otherwise healthy 5-days old BF infant is admitted to the hospital with jaundice?	197 (77.9)
Average knowledge score, mean±SD	58.4±22.7

SD – Standard deviation; BF – Breastfeeding

Table 3: Comparison of participants' comfort levels with breastfeeding based on their previous educational level

Question	Residents who attended a course on BF support ($n=67$), n (%)	Residents who did not attend a course on BF support ($n=180$), n (%)	P	Residents who received BF education ($n=93$), n (%)	Residents who did not receive BF education ($n=146$), n (%)	P
Do you feel confident in teaching mothers how to breastfeed and addressing BF-related problems?	39 (58.2)	83 (46.1)	0.122	54 (58.1)	65 (44.5)	0.056
How comfortable are you in evaluating whether a baby's latch is successful?	50 (74.6)	113 (62.8)	0.110	66 (71.0)	91 (62.3)	0.218
How comfortable are you in assessing whether there is good milk transfer from mother to baby during BF?	49 (73.1)	94 (52.2)	0.005	58 (62.4)	79 (54.1)	0.261
How comfortable are you in counseling mothers on cracked and sore nipples?	56 (83.6)	120 (66.7)	0.014	69 (74.2)	100 (68.5)	0.425
How comfortable are you teaching mothers how to use a breast pump?	49 (73.1)	97 (53.9)	0.010	60 (64.5)	79 (54.1)	0.146
Are you comfortable with mothers who breastfeed their infant in front of you?	51 (76.1)	93 (51.7)	0.001	63 (67.7)	76 (52.1)	0.024

BF – Breastfeeding

workshops with mothers were the least reported education methods (19.2% [N = 46] and 13.0% [N = 31], respectively), although they were the most preferred learning approaches (82.8% [N = 198] and 83.7% [N = 200]), respectively) [Figure 1] by the participants.

DISCUSSION

This study found that pediatric residents from Saudi Arabia have lower than optimal knowledge on BF, as the mean knowledge score was lower than the predetermined cut-off score. These findings are consistent with those of a study conducted in Turkey^[16] but contradict those of studies conducted in Canada^[15,17] and Spain,^[24] where residents showed satisfactory knowledge scores. These results indicate that despite the heavily advertised BF campaigns held annually in Saudi Arabia, pediatric residency programs are currently not incorporating sufficient BF materials into their curriculum. Given the role of health-care providers in supporting BF practices,^[11-14] lack of BF knowledge among pediatric residents could, in turn, negatively affect the BF practices of lactating mothers.

Our study and the one conducted in Canada^[15] showed that participants who attended BF courses achieved higher knowledge scores than those who did not. Similarly, participants who attended BF courses showed much higher comfort levels in providing BF counseling.^[15] These findings demonstrate the positive impact of educational workshops on the physicians' overall knowledge of, and confidence in, providing BF care. Hence, we recommend reinforcing such courses in pediatric residency curricula.

Similarly, this study revealed that residents who received BF education during their residency training had better outcomes in the knowledge and comfort domains; however, the difference was not statistically significant. To the best of our knowledge, no previous studies have examined this relationship. According to our results, although residents prefer interactive workshops and following LCs, the most widely used methods in their educational system are didactic teaching and grand rounds, which are probably ineffective, given their current knowledge and comfort levels.

Table 4: Breastfeeding foundation (N=253)

Source of knowledge	n (%)
Attended BF courses	67 (26.5)
Source of BF education (all that apply)	
Self-directed learning	195 (77.1)
Residency	187 (73.9)
Medical school	175 (69.2)
Being a parent	78 (30.8)
Other	4 (1.6)

BF – Breastfeeding

In the study from Canada, a lower proportion of residents had formally received BF education.^[15] Similarly, less than half of the residents in the current study (38.9%) received formal education of BF, which corresponds to the low knowledge scores reported, and indicates the need for interactive, goal-directed courses for improving residents' knowledge and confidence about advocating for BF.

Surprisingly, despite having low knowledge levels, the residents in the current study demonstrated comfort levels that were markedly higher than those reported by residents in Canada.^[15] These results may be due to several factors that could contribute to the confidence and comfort of pediatric physicians, including the amount of clinical exposure and personal experience with BF. Moreover, the limited number of questions in the survey used could have influenced the perceived comfort level. Another aspect that must be considered is the idea that residents could have difficulty in self-assessing their confidence and comfort levels, which could vary greatly when they are actively required to provide BF counseling in the clinic instead of answering an online survey. Nevertheless, residents in Saudi Arabia showed extremely positive perceptions toward learning about BF and demonstrated keenness in exploring this field more deeply.

Consistent with residents in Canada^[15,17] and Norway,^[18] female residents in Saudi Arabia exhibited non-significantly higher scores than male residents. This difference could be due to the natural personal interest in BF as females. In addition, lactating mothers tend to more often consult female physicians, increasing the clinical exposure of female residents. This gap in knowledge and comfort between the genders could be resolved by providing at least one LC in every teaching hospital, who will provide

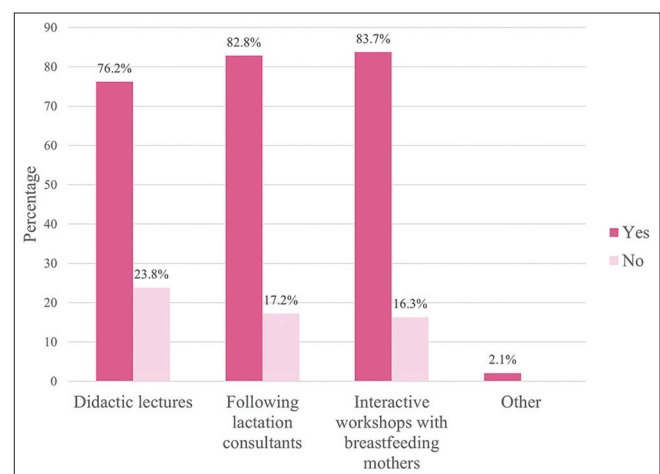


Figure 1: Teaching methods believed to be most effective as reported by pediatric residents

adequate training to residents regardless of their interest in BF. Studies in the United States have shown that training under a LC notably improves physicians' BF knowledge and perceived confidence.^[25] Although our analysis showed no difference in knowledge scores between residents who had the opportunity to follow a LC and those who did not, this should be interpreted with caution, as the small sample size could have interfered with the statistical significance. Another potential extra-curricular educational activity for residents is conducting community-based BF campaigns, as the literature from Saudi Arabia showed that such campaigns are beneficial to the public.^[26]

While this study focused only on the pediatric residency programs, similar studies can be conducted targeting other health-care professional trainees, such as family medicine and obstetrics residents and nursing staff, as their input in BF counseling may also contribute to the overall outcome of BF in Saudi Arabia.

Strengths and limitations

To the best of the authors' knowledge, this is the first study from Saudi Arabia that has assessed the level of BF knowledge among pediatric residents. In addition, the outreach to the residents was through multiple sources, including SCFHS, RTP Directors of multiple centers, and direct contact through social media platforms.

Nonetheless, this study had some limitations. First, the response rate was surprisingly poor, especially given that the official governmental organization, SCFHS, distributed the survey to the residents' designated work emails. Consequently, the low overall response rate resulted in a small sample size, and 85% of the respondents being from 3 of the 13 provinces in Saudi Arabia, thereby limiting the generalizability and underpowering the study findings. Moreover, residents who completed the survey were self-selected; therefore, those interested in BF were more likely to complete the survey, which might have increased the risk of selection bias. Further, residents who reported attending BF courses were more confident in addressing BF-related problems, but we did not collect information about the structure and content of these courses, which may reflect incorrect or misleading answers. Lastly, the extended data collection period may have resulted in changes in the residents' knowledge and perceptions after filling out the survey, but this was not accounted for in this study.

CONCLUSION

The results of this study show that pediatric residency programs in Saudi Arabia may inadequately prepare

residents for BF counseling, thereby highlighting the need for policymakers to incorporate BF education into the pediatric residency curriculum. Further, BF knowledge and practices of BF can be reinforced by obliging residents to shadow certified lactation consultants, which was reported as the preferred method of learning in this study.

Ethical considerations

The study was approved by the Institutional Review Board at King Abdulaziz University Hospital, Jeddah, Saudi Arabia (Ref. no.: 109-21; date: February 22, 2021). All study participants provided digital consent before inclusion in the study. The study adhered to the principles of the Declaration of Helsinki, as revised in 2013.

Peer review

This article was peer-reviewed by two independent and anonymous reviewers.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author contributions

Conceptualization: H.K.A.; Methodology: Y.O.B., H.K.A., and S.A.B.; Data analysis: Y.O.B., H.K.A., S.A.B., F.S.A., M.A.A., R.A.A., and J.S.A.; Writing—original draft preparation: Y.O.B., H.K.A., S.A.B., F.S.A., M.A.A., R.A.A., and J.S.A.; Writing – review and editing: Y.O.B., H.K.A., and S.A.B.

All authors have read and agreed to the published version of the manuscript.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Eidelman AI, Schanler RJ. Breastfeeding and the use of human milk. *Pediatrics* 2012;129:e827-41.
- Westerfield KL, Koenig K, Oh R. Breastfeeding: Common questions and answers. *Am Fam Physician* 2018;98:368-73.
- Heinig MJ. Host defense benefits of breastfeeding for the infant. Effect of breastfeeding duration and exclusivity. *Pediatr Clin North Am* 2001;48:105-23, ix.

4. Binns C, Lee M, Low WY. The long-term public health benefits of breastfeeding. *Asia Pac J Public Health* 2016;28:7-14.
5. Jonas W, Woodside B. Physiological mechanisms, behavioral and psychological factors influencing the transfer of milk from mothers to their young. *Horm Behav* 2016;77:167-81.
6. World Health Organization. Breastfeeding. Global: World Health Organization; 2022. Available from: https://www.who.int/health-topics/breastfeeding#tab=tab_2. [Last accessed on 2022 Sep 21].
7. Al Juaid DA, Binns CW, Giglia RC. Breastfeeding in Saudi Arabia: A review. *Int Breastfeed J* 2014;9:1.
8. Al-Jassir MS, El-Bashir BM, Moizuddin SK. Surveillance of infant feeding practices in Riyadh city. *Ann Saudi Med* 2004;24:136-40.
9. Alyousefi NA. Determinants of successful exclusive breastfeeding for Saudi mothers: Social acceptance is a unique predictor. *Int J Environ Res Public Health* 2021;18:5172.
10. Ogbode DO, Siddiqui S, Al Khalifa IM, Karim A. Breast feeding in a Saudi Arabian community. Profile of parents and influencing factors. *Saudi Med J* 2004;25:580-4.
11. Blixt I, Johansson M, Hildingsson I, Papoutsi Z, Rubertsson C. Women's advice to healthcare professionals regarding breastfeeding: "offer sensitive individualized breastfeeding support"- an interview study. *Int Breastfeed J*. 2019;14:51.
12. Skaaning D, Brødsgaard A, Kronborg H, Kynhøb A, Pryds O, Carlsen E. Maternal Reasons for Early Termination of Exclusive Breastfeeding in Premature Infants: A Prospective Study. *J Perinat Neonatal Nurs*. 2023. doi: 10.1097/JPN.0000000000000693 [Epub ahead of print].
13. Holmes AV, McLeod AY, Thesing C, Kramer S, Howard CR. Physician breastfeeding education leads to practice changes and improved clinical outcomes. *Breastfeed Med* 2012;7:403-8.
14. Handa D, Schanler RJ. Role of the pediatrician in breastfeeding management. *Pediatr Clin North Am* 2013;60:1-10.
15. Esselmont E, Moreau K, Aglipay M, Pound CM. Residents' breastfeeding knowledge, comfort, practices, and perceptions: Results of the breastfeeding resident education study (BRESt). *BMC Pediatr* 2018;18:170.
16. Yilmazbaş P, Keskindemirci G, Özbörü Ö, Kural B, Cantürk İ, Boran P, *et al.* Awareness and attitudes of health workers about breastfeeding and baby friendly hospital practices. *Türkiye Klin J Pediatr* 2020;29:153-8.
17. Pound CM, Williams K, Grenon R, Aglipay M, Plint AC. Breastfeeding knowledge, confidence, beliefs, and attitudes of Canadian physicians. *J Hum Lact* 2014;30:298-309.
18. Svendby HR, Løland BF, Omtvedt M, Holmsen ST, Lagerløv P. Norwegian general practitioners' knowledge and beliefs about breastfeeding, and their self-rated ability as breastfeeding counsellor. *Scand J Prim Health Care* 2016;34:122-9.
19. Amin TT, Abdulrahman AG, Al Muhaidib NS, Al Hamdan OA. Breastfeeding attitudes and knowledge among future female physicians and teachers in Saudi Arabia. *Health Sci J* 2014;8:102-15.
20. Hillenbrand KM, Larsen PG. Effect of an educational intervention about breastfeeding on the knowledge, confidence, and behaviors of pediatric resident physicians. *Pediatrics* 2002;110:e59.
21. Ogburn T, Espey E, Leeman L, Alvarez K. A breastfeeding curriculum for residents and medical students: A multidisciplinary approach. *J Hum Lact* 2005;21:458-64.
22. American Academy of Pediatrics Breastfeeding Residency Curriculum. Pre-Test (with Answers). Available from: https://downloads.aap.org/AAP/PDF/Pre_testAnswers.pdf. [Last accessed on 2021 Jun 03].
23. American Academy of Pediatrics Breastfeeding Residency Curriculum. Post-Test (with Answers). Available from: https://downloads.aap.org/AAP/PDF/Post_testAnswers.pdf. [Last accessed on 2021 Jun 03].
24. Gómez Fernández-Vegue M, Menéndez Orenaga M. National survey on breastfeeding knowledge amongst residents in pediatrics in Spain. *Rev Esp Salud Publica* 2019;93:e201908060.
25. Albert JB, Heinrichs-Breen J, Belmonte FW. Development and evaluation of a lactation rotation for a pediatric residency program. *J Hum Lact* 2017;33:748-56.
26. Temsah MH, Aljamaan F, Alhaboob A, Almosned B, Alsebaail R, Temsah R, *et al.* Enhancing parental knowledge of childhood and adolescence safety: An interventional educational campaign. *Medicine (Baltimore)* 2022;101:e28649.