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The impact of tele-education support on mothers' sense of security and breastfeeding self-efficacy during the pandemic

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Abstract

Background The COVID-19 pandemic caused significant disruptions to daily life, leading to increased anxiety, stress, and depression, particularly among postpartum women.

Methods This study is a quasi-experimental design aimed at determining the effect of supportive tele-education on postpartum care offered to women during the COVID-19 period, specifically focusing on the mothers' obsessive-compulsive behaviors, feelings of safety, and breastfeeding self-efficacy. In the study, independent t-tests and dependent t-tests were utilized. Mann-Whitney U and Wilcoxon tests were also applied.

Results When comparing the scores of the Obsessive and Compulsive Behavior Scale for infant care, no statistically significant difference was found between the groups ($p > 0.05$). The breastfeeding self-efficacy scale scores were evaluated based on the participants' groups, and it was observed that while the scale scores remained the same in the experimental group after the second interview (35–42 days), the control group's scores significantly decreased ($p < 0.05$).

Conclusion The study concluded that alternatives for ensuring the accessibility of health services to the community under all conditions and circumstances have been demonstrated.

Keywords Covid-19, Midwifery, Postpartum, Tele-medicine

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The Impact of Tele-education Support on Mothers' Sense of Security and Breastfeeding Self-Efficacy during the Pandemic.

Background

The COVID-19 pandemic caused significant disruptions to daily life, leading to increased anxiety, stress, and depression, particularly among postpartum women. These women faced emotional fluctuations and were considered vulnerable during the pandemic [1]. The pandemic exacerbated postpartum symptoms like fatigue, sleep disturbances, and obsessive-compulsive behaviors, particularly related to infant care, hygiene, and fear of transmission [2, 3]. The sense of security, which is crucial for mental well-being, was compromised, increasing anxiety and depression and potentially disrupting breastfeeding [4]. Stress, mood swings, and emotional crises negatively impacted both mother-infant bonding and breastfeeding initiation [5]. Healthcare access was also affected, with early hospital discharge and limited family support, leaving mothers isolated [6]. Telehealth became essential during this time, providing remote consultations and support, especially through hotlines for breastfeeding and newborn care advice [7]. The current study explores the impact of tele-education on postpartum women's mental health and breastfeeding self-efficacy, using an educational booklet on postpartum care, infant care, and breastfeeding [8].

Methods

The tele-education provided to postpartum women in the experimental group during the COVID-19 pandemic on postpartum care included topics such as general preventive methods against coronavirus, specific preventive measures during the postpartum period, precautions to be taken for healthy breastfeeding during the pandemic, and strategies for managing stress, anxiety, and depression in these processes.

The universe of the research was carried out at Amasya University Sabuncuoğlu Şerefeddin Training and Research Hospital in Turkey in 2022. A total of 131 women who gave birth at the Women's Maternity Service and agreed to participate in the study comprised the sample of the research. July August 2021–01 Dec 2022 Data were collected between the dates of 01–July 2021–01 Aug 2022. The sample size was calculated to include 110 pregnant women (55 in the experimental group, 55 in the control group) by performing a power analysis with a significance level of 5%, a confidence December of 95% and the ability to represent the universe of 80%. The pregnant women to be included in the groups were selected with an equal distribution ratio (1:1) using the random sampling method from the universe.

Inclusion criteria

All puerperal women who used a phone, agreed to participate in the study, did not have psychiatric health problems and were not diagnosed with Covid 19 were included in the study. The Covid 19 diagnosis and psychiatric health problems were determined according to the puerperal woman's statement and medical history.

Postpartum care education during the coronavirus pandemic: digital booklet content

The educational content was prepared based on the recommendations of WHO, TJOD, RCOG, ACOG, CDC, FIGO, ISUOG, RANZCOG, TJOD, and the COVID-19 guidelines published by the Turkish Ministry of Health.

Data analysis

The data collected in the present study were analyzed using the free trial version of SPSS (Statistical Package for Social Sciences) for Windows 25.0. Descriptive statistical methods (frequency, percentage, minimum-maximum values, median, arithmetic mean, and standard deviation) were used to evaluate the data. The normality of the measurement tools was assessed using the Kolmogorov-Smirnov test. Parametric tests were performed if the data were normally distributed and non-parametric tests were performed if the data were non-normally distributed.

- If the data were normally distributed, the independent samples t-test was used to compare two independent groups, and the paired t-test was used for two dependent stages.
- If the data were non-normally distributed, the Mann-Whitney U test was used to compare two independent groups, and the Wilcoxon test was used for two dependent stages.

Instruments

Demographic information form

This form, prepared by the researchers based on the literature, included items questioning the participants' postpartum characteristics [2, 3, 9].

Obsessive and Compulsive Behaviors Scale of Mothers in Postpartum Period Regarding Baby Care (OCBCSMPPRBC)

The validity and reliability of the OCBCSMPPRBC were established by Özdemir et al. in 2020 [9]. This unidimensional scale consists of nine items whose responses are rated on a 5-point Likert type scale (1–5). The total score ranges from 9 to 45. The higher the score is the more obsessive and compulsive the behaviors are. The Cronbach's alpha value was 0.75 in the Turkish validation study of the OCBCSMPPRBC and 0.86 in the present study.

Parents Postnatal Sense of Security Scale (PPSS)

The PPSS is administered to measure mothers' sense of security during the first week postpartum was developed by Persson et al. in 2007 and adapted into Turkish by Geçkil et al. [10, 11]. In the validation study of the Turkish version of the PPSS, 222 participants in their first postpartum week were included. The PPSS which has 18 items whose responses are rated on a 4-point Likert type scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree) includes four subscales:

- Empowering Behaviors (6 items: 1, 2, 3, 4, 5, 6).
- General Well-Being (5 items: 7, 8, 9, 10, 11).
- Family Attachment (4 items: 12, 13, 14, 15).
- Breastfeeding (3 items: 16, 17, 18).

Items 7, 8, 9, and 11 are reverse scored. The lowest and highest possible scores that can be obtained from the overall PPSS are 18 and 72, respectively. The higher the score is, the stronger the sense of security is. The Cronbach's alpha value of the PPSS was 0.84 in Geçkil et al.'s study and 0.871 in the present study.

Breastfeeding Self-Efficacy Scale (BSES)

The Breastfeeding Self-Efficacy Scale (BSES), developed by Dennis in 2003, assesses mothers' breastfeeding self-efficacy with 14 items rated on a 5-point Likert scale (1 = Not at all confident, 5 = Always confident). Scores range from 14 to 70, with higher scores indicating greater breastfeeding confidence. The Turkish validation study by Aluş Tokat, Okumuş, and Dennis reported a Cronbach's alpha of 0.86, confirming its cultural suitability, while the current study found a Cronbach's alpha of 0.90 [12].

Results

Of the participants, the majority in the experimental group were university graduates, the majority in the control group were senior high school graduates, more than half in both groups were homemakers, were not smokers, had nuclear families, resided in districts and had a medium income level, almost none had received training on birth preparation, and more than half gave birth through cesarean section. The participants in the experimental and control groups were homogeneously distributed in terms of their demographic and obstetric characteristics (Table 1).

The comparison of the scores obtained from the Obsessive and Compulsive Behaviors Scale of Mothers in Postpartum Period Regarding Baby Care demonstrated that there was no statistically significant difference between the groups ($p > 0.05$) (Table 2)

The participants in the experimental group obtained higher mina scores from the overall PPSS and its Empowering Behaviors and Breastfeeding subscales after the first interview, and from the Family Attachment subscale after the second interview than did the participants in the control group. Additionally, the difference between the mean scores obtained from the Empowering Behaviors and Breastfeeding subscales by the participants in the experimental group at the first and second interviews was statistically significant, with the first interview scores being higher than those at the second interview ($p < 0.05$). The difference between the mean scores obtained by the participants in the Control Group from the General Well-Being subscale at the first and second interviews was statistically significant different, with the second interview scores being higher ($p < 0.05$) (Table 3).

The analysis of the mean scores the groups obtained from the Breastfeeding Self- Efficacy Scale demonstrated that the scores remained the same after the second interview held between the 35^{th} and 42^{nd} days in the experimental group, but they decreased significantly in the control group ($p < 0.05$) (Table 4).

Discussion

The distribution of the demographic characteristics of the participants in the groups was homogeneous. These findings suggest that there was no confounding factor between the groups regarding the educational status of the participants, which would affect the effectiveness of the tele-education provided. In numerous studies and systematic reviews, it was determined that mental health issues occurred during the COVID-19 pandemic. During the COVID-19 pandemic, mental health issues such as anxiety, depression, and obsessive-compulsive disorder (OCD) were identified. In a systematic review, it was demonstrated that women who gave birth during the COVID-19 pandemic experienced psychological symptoms more frequently than did women who gave birth under normal circumstances [13]. Similarly, Chen et al. found that the COVID-19 pandemic had harmful effects on the mental health of women in the postpartum period [14]. OCD is defined in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) as the presence of repetitive, intrusive thoughts, images, and/or compulsions, which are irrational or unreasonable, cause marked distress, and significantly impair functionality [15]. The number of studies in the literature in which OCD behaviors of mothers regarding infant care during the postpartum period were investigated is not many. In a study conducted in Brazil, in which 400 women in the postpartum period were included it was reported that 9% of the sample met the diagnostic criteria for OCD, and 2.3% developed postpartum-onset OCD [16]. In another study, in which 7,649 women from 12 studies were included, it was reported that the prevalence of postpartum OCD was 6.2% [17]. In the present study, there was no significant difference between the

Table 1 Distribution of the participants by their demographic and obstetric characteristics

Variables		Experimental Group		Control Group		Test Value	*P*
		N	%	n	%		
Educational Level	Primary School Graduate	8	16.0	8	14.8	4.071**	0.354
	Junior high School Graduate	13	26.0	16	29.6		
	Senior High School Graduate	14	28.0	22	40.7		
	University Graduate	15	30.0	8	14.8		
Occupation	Homemaker	35	70.0	45	83.3	3.193**	0.374
	Civil Servant	5	10.0	2	3.7		
	Worker	7	14.0	4	7.4		
	Self-employed	3	6.0	3	5.6		
Habits	None	46	92.0	46	85.2	1.181**	0.277
	Smoking	4	8.0	8	14.8		
Family Type	Nuclear Family	40	80.0	42	77.8	0.077**	0.782
	Extended Family	10	20.0	12	22.2		
Place of Residence	City	14	28.0	22	40.8	1.987**	0.370
	District	28	56.0	26	48.1		
	Village	8	16.0	6	11.1		
Income Level	Low	3	6.0	2	3.7	0.444**	0.915
	Medium	42	84.0	47	87.0		
	High	5	10.0	5	9.3		
Social Security Status	Yes	47	94.0	47	87.0	1.448**	0.229
	No	3	6.0	7	13.0		
The Number of Pregnancies	One	11	22.0	11	20.4	1.402**	0.705
	Two	20	40.0	17	31.5		
	Three	13	26.0	16	29.6		
	Four or More	6	12.0	10	18.5		
The Number of Miscarriages	None	39	78.0	40	74.1	0.299**	0.941
	One	8	16.0	10	18.5		
	Two or more	3	6.0	4	7.4		
The Number of Abortions	None	44	88.0	50	92.6	0.630**	0.427
	Exists	6	12.0	4	7.4		
Receiving Training on Birth Preparation	Yes	1	2.0	5	9.3	2.517**	0.113
	No	49	98.0	49	90.7		
Type of Delivery	Vaginal	16	32.0	12	22.2	1.262**	0.261
	Cesarean	34	68.0	42	77.8		
Total		50	100.0	54	100.0		

Variables	Experimental Group		Control Group		Test Value	*P*
	$\overline{X}$	SD	$\overline{X}$	SD		
Age	29.30	4.89	29.33	4.45	−0.036***	0.971
Gestational Age (Weeks)	38.66	1.12	38.59	1.35	0.276***	0.783

*$p<0.05$, **Chi-square analysis, ***Independent samples t-test

Table 2 Comparison of the groups in terms of the scores they obtained from the obsessive and compulsive behaviors scale of mothers in postpartum period regarding baby care

	After the First Interview (held between the 7th and 15th days)			After the Second Interview (held between the 35th and 42nd days)		
	Median	$\overline{X}$	SD	Median	$\overline{X}$	SD
Experimental	27.50	27.58	8.73	26.00	27.04	7.75
Control	29.00	29.06	6.88	28.00	28.00	8.62
Test Value	−0.961**			−0.596**		
p	0.339			0.553		

*$p < 0.05$, **Independent samples t-test, ***Dependent samples t-test

Table 3 Comparison of the groups in terms of the scores they obtained from the overall parents postnatal sense of security scale and its subscales

		After the First Intervie (held between the 7th and 15th days)			After the Second Interview (held between the 35th and 42nd days)		
		Median	$\overline{X}$	SD	Median	$\overline{X}$	SD
Empowering Behaviors Subscale	Experimental	20.00	20.06	3.23	19.00	18.66	3.73
	Control	18.00	16.74	4.63	18.00	17.02	4.34
	Test Value	−3.756**			−1.954**		
	P	0.000*			0.051		
General Well- Being Subscale	Experimental	12.00	12.48	3.07	13.00	13.38	3.22
	Control	13.00	12.83	2.42	15.00	14.31	3.09
	Test Value	−0.960**			−1.393**		
	P	0.337			0.164		
Family Attachment Subscale	Experimental	15.50	14.70	2.11	15.00	14.08	3.34
	Control	15.00	13.81	2.78	14.00	13.24	2.09
	Test Value	−1.701**			−3.742**		
	P	0.089			0.000*		
Breastfeeding Subscale	Experimental	11.00	10.46	1.70	10.00	9.50	1.87
	Control	9.00	9.00	2.36	10.00	9.59	2.13
	Test Value	−3.209**			−0.528**		
	P	0.001*			0.597		
PPSS	Experimental	57.00	57.70	7.01	58.00	55.62	9.24
	Control	54.00	52.39	8.74	56.00	54.17	8.13
	Test Value	−3.120**			−1.349**		
	P	0.002*			0.177		

*$p < 0.05$, **Mann Whitney U test, ***Wilcoxon test

Table 4 Comparison of the groups in terms of the scores they obtained from the breastfeeding self-efficacy scale

	After the First Interview (held between the 7th and 15th days)			After the Second Interview (held between the 35th and 42nd days)		
	Median	$\overline{X}$	SD	Median	$\overline{X}$	SD
Experimental	61.50	59.64	8.16	59.00	59.50	6.40
Control	63.00	62.15	5.68	55.50	55.06	8.47
Test Value	−1.128***			3.001**		
p	0.259			0.003*		

*$p < 0.05$, **Independent samples t-test, ***Mann Whitney U test, ****Wilcoxon test

experimental and control groups in terms of the mean scores they obtained from the Obsessive and Compulsive Behaviors in Infant Care Scale, which suggests that an educational intervention alone may not alleviate the severity of OCD. However, it can be argued that, considering the increased anxiety and fear during the COVID-19 pandemic, the use of this measurement tool is crucial. In both groups, the scores for both interviews were above average according to the scale scoring, which suggests a tendency toward OCD behaviors related to infant care. In a study conducted in 2022 in Turkey with 218 women to determine the relationship between postpartum OCD behaviors related to infant care and health literacy, the mean scale score was 23.25 [18]. The higher score in the present study may be attributed to the anxiety of the women regarding their inability to access health facilities whenever they needed due to their conditions. While it is known that women experience feelings such as anxiety, fear, etc. regarding newborn care during the postpartum period, the presence of obsessive and compulsive behaviors should be evaluated. By acknowledging the multidimensional nature of obsessive and compulsive behaviors, it is necessary to emphasize the importance of social support, personal coping strategies, and to provide accessible, supportive healthcare services.

The fact that the present study was conducted during the COVID-19 pandemic, with the risk of infection and the effects of the disease, may have contributed to the higher mean score of OCD in the experimental group, reflecting an increased need for safety among postpartum mothers. The feeling of safety is an essential part of quality of life and is one of the basic needs that must be met. During the first week postpartum, the feeling of safety is crucial for mothers who are concerned about their and their baby's health. In Velagic et al. study, the total average score of the scale was 49.61 ± 7.6. In another study by

Koçak et al. the total score obtained from the PPSS was 50.39 ± 8.59 [19, 20]. The mean scores the participants in the experimental and control groups obtained from the PPSS in the present study were consistent with those reported in these studies. There was a significant difference between the experimental and control groups in terms of the scores obtained from the PPSS, indicating the effectiveness of the tele-education provided. A noteworthy point here is that despite being a remote education method, tele-education seems to have an impact on creating a sense of safety among women. One parameter affecting the feeling of safety in the postpartum period is breastfeeding. Building self-efficacy in breastfeeding can influence many dynamics in the woman's current situation. The mean score obtained from the Breastfeeding Self-Efficacy Scale after the first interview was higher in the control group than it was in the experimental group. After the second interview, however, the mean score of the experimental group was higher than was that of the control group, and a significant difference was observed between the two groups ($p < 0.05$). In a similar study in which the effect of tele-education on breastfeeding success and perceived breastfeeding self-efficacy during the COVID-19 pandemic was investigated, while the initial scores of the groups were the same, the scores increased in the experimental group by the end of the first month but remained the same in the control group. In the present study, there was no significant difference between the groups in the first measurement, but there was a significant difference in the second measurement [20]. In another study, in which the effect of video call-based breastfeeding support on postpartum anxiety, breastfeeding self-efficacy, and newborn outcomes during the COVID-19 pandemic was investigated, the breastfeeding self-efficacy scores of the video call group (44.51) were statistically higher than were those of the control group (34.41) [21]. That the scores obtained in that study were lower than were the scores obtained in the present study can be interpreted as the support provided in the present study being educational in nature [22]. Telehealth services positively affect full breastfeeding success and its continuation and increase women's satisfaction levels [23].

Conclusion

It is essential to create alternatives to ensure the community's access to healthcare services under all conditions and circumstances. Future generations should reconsider existing practices through technology and establish joint strategies and new healthcare policies in collaboration with health professional associations, women's platforms, and public health institutions. Midwives should also take an active role in all these processes and contribute to the literature by providing up-to-date information through studies conducted after the COVID-19 pandemic.

Limitations

Possible risks could not be prevented because no randomization was performed in our study. In addition, since the study was completed during the covid 19 period, there were difficulties in the data collection phase.

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Informed consent

Written informed consent was taken from the participants.

Authors' contributions

FAÖ- İntraduction, finding, Discussion, recommendEÇ- İntraduction, finding, Discussion, recommendMU- Discussion and Conclusion.

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Data availability

If requested, the SPSS database will be shared.

Declarations

Ethics approval and consent to participate

Informed consent for participation was obtained from all participants. Before the study was conducted, ethical approval to conduct the study was obtained from the Scientific Research and Publication Ethics Committee of Amasya University Health Sciences (Decision Date: January 7, 2021, Decision Number: 1/17). The study was carried out in accordance with the Declaration of Helsinki. Additionally, permission for COVID-19- related scientific research was secured from the Turkish Ministry of Health, along with approval from the hospital where the study was to be conducted.

Consent for publication

The manuscript is approved by all authors for publication.

Competing interests

The authors declare no competing interests.

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References

1. Gluska H, Mayer Y, Shiffman N, et al. The use of personal protective equipment as an independent factor for developing depressive and post-traumatic stress symptoms in the postpartum period. Eur Psychiatry. 2021;64(1):e34.
2. Okray Z. COVID-19 pandemic and obsessive-compulsive disorder. Curr Approaches Psychiatry. 2021;13(3):588–604.
3. Özkan Şat S, Yaman Sözbir Ş. Use of mobile applications by pregnant women and levels of pregnancy distress during the COVID-19 (Coronavirus) pandemic. Matern Child Health J. 2021;25(7):1057–68.
4. Fathi F, et al. Maternal self-efficacy, postpartum depression and their relationship with functional status in İranian mothers. Women Health. 2017;58(2):188–203.
5. Rahmani F, Seyedfatemi N, Asadollahi M, Seyedrasooli A. Predisposing factors of postpartum depression. Iran J Nurs. 2011;24(72):78–87.
6. Bick D, Cheyne H, Chang YS, Fisher J. Maternal postnatal health during the COVID-19 pandemic: vigilance is needed. Midwifery. 2020;88:102781.
7. Motrico E, Mateus V, Bina R, Felice E, Bramante A, Kalcev G, et al. Good practices in perinatal mental health during the COVID-19 pandemic: a report from task-force RISEUP-PPD COVID-19. Clin Salud. 2020;31(3):155–60.

8. Çilesiz E, Akyüz MD, Turfan E. Mobile health interventions associated with breastfeeding in the postpartum period: a systematic review. J Health Sci Inst Cumhuriyet Univ. 2023;8(1):82–90.
9. Özdemir K, Menekşe D, Çınar N. Development of obsessive and compulsive behaviors scale of mothers in postpartum period regarding baby care: validity and reliability. Perspect Psychiatr Care. 2020. https://doi.org/10.1111/ppc.12445
10. Persson EK, Fridlund B, Dykes AK. Parents' postnatal sense of security (PPSS): development of the PPSS instrument. Scand J Caring Sci. 2007;21(1):118–25.
11. Geçkil E, Koçak V, Altuntuğ K, Ege E. Mothers' postpartum security feelings scale. Anatolian J Nurs Health Sci. 2016;19(4).
12. Tokat MA, Okumuş H, Dennis CL. Translation and psychometric assessment of the breast-feeding self-efficacy scale—short form among pregnant and postnatal women in Turkey. Midwifery. 2010;26(1):101–8.
13. Gao Z, Xu Y, Sun C, Wang X, Guo Y, Qiu S, et al. A systematic review of asymptomatic infections with COVID-19. J Microbiol Immunol Infect. 2021;54(1):12–6.
14. Chen C, Haupert SR, Zimmermann L, Shi X, Fritsche LG, Mukherjee B. Global prevalence of post-coronavirus disease 2019 (COVID-19) condition or long COVID: a meta-analysis and systematic review. J Infect Dis. 2022;226(9):1593–607.
15. Karslioglu EH, Yüksel N. Neurobiology of obsessive-compulsive disorder. Clin Psychiatry. 2007;10(3):3–13.
16. Zambaldi CF, Cantilino A, Montenegro AC, Paes JA, de Albuquerque TLC, Sougey EB. Postpartum obsessive-compulsive disorder: prevalence and clinical characteristics. Compr Psychiatry. 2009;50(6):503–9.
17. Salari N, Sharifi S, Hassanabadi M, Babajani F, Khazaie H, Mohammadi M. Global prevalence of obsessive-compulsive disorder in pregnancy and postpartum: a systematic review and meta-analysis. J Affect Disord Rep. 2024.
18. Kırca N, Altun ÖŞ, Apay SE, Şahin F. The relationship between mothers' obsessive and compulsive behaviors and health literacy regarding baby care in the postpartum period: descriptive research. Turkiye Klinikleri J Nurs Sci. 2022;14(4).
19. Velagic M, Mahmutovic J, Brankovic S. Development of mother's postnatal sense of security. Mater Socio Med. 2019;31(4):277.
20. Koçak V, Altuntuğ K, Emel E. Evaluation of mothers' Self-Efficacy and feeling of security after childbirth. J Midwifery Health Sci. 2021;4(1):34–44.
21. Dağlı E, Topkara FN. The effect of tele-education delivered to mothers during the COVID-19 pandemic on breastfeeding success and perceived breastfeeding self-efficacy: randomized controlled longitudinal trial. Health Care Women Int. 2023;44(3):345–60.
22. Akyıldız D, Bay B. The effect of breastfeeding support provided by video call on postpartum anxiety, breastfeeding self-efficacy, and newborn outcomes: a randomized controlled study. Jpn J Nurs Sci. 2023;20(1): e12509.
23. dos Santos LF, Borges RF, de Azambuja Zocche. D. A. Telehealth and breastfeeding: an integrative review. Telemed JE Health. 26(7):837–46.

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