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Assessment of situations where women who gave birth during the pandemic develop vulnerable baby syndrome and their fear of COVID-19

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ABSTRACT. The research has been conducted with the aim of assessing the situations where women who gave birth during the pandemic develop Vulnerable Baby Syndrome and their fear of COVID-19. The research that is descriptive and cross sectional has been performed with 320 mothers who are accessible and accommodate research criteria. Data have been obtained with the Questionnaire that was sent to participants through social media and by using the Fear of COVID-19 Scale (FCV-19S) and Vulnerable Baby Scale (VBS). It is found that the VBS average score (30.54±09.13) is higher than the cutoff score of the scale(27 score). It is indicated that FCV-19S average score of mothers is 18.52±06.90. No meaningful relation is observed when the correlation between the two scales is examined (r=0.08, p=0.15). As a conclusion, it is indicated that FCV-19S and VBS scores of the mothers are high and it is considered that growth and development of babies who are perceived as vulnerable by their mothers during the pandemic may be at risk. According to the outcome of this research, it can be said that high fear of COVID-19 and vulnerable baby syndrome in mothers affect mother and child mental health negatively.

Keywords: Vulnerability syndrome, fear of COVID-19, mother and babies.

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Introduction

Outbreaks that remind people of death may affect their mental health quite negatively. Especially such factors as staying at home as a way of protection against the outbreak, social distancing, uncertainty about when the outbreak comes to an end, losing loved ones or uncertainty about the factors that affect this process are most adverse factors. (Torales, O'Higgins, Castaldelli-Maia, & Ventriglio, 2020). COVID-19 outbreak that has negatively affected the whole world in the last 1.5 years not only cannot be taken under control in spite of all the measurements taken but also the rise in fatality rate continues. Along with the fact that scientists have limited information in hand about the virus, it is thought that a COVID-19 patient can infect approximately 2.6 individuals (Wu et al., 2020).

COVID-19 outbreak has caused many people's death and hospitalization. COVID-19 that has affected the entire world is perceived as a big threat by the individuals (Wu et al., 2020). In such outbreak scene, especially mothers who have little babies have been through tough processes. Before they completely taste the sense of motherhood, they have been afraid of touching their babies due to the fear of COVID-19. Moreover, some health workers and scientists have asserted that mothers and their babies must be separated (Collin, Byström, Carnahan, and Ahrne, 2020; Pradip et al., 2020). In fact, bringing the mother and the baby together as soon as the baby is born and starting nursing is one of the ground rules that has been underlined for years. An healthy relationship with the baby is developed and breast milk release increases when the baby smells the mother's scent, sucks the mother's breast and starts communicating with the mother. (Unal, & Çak, 2018; Şahin & Karabekiroğlu, 2018). Breaking this relationship by any means harms the synergy of mother and the baby. Besides, it causes flaws and halts in the baby's growth and development stages. Sustaining the relationship of mother and the baby is needed for an healthy growth and development. When this necessity is not met and separation of mother and the baby becomes an issue, perception of vulnerability starts to be formed in the mother. All situations that break up the mother and baby synergy (hospitalization, long term travels, diseases in mother/baby, problems related to pregnancy, attitudes of parents, environmental factors) influence developing perception of vulnerability (Teti, Hess, & O'Connell, 2005; Horwitz et al., 2015).

Interaction of mother and the baby has unfortunately been inflicted deep wounds with the COVID-19 outbreak. During the pandemic, it is suggested to mothers to remain separate from their babies and not to have somatic contact while breastfeeding (Hart, Turnbul, Oppenheim, & Courtrigth, 2020; Chen et al., 2020). It can be said that mothers are at risk of developing perception of vulnerability due to such separations during this difficult period. In this research, assessing the situations where women who gave birth during the pandemic develop Vulnerable Baby Syndrome and their fear of COVID-19 has been aimed by considering the harms of the vulnerability perception in the health of mother and baby. Since this study has not been done before, it has an original value and will be a source of many studies by taking its place in the literature.

Research questionnaire

1. What level mothers perceive their babies as vulnerable?
2. What level mothers experience fear of COVID-19?
3. Is there a relation between mothers' fear of COVID-19 and their perception of vulnerability?

Design and methods

Research design

This research is descriptive and cross-sectional. A digital survey has been developed by the researchers in order to minimize face-to-face interaction since COVID-19 is transmitted by human interaction. Responses given to the survey have been obtained on an online platform. Digital survey that was developed were shared on social media platforms (WhatsApp, Instagram, Twitter etc.). Such information about the research as objectives of the research and participation on a voluntary basis are mentioned at the start of the survey sent to participants and they are asked to agree with the information. Personal identifying information of the participants were not recorded.

Population and sample of the research

Target population of this research consists of 552 all mothers whose babies and are registered in the family health center of a province. Sample group of the research consists of 320 mothers who are eligible to research criteria and are voluntarily willingly to participate in the study.

Research participation criteria

- Being accessible through social media
- Having a 0-6 months old baby
- Having a suitable device to connect social media
- At least to be primary school graduate
- No congenital disease or disorder in the child

Collection of research data

Data Collection Tools

"Questionnaire, VBS and FCV-19S" that were prepared by the researchers in accordance with the literature were used as data collection tools and data was collected on the dates between February and April 2021.

Questionnaire:

Questionnaire consists of questions about socio demographic characteristics (age, gender, marital status, education level, employment status, level of income, family type, general health status) and some specifications that may influence mother's vulnerability perception as questions about mother's pregnancy, birth, post-natal process, baby's gestation age, current age and nursing characteristics.

*Vulnerable Baby Scale (VBS Scale):*The scale is developed by Kerruish and his colleagues in 2005 (Kerruish, Settle, Campbell-Stokes, & Taylor, 2005). The scale consists of 10 questions and in 5 point Likert type. Total score of the scale is 50. If the score obtained from the scale is 27 or above, it indicates a high level of vulnerability perception. It is not recommended to use the scale in case the mother and baby is separated due to whatsoever reason. Some articles of the scale are reverse coded (2,3,4,5,6,7,8,9). In order to conduct the scale, baby and the mother are required to be together. Scale is conducted with the mothers whose babies are

1 week to 1 years old. In a study conducted by Kerruish and colleagues,Cronbach alpha reliability coefficient is found 0.70 (Kerruish et al., 2005). Yavaş and Çiğdem (2020) have adapted the scale for Turkish and defined Cronbach alpha reliability coefficient as 0.84 (Yavaş, & Çiğdem, 2020). In this study, Cronbach alpha reliability coefficient is found 0.87.

*Fear of COVID-19 Scale(FCV-19S):*Reliability and validity study of the scale developed by Ahorsu et al. (2020) was conducted by Bakioğlu, Korkmaz and Ercan (2020). Scale is in 5 point Likert type (1=absolutely disagree, 2=disagree, 3=not sure, 4=agree, 5=absolutely agree) It consists of 7 articles and 1 dimension. There is no reverse coded article in the scale. Total score obtained through all the articles of the scale reflects the individual's level of COVID-19 fear. Scores that can be obtained from the scale may change between 7 and 35. High score obtained from the scale indicates a high level of COVID-19 fear (Ahorsu et al., 2020; Bakioğlu et al., 2020). Cronbach alpha reliability coefficient is found as 0.85.

Data analysis

Statistics software called SPSS 24.0 (Statistical Paclet for Social Science for Windows) is used in analyzing the data. In statistical analysis, data's compliancy to normal distribution is evaluated by using Skewness and Kurtosis (±1) distribution test. In analysis of the data obtained from the research, Mann Whitne U and Kruskal Wallis H tests are used besides the descriptive statistics such as percentage, frequency, average, standard deviation, minimum, maximum. Also, Correlation analysis was done.

Ethical consideration

Ethics Committee of Univesity approval is obtained to conduct the research. Voluntary participation is grounded on by stating the objective of the research on the digital survey. The research has been conducted in line with the Principles of Helsinki Research Declaration.

Results

It is indicated that 74.1% of the mothers are aged between 17 and 30, 45.3% of them have university and higher level of education, 54.7% of their income are balanced with the expenses, 64.1% of them are housewives, 85.6%o of them have nuclear family, 77.2 % of them have 1 or 2 child(ren), 44.4% have their first child, 50.9% have preferred normal delivery, 68.4% have become pregnant by choice, 73.8% have not experienced risk of miscarriage, 70.3% have not experienced any problem during pregnancy, 80.6% of them have not experienced any problem during delivery, 90.6% of them have not experienced any problem after birth, 67.8% have started nursing right after delivery and 95.3% are satisfied with the gender of the child. It is observed that 52.5% of the babies are male, 46.9% of them are aged between 91 and 180 days old and 67.8% of them are born mature. It is found that 91.6% of the mothers evaluate general health status of their babies as good, 91.9% of the mothers take their babies to regular health checkup, 67.5% of the mothers have not experienced any problem in taking their babies to health checkup, 88.7% of mothers state there is no problem in vaccination of their babies, 56.3% of the mothers get support for infant-care and 69.1% of the mothers have evaluated their childbirth experience during COVID-19 as negative (Table 1).

When mothers' perception of vulnerability is analyzed, average VBS score of the mothers who became pregnant with an assisted reproductivity technique (31.84±05.40), who have experienced health problems during pregnancy (31.61±08.08), who could not breastfed the baby right after the delivery (31.36±08.74), who have stated that there were some disruptions in babies health monitoring (31.98±09.79) and whose babies are male (31.86±10.31) is found statistically significantly higher compared to other mothers ($p<0.05$)(Table 2).When mothers' fear of COVID-19 is analyzed, average FCV-19S score of the mothers who are aged between 31 and 45 (19.47±06.99), who have preferred c-section (19.47±06.99), who became pregnant with an assisted reproductivity technique (22.69±07.01), who have stated their satisfaction with the baby's gender (18.74±06.88) and who have evaluated their childbirth experience during COVID-19 as negative (19.13±07.10) is found statistically and significantly higher compared to other mothers ($p<0.05$). Additionally, FCV-19S score of the mothers whose income is balanced with the expenses (18.00±07.16) and is lower than the expenses (19.26±06.22) is found statistically and significantly higher compared to those whose income are higher than the expenses ($p<0.05$) (Table 2).

Table 1. Socio Demographic Features of Mothers and Babies Breakdown (n=320).

Socio Demographic Features		n=320	%
Age of the Mother	17-30 years old	237	74.1
	31-45 years old	83	25.9
Education Level of the Mother	Primary	54	16.9
	Middle School	48	15.0
	High School	73	22.8
	University and Above	145	45.3
Income Level	Less income than the expenses	107	33.4
	Balanced income and expenses	175	54.7
	More income than the expenses	38	11.9
Employment Status of the Mother	Housewife	205	64.1
	Employed	115	35.9
Family Type	Nuclear Family	274	85.6
	Extended Family	46	14.4
Number of Children	1 to 2 child(ren)	247	77.2
	3 to 6 children	73	22.8
Birth Order of the Child	First born	142	44.4
	Not first born	178	55.6
Birth Type	Normal	163	50.9
	C-section	157	49.1
Planned Pregnancy	Yes	219	68.4
	No	101	31.6
Pregnancy with Assisted Reproductivity Methods	Yes	26	8.1
	No	294	91.9
Miscarriage Threat During Pregnancy	Yes	84	26.3
	No	236	73.8
Facing Health Problems During Pregnancy	Yes	95	29.7
	No	225	70.3
Facing Health Problems During Childbirth	Yes	62	19.4
	No	258	80.6
Facing Health Problems After Delivery	Yes	30	9.4
	No	290	90.6
Nursing the Baby Right After Delivery	Yes	217	67.8
	No	103	32.2
Gender of the Baby	Male	168	52.5
	Female	152	47.5
Satisfaction with the Gender of the Baby	Satisfied	305	95.3
	Unsatisfied	15	4.7
Age of the Baby	0-30 days old	81	25.3
	31-90 days old	89	27.8
	91-180 days old	150	46.9
Gestation Age of the Baby	Born on me	217	67.8
	Pre-term	73	22.8
	Post-term	30	9.4
Mother's Evaluation of Her Baby's Health Status	Good	293	91.6
	Bad	27	8.4
Taking the Baby to Regular Health Checkups	Yes	294	91.9
	No	26	8.1
Disruptions While Monitoring Baby's Health Status	Yes	104	32.5
	No	216	67.5
Disruptions in Baby's Vaccines	Yes	36	11.3
	No	284	88.7
Mother Receiving Support for Baby's Care	Yes	180	56.3
	No	140	43.8
Influence of the Childbirth During COVID-19 on the Mother	Positive	99	30.9
	Negative	221	69.1

Average VBS score of the mothers who are within the scope of the study is found 30.54±09.13 and is determined higher than the cutoff score of the scale (27 score). Average score of the FCV-19S of the mothers is determined as 18.52±06.90 (Table 2). When the correlation between the scores of the two scales is analyzed, it is found that there is no relation between (r=0.08, p=0.15) (Table 2).

Table 2. Comparison of the Socio Demographic Features of Mothers and Babies with Average Scores of VBS Scale and Fear of COVID-19 Scale.

Socio Demographic Features	VBS Scale		Fear of COVID-19 Scale	
	Mean ± SD	Significancy	Mean ± SD	Significancy
Age of the Mother				
17-30 years old	31.02±09.47	U=8590.00*	17.60±06.70	U=1050.0*
31-45 years old	29.16±07.95	p=0.08	19.47±06.99	p=0.01
Income Level				
Less income than the expenses	30.64±08.10	X^2=0.68**	18.00±07.16	X^2=7.22**
Balanced income and expenses	30.63±09.63	p=0.71	19.26±06.22	p=0.03
More income than the expenses	29.81±08.66		16.60±08.63	
Childbirth Type				
Normal	31.13±10.82	U=12318.50*	17.60±06.70	U=1050.0*
C-section	29.92±06.93	p=0.56	19.47±06.99	p=0.01
Pregnancy with Assisted Reproductivity Methods				
Yes	31.84±05.40	U=2911.0*	22.69±07.01	U=2516.0*
No	30.42±09.38	p=0.04	18.15±06.78	p=0.004
Facing Health Problems During Pregnancy				
Yes	31.61±08.08	U=8673.0*	18.35±07.14	U=10500.0*
No	30.08±09.52	p=0.008	18.59±08.81	p=0.80
Nursing the Baby Right After Delivery				
Yes	30.14±09.30	U=9517.50*	18.58±07.03	U=10937.50*
No	31.36±08.74	p=0.03	18.39±06.65	p=0.75
Gender of the Baby				
Male	31.86±10.31	U=10375.50*	18.45±06.73	U=12760.50*
Female	29.07±07.37	p=0.004	18.60±07.11	p=0.99
Satisfaction with Gender of the Baby				
Satisfied	30.37±08.78	U=2098.00*	18.74±06.88	U=1425.50*
Unsatisfied	33.93±14.61	p=0.58	14.00±05.86	p=0.01
Disruptions While Monitoring Baby's Health Status				
Yes	31.98±09.79	U=9601.50*	19.32±06.74	U=9774.50*
No	29.84±08.73	p=0.03	18.13±06.96	p=0.06
Influence of the Childbirth During COVID-19 on the Mother				
Positive	30.95±10.48	U=10614.50*	17.17±06.27	U=8988.00*
Negative	30.35±08.47	p=0.67	19.13±07.10	p=0.01
VBS Scale	r=0.08		Fear of Covid-19 Scale	
30.54±09.13	p=0.15		18.52±06.90	

* Mann Whitne U **Kruskal Wallis H

Discussion

Today COVID-19 outbreak has caused changes in our daily lives, family and social relations, at work life and indirectly in our emotions and thoughts. During this epidemic, individuals go through difficult times physiologically and psychologically (Xiang et al., 2020; Xiong et al., 2020). It has started to be increasingly difficult to cope with the fear of COVID-19 and individuals' family relations and bond they establish with their children have started to differ due to the fear of COVID-19 (Prime, Wade, & Browne, 2020). Parents have started to be afraid of touching, hugging and kissing their children. Mothers live in fear while touching their babies, nursing them and giving care (Hart et. al., 2020; Pradip et al., 2020; Chen et al., 2020). Statements from the studies conducted and the fear of COVID-19 have unfortunately caused the separation of mothers and babies and the lack of healthy relationship (Hart et al., 2020; Lu & Shi, 2020; Verma et al., 2020).

Vulnerable Baby Syndrome that can be developed by the mothers as a result of these unhealthy relations experienced during COVID-19 outbreak poses a threat for mother and infant relationship. For this reason, we have aimed to assess the situations where mothers who gave birth during the pandemic develop Vulnerable Baby Syndrome and their fear of COVID-19. In line with this purpose, average score of VBS which is used to assess the vulnerability perception of mothers (30.54±09.13) is found higher than the cutoff score of the scale (27). In other words, levels of vulnerability perception of mothers is determined quite high. Studies conducted also show that vulnerability perception is developed when the average score of VBS is found 27 or above (Yavaş, & Çiğdem, 2020; Kerruish et al., 2005). Average score of FCV-19S that assesses the situations where mothers fear of COVID-19 is determined 18.52±06.90. It is stated that the scores change between 7 and 35, there is no cutoff score in the scale and higher score obtained from the scale means higher level of COVID-19 fear (Ahorsu et al., 2020; Bakıoğlu et al., 2020). Average score of FCV-19S of the mothers who participated in the research is identified higher than the half of the maximum score that can be obtained from the scale. According to this, it can be said that the situations where mothers experience the fear of COVID-19 is high.

A healthy mother is required to support and allow her child to find his/her own self and understand that he/she is a separate entity from the mother. Besides, providing opportunities for the child's exploration towards his/her environment and finding himself/herself as "I" is significant for individualization. Due to whatsoever reason, mothers who experience vulnerable baby syndrome cannot provide this support to their babies with the thought that their babies will be harmed.

It is stated that VBS causes the mother and baby to have difficulty in separation fromeach other and the baby to have behavioral problems (headbanging, routinized long crying,extreme stubbornness, biting, difficulties in starting complementary feeding, rejecting foodetc.) due to the mother having an extreme anxiety over her baby's physical and bodily status.

As a result of these, it causes the baby to have difficulties in integrating with the environment,to fall behind in developing new behaviors, knowledge/skills, to delay in socializing asneeded, to be unable to cope with hardships/disappointments, to be an unassured individual,to pursue an unsuccessful academic life and to show aggression.

When demographic data belong to mothers and the babies in the study and the average score of VBS are compared, average score of VBS of the mothers who became pregnant with assisted reproductivity methods and experienced health problems during pregnancy is found statistically and significantly higher compared to other mothers. In the studies conducted, it is stated that mothers who became pregnant with assisted reproductivity methods (Mcgrath, Samra, Zukowsky, & Baker, 2010) and who experienced health problems during pregnancy (Green & Solnit, 1964) develop vulnerability perception. Also in literature, it is stated that there will be vulnerability perception in mothers who is not allowed to interact with the infant in the early stage and for this reason, kangaroo care can be a method to use to avoid developing vulnerability perception (Susan, 2013; Sarparast, Farhadi, Sarparast, & Shafai, 2015). It is also found in this study that average VBS score of the mothers who were not able to nurse their babies right after the delivery is determined high. Another significant result of the study is that the average VBS score of the mothers who have experienced distruptions in their babies health monitoring is determined high. It is thought that due to the fact that mother has health related concerns over their babies this result has been reached. It is stated that situations where mothers have extreme concerns over their babies have influence on development of vulnerability perception (Horwitz et al., 2015). Lastly, average VBS score of the mothers who have sons is determined high. However, when searched in literature, there is no relation between the gender of the baby and the vulnerability perception although some demographic information such as income level, mother's age have influence on development of vulnerability perception (Green & Solnit, 1964; Doğan, Ertem, Karaaslan, & Forsyth, 2009; Yavaş, & Çiğdem, 2020). Turks are a patriarchal society. More significance is given to the boys compared to the girls (Pamukçu, 2020). Women who could not give birth to a boy often tries to bear a boy although they are up in years (TNSA, 2018). This result might have come through due to this cultural structure.

When demographic data belong to babies and mothers and the average score of FCV-19S are compared, average score of FCV-19S of mothers who are aged between 31 and 45 is determined statistically and significantly higher compared to the mothers in other age groups. It is concluded that this might be related to the concerns of these mothers in this age group who have thoughts over that they will face unfamiliar baby care practices that are different from their traditional experiences with their previous babies. In this study, average score of the FCV-19S of mothers whose income are balanced with the expenses and whose income is less than the expenses are determined statistically and significantly higher compared to the other mothers.

In order to be protected against COVID-19, proper diet, using mask, social distancing and adhering to hygiene rules are required (Saydam, 2020). Economic self-sufficiency is highly significant for many situations such as proper diet, accessing mask and hygiene products and benefiting from health care services. Moreover, it can also be asserted that the decline in income level due to unemployment caused by shops closures during this process may cause such result. For this reason, average score of the Fear of COVID-19 scale of the mothers whose income level is lower than the expenses and whose income level is balanced with the expenses might be high.

It is found in the study that average score of the FCV-19S of the mothers who had C-section is higher compared to the other mothers. Duration of staying at the hospital increases after a C-section (Sarı, Yılmaz, & Kındıroğlu,1993). Hospital environment are places that have high risk of COVID-19 infection (Ertürk & Candevir, 2020). That's why the fact that average score of theFCV-19S of the mothers who had C-section is high is an expected outcome. Additionally, average score of theFCV-19S of the mothers who became pregnant with assisted reproductivity methods is determined high. Women who try to become pregnant through special methods apply to the hospital and is often admitted. Moreover, many organizations have recommended infertile patients to delay their treatment during the pandemic (American Society for Reproductive Medicine [ASRM], 2020; British Fertility Society [BFS], 2020; Europian Society of Human Reproduction and Embriology [ESHRE], 2020; Society for Assisted Reproductive Technology [SART], 2020; Vaiarelli vd., 2020). For this reason, it might be possible to determine the average score of the FCV-19S of the mothers who became pregnant with assisted reproductivity methods high. It is also determined that average score of the FCV-19S of the mothers who evaluate their childbirth experience during COVID-19 outbreak as negative is statistically and significantly higher compared to the other mothers.

As a conclusion, when the relation of VBS score and the FCV-19S score is compared, no statistically significantly result has come through. It is thought that as shown in the literature and proven in this study, developing vulnerability perception stems from the situations where mothers have health problems during pregnancy, whether they can nurse their child right after the delivery or situations where their children's health is directly affected due to disruptions in health monitoring (Mcgrath et al., 2010; Horwitz et al., 2015). It can be asserted that apart from the situations that are directly related to the baby, such factors of the society that have been through the pandemic related to health, social and economic may have influence on the fear of COVID-19 developed by the mothers.

In this study, it can also be suggested that the situation of being pregnant with the assisted re-productivity methods has influence on both the development of vulnerability perception and the fear of COVID-19 in mothers due to the thought that not only this pregnancy is costly but also these babies can be risky. According to these conclusions, in order to assess the vulnerability perception that affects the mother and child interaction negatively and take measures against this threat, it is required to manage and sustain practices that will support mother and child interaction. Therefore, it is recommended that practices towards empowering the mothers and assessing them meticulously must be operated during this period of COVID-19 that we get through. Mothers who are determined as experiencing vulnerability perception by the pediatrics nurse must be directed to psychoeducation programs towards maternal attitudes and problems in mother and child bond and psychodynamic and cognitive behavioral response programs. This would improve the parental ability to regulate their emotions and behaviors towards their children and decrease the negative impact of chronic stressors over the development of children by feeding the healthy interaction of parents and children.

Limitations

The study has a few limitations. One of them data could not be collected face to face due to the COVİD-19 pandemic. In addition, sample determination could not be made. Another is to have a device that supports the program to participate in this study and fill out the questionnaire. Those who do not have such a device were excluded from the study. In addition, internet requirements and the ability to fill in the questionnaire are needed to fill the questionnaire. Those who did not have the internet or the ability to fill in the questionnaire were excluded from the study.In addition, the generalizability of the survey questions was also a limitation.

Conclusion

All the results obtained in the study indicate that mothers live in the fear of COVID-19 to a large extent during the pandemic and perceive their babies as vulnerable. Emotional state and health related concerns bring pressure on others to bear on during the pandemic. Moreover, vulnerability perception of all the mothers is observed high.

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