



THE RELATIONSHIP BETWEEN THE PARTICIPATION OF MOTHERS IN BABY CAREGIVING AND POST-TRAUMATIC STRESS DISORDERS IN THE NEONATAL INTENSIVE CARE UNIT

Yenidoğan Yoğun Bakım Ünitesindeki Annelerin Bebek Bakımına Katılımı ile Post-Travmatik Stres Bozuklukları Arasındaki İlişki

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ABSTRACT

The study was carried out to determine the relationship between the participation of mothers in baby caregiving in the neonatal intensive care unit and post-traumatic stress disorders. This cross-sectional study was conducted in Sivas Numune Hospital Neonatal Intensive Care Unit between April and October 2021. Data of the study were collected with a face-to-face survey method conducted with 284 mothers. In the study, it was determined that mothers; who had a high level of education, were employed, had a nuclear family structure, were breastfeeding, and received discharge training had higher participation in caregiving. On the contrary, it was determined that mothers; who were housewives, whose baby was of the gender they did not want, who evaluated the health status of their baby and themselves as moderate, and who had more than one child had more post-traumatic stress disorder. As the result of the research, to increase mothers' education level, informing them and supporting them psychologically during this period are recommended.

Keywords: Midwifery, Newborn, Participation in caregiving, Post-traumatic stress.

ÖZ

Araştırma, yenidoğan yoğun bakım ünitesindeki annelerin bebek bakımına katılımı ile post-travmatik stres bozuklukları arasındaki ilişkiyi belirlemek amacı ile yapıldı. Kesitsel tipteki bu çalışma, Nisan ve Ekim 2021 tarihleri arasında Sivas Numune Hastanesi Yenidoğan Yoğun Bakım Ünitesinde yürütüldü. Araştırmanın verileri 284 anneye uygulanan yüz yüze anket yöntemi ile toplandı. Çalışmada; eğitim düzeyi yüksek, çalışan, çekirdek aile yapısına sahip, emziren, taburculuk eğitimi alan annelerin bakıma katılımlarının daha yüksek olduğu tespit edildi. Aksine; ev hanımı olan, bebeği istemediği cinsiyete sahip olan, bebeğinin ve kendinin sağlık durumunu orta olarak değerlendiren, birden fazla çocuk sahibi olan annelerin ise daha fazla post-travmatik stres bozukluğu yaşadığı belirlendi. Araştırma sonucunda; annelerin eğitim düzeylerinin artırılması, bilgilendirilmesi ve bu dönemde psikolojik olarak desteklemesi önerilmektedir.

Anahtar kelimeler: Bakıma katılım, Ebelik, Post-travmatik stres, Yenidoğan.

INTRODUCTION

The period that begins with birth and covers the first 28 days of the newborn is called the neonatal period (Republic of Turkey Ministry of Health, Basic Neonatal Intensive Care Book, 2019). The postpartum period starts with the birth of the placenta and covers six to eight weeks; during this period, the changes that the pregnant woman experience in her body in pregnancy return to the pre-pregnancy conditions. The one year after birth, including breastfeeding, is called the postpartum period (Newport, Hosteter, Arnold & Stowe, 2002). The postpartum period is a period in which baby caregiving is highly important for the newborn, and the responsibilities of the parents begin (Turhal & Karaca 2019).

Hormonal changes during pregnancy continue during the puerperal stage as well. In addition to hormonal changes, mothers may also experience decreased physical strength. Caring for the baby, breastfeeding, changing sleep patterns, attention deficit, difficulty in focusing, and decreased self-confidence lead to a decrease in the mother's physical strength (Grace, Evindar & Stewart, 2003; Turhal & Karaca, 2019). It is known that there is a connection between the mental and physical well-being of the mother and the development of the baby in the postpartum period (Grace, Evindar & Stewart, 2003; Turhal & Karaca, 2019). If the neonatal requires to receive treatment, the mothers' need for physical and mental support increases. Increasing the sense of competence in mothers with social support decreases the frequency of depression and positively affects the baby's health (Turkish Institute of Maternal, Child and Adolescent Health [TÜSEB], 2019). Treatment of the baby in a hospital may cause emotional problems in all family members, starting with the mother, and affecting the mother's participation in baby caregiving (Grace, Evindar & Stewart, 2003; Turhal & Karaca, 2019; TÜSEB, 2019).

Intensive care is a physiologically traumatic situation for a neonatal, while it also causes parents to experience a complex environment both physiologically and psychologically (Turhal & Karaca, 2019). The type of care provided to babies in the first days of their lives plays a major role in determining the effect of this trauma (Jiang, Warre, Qiu, O'Brien & Lee, 2004). Mothers are very stressed and worried in this period; hence they want to be informed about their baby. Participating in the caregiving of neonatal babies who receive treatment in the intensive care unit worries mothers in the first stage and appears to be challenging to deal with, but mothers should be encouraged, supported, and not left alone in this regard. Participation of the mothers in caregiving and the mothers' being with their babies can contribute to; the attachment process, the growth, and development of the baby. Also, the

participation of mothers in caregiving would reduce parents' worries and concerns about their babies and improve their baby care skills and mothering role (Çakmak & Karaçam, 2018).

No study was found in the literature inquiring the relationship between the participation of mothers in the neonatal intensive care unit in baby caregiving and post-traumatic stress disorders. Therefore, this study was conducted to evaluate the relationship between post-traumatic stress disorders and the participation of mothers in the neonatal intensive care unit in baby caregiving.

MATERIAL AND METHOD

The cross-sectional study was conducted in Sivas Numune Hospital Neonatal Intensive Care Unit between April and October 2021. The study population consisted of the mothers whose babies were hospitalized in the Sivas Numune Hospital neonatal intensive care unit in 2020 (number of babies hospitalized during 2020: 1679). OpenEpi version 3, publicly available statistical software, was used to determine the study sample (openepi.com). Accordingly, the sample number was determined as 307 mothers. The mothers included in the sample were determined using the improbable random sampling method. Three hundred ten mothers who met the inclusion criteria and agreed to participate in the study were included. However, the study was completed with 284 mothers since 14 mothers did not want to continue with the study and 11 mothers' babies were discharged while the study was in progress.

Inclusion criteria of the mothers to the study were;

- To have no communication problems,
- To be literate,
- To have babies treated in the neonatal intensive care unit,
- To give birth between weeks 37 and 41.

Also, the mothers who had a history of mental health problems were excluded from the study.

Data Collection

The study data were collected between April 2021 and October 2021 from mothers whose babies were treated in the Newborn Intensive Care Unit of Sivas Numune Hospital. The author personally filled in the Personal Information Form and Post-Traumatic Stress Disorder Short Scale (PTSD-SS) by asking mothers whose babies were hospitalized. After

observing the mothers, the author completed the Participation in Caregiving Assessment Scale (PCAS). Before filling out the questionnaires, the mothers were briefed about the research.

Data Collection Tools

Personal Information Form, Participation in Caregiving Assessment Scale (PCAS), Post-Traumatic Stress Disorder Short Scale (PTSD-SS) were used to collect data.

Personal Information Form

The Personal Information Form was developed in 3 parts after the literature review conducted by the author. The first part includes questions to assess demographic data (age, education, employment status, income level, family type), the second part includes questions about obstetric information (pregnancy, giving birth, last delivery). The third part includes questions about babies of the mothers (desirability of the gender of the baby, breastfeeding status, previous treatment in the neonatal intensive care unit, assessment of health status of the baby and the mother, and receiving discharge training) (Çakmak & Karaçam, 2018; Keklikçi, Dorum & Vatansever, 2020; Özyazıcıoğlu & Güdücü, 2010; Turhal & Karaca, 2019).

Participation in Caregiving Assessment Scale (PCAS)

Developed by Çakmak and Karaçam (2018), to assess the participation of mothers in baby caregiving during the newborn's intensive care treatment period, the scale consists of 19 items (Çakmak & Karaçam, 2018). It was coded as "Yes: 1 and No: 0" on the scale. Scale items are marked as "Yes" if mothers participate in the caregiving and "No" if not. The scale is assessed by adding the number of items. The total score obtained varies between 0-19, and an increase in the score indicates that the mother's participation in caregiving increases. The internal consistency coefficient of the scale was found to be 0.76. In this study, the internal consistency coefficient was 0.79.

Post-traumatic Stress Disorder-Short Scale (PTSD-SS)

The scale developed by LeBeau et al. (2014) was adapted into Turkish by Evren C et al. (2015), and its validity and reliability were established (Evren et al., 2015; LeBeau et al., 2014). The scale consists of 9 items. The answers given in the scale were created using a Likert-type question style ranging from 0 ("never") to 4 ("always") for each item. The total score range varies between 0-36, and an increase in the score indicates an increase in stress. The internal consistency coefficient of PTSD-SS was 0.91 (Evren et al., 2015). In this study, the internal consistency value was found to be 0.80.

Ethical Considerations

Ahead of the research, official approval was obtained from Sivas Numune Hospital (E-76728045-044), where the study would be conducted, and ethical approval was received from the İnönü University Health Sciences Non-Invasive Research Ethics Committee (Decision No: 2021/1820; Date: 23-03-2021). In addition, before the questionnaire forms were completed, an information letter was prepared about the research and data collection forms, and verbal and written consents were obtained from the participants.

Statistical Analysis

Statistical analysis of the data was performed using the SPSS 22.0 (Statistical Packet for the Social Science) program. In the statistical analysis of the data, mean and standard deviation were used to assess the numerical data, while frequency and percentage values were used to evaluate the nominal data (demographic). In assessing numerical data, the Kolmogorov-Smirnov test was used to determine whether the variables (normal distribution) fulfilled the parametric test conditions. The t-test was used to compare two groups for variables meeting the parametric test conditions, while the One-Way ANOVA test was used to compare more than two groups. The reliability of the scales was evaluated with Cronbach's alpha reliability coefficient. The results were evaluated at the $p < 0.05$ significance level.

RESULT

Table 1. Comparison of Mean Scores of PCAS and PTSD-SS According to Some Descriptive Characteristics of Mothers Whose Babies Were Hospitalized In The Neonatal Intensive Care Unit (n=284).

Variables	PCAS			PTSD-SS	
	n (%)	Mean±SD	Test	Mean±SD	Test
Age (years)					
≤ 28 years	167(58.8)	14.10±2.80	t=-0.519	29.29±3.79	t=1.769
≥ 29 years	117(41.2)	14.29±3.09	p=0.604	28.44±4.23	p=0.078
Educational level					
High school and below	198(69.7)	13.91±3.00	t=-2.375	28.93±3.91	t=-0.060
University or higher	86(30.3)	14.80±2.62	p=0.018	28.96±4.19	p=0.953
Employment status					
Housewife	248(87.3)	13.89±2.91	t=-4.441	29.23±3.85	t=3.267
Working mother	36(12.7)	16.13±2.14	p=0.000	26.94±4.42	p=0.001
Spouse's occupation					
Officer	87(30.6)	14.41±2.59	t=0.885	29.50±4.33	t=1.580
Other Professions	197(69.4)	14.08±3.05	p=0.377	28.69±3.82	p=0.115
Health insurance					
Yes	221(77.8)	14.14±2.84	t=-0.365	29.00±4.17	t=0.480
No	63(22.2)	14.30±3.18	p=0.716	28.73±3.30	p=0.586
Income status					
High	69(24.3)	14.50±3.06	t=1.060	28.59±3.90	t=-0.835
Medium	215(75.7)	14.07±2.87	p=0.290	29.05±4.02	p=0.405

Family type					
Nuclear family	228(80.3)	14.47±2.49	t=3.449	29.01±4.02	t=0.628
Extended family	56(19.7)	13.00±4.05	p=0.011	28.64±3.90	p=0.530
Number of pregnancies					
Primigravid	91(32.0)	14.05±2.94	t=-0.507	28.68±3.69	t=-0.759
Multigravid	193(68.0)	14.24±2.91	p=0.612	29.06±4.13	p=0.448
Number of children					
1 ^a	96(33.8)	14.05±2.87	p=0.124 F=2.103	28.80±3.60	p=0.018
2 ^b	103(36.3)	14.63±2.16		29.75±4.13	F=4.101
≥3 ^c	85(29.9)	13.78±3.64		28.11±4.09	b>c*
Type of delivery					
Vaginal	184(64.8)	14.30±2.63	t=0.992	29.09±4.09	t=0.851
Cesarean section	100(35.2)	13.95±3.38	p=0.322	28.67±3.80	p=0.396

PCAS: Participation in Caregiving Assessment Scale, PTSD-SS: Post-traumatic Stress Disorder-Short Scale,

*Tukey's test

In Table 1, the comparison of the mean scores obtained from PCAS and PTSD-SS according to some descriptive characteristics of the mothers whose babies were hospitalized in the neonatal intensive care unit is presented. It was determined that the difference between; age, spouse's occupation, health insurance, income level, number of pregnancies, number of living children, mode of delivery, and participation in caregiving evaluation score averages were not statistically significant ($p>0.05$). On the other hand, it was determined that the evaluation of participation in caregiving was statistically significant for mothers with high school and below education level compared to mothers with university and higher education level, and the group with a university or higher education level was more involved in care than mothers with high school and below ($p<0.05$). It was determined that the assessment of participation in caregiving of working mothers compared to housewife mothers was statistically significant, and the participation of the working mothers in the caregiving was higher than housewife mothers ($p<0.05$). It was determined that the difference between family type and participation in caregiving evaluation mean score was statistically significant and those with a nuclear family structure were more active in participation in caregiving ($p<0.05$). It was determined that the difference between age, education level, spouse's occupation, health insurance, income level, family type, number of pregnancies and mode of delivery, and post-traumatic stress disorder score averages were not statistically significant ($p>0.05$). On the other hand, it was determined that the difference between working status and post-traumatic stress disorder mean scores was statistically significant, and housewives experienced post-traumatic stress disorder more than working mothers ($p<0.05$). Assessment of the difference between the number of living children and the post-traumatic stress disorder mean score was determined to be statistically significant, the difference within the group was determined to be between those with 2 and 3 or more children, and those with two children

were determined to experience more post-traumatic stress than those with three or more children. ($p < 0.05$, $b > c$).

Table 2. Comparison of The Mean Scores of The Mothers Whose Babies Were Hospitalized in The Neonatal Intensive Care Unit According to Some Obstetric Characteristics (n=284).

Variables	PCAS			PTSD-SS	
	n(%)	Mean±SD	Test	Mean±SD	Test
Planned status of last pregnancy					
Yes	195(68.7)	14.15±2.83	t=-0.250	29.08±3.94	t=0.864
No	89(31.3)	14.24±3.10	p=0.803	28.64±4.10	p=0.388
Is the baby's gender the desired gender?					
Yes ^a	80(28.2)	14.55±2.81	F=1.013	27.91±3.46	F=6.263
No ^b	39(13.7)	14.25±2.88	p=0.364	30.58±3.53	p=0.002
I did not have a desire ^c	165(58.1)	13.98±2.97		29.05±4.20	b>a*
Breastfeeding status					
Yes	248(87.3)	14.84±2.00	t=12.401	28.89±4.11	t=-0.492
No	36(12.7)	9.63±4.04	p=0.000	29.25±3.06	p=0.543
Status of being in neonatal intensive care in previous babies					
Yes	68(23.9)	14.27±2.82	t=0.311	29.27±4.00	t=0.794
No	216(76.1)	14.15±2.95	p=0.756	28.83±3.99	p=0.428
Baby health assessment status					
Good	145(51.1)	14.39±3.12	t=1.239	27.48±3.71	t=-6.775
Medium	139(48.9)	13.96±2.67	p=0.216	30.46±3.70	p=0.000
Self-evaluation of health					
Good	151(53.2)	14.27±3.22	t=0.543	27.64±3.54	t=-6.191
Medium	133(46.8)	14.08±2.53	p=0.582	30.41±3.97	p=0.000
Status of receiving discharge training**					
Yes	170(59.9)	14.47±2.75	t=2.080	28.85±4.16	t=0.227
No	114(40.1)	13.74±3.11	p=0.038	29.07±3.74	p=0.641

PCAS: Participation in Caregiving Assessment Scale, PTSD-SS: Post-traumatic Stress Disorder-Short Scale,

*Tukey's test, **110 mothers received discharge training from the midwife, 45 mothers received it from a nurse, and 15 mothers received it from a doctor.

Table 2 shows the comparison of the mean scores obtained from PCAS and PTSD-SS according to some obstetric characteristics of the mothers whose babies were hospitalized in the neonatal intensive care unit. Accordingly, it was determined that there was no statistically significant difference between; whether the last pregnancy was planned, the desirability of the baby's gender, being in the neonatal intensive care unit before, assessing the baby's health, assessing personal health, receiving discharge training together with mean score received from assessment of participation in caregiving ($p > 0.05$). However, it was determined that the evaluation of breastfeeding status and participation in caregiving was statistically significant, and the participation in baby caregiving of mothers who breastfed their babies was higher ($p < 0.05$). It was determined that the status of receiving discharge training and the assessment of participation in caregiving were statistically significant, and those who received discharge training had higher participation in caregiving than those who did not receive training ($p < 0.05$). It was determined that the difference between; the last pregnancy being planned,

breastfeeding status, being in the neonatal intensive care unit before, the state of being discharged from the hospital, and the post-traumatic stress disorder mean scores were not statistically significant ($p>0.05$). However, it was determined that the difference between the mean scores of traumatic stress disorder and the baby's gender's desirability was statistically significant; the difference within the group was significant between mothers whose baby had the desired gender and those who did not. The mothers whose babies did not have the desired gender had more post-traumatic stress disorder ($p<0.05$, $b>a$). It was determined that the difference between the baby's health status and assessment of personal health and post-traumatic stress disorder mean scores were statistically significant, and mothers who assessed their baby's and personal health status as medium (good-medium-bad) experienced more post-traumatic stress disorder ($p < 0.05$).

Table 3. Distribution of PCAS and PTSD-SS Score Averages

Scales	Mean±SD	Min-max points that can be obtained from the scale	Min-max scores from the scale
PCAS	14.18±2.91	0-19	2-19
PTSD-SS	28.94±3.99	0-36	18-36

PCAS: Participation in Caregiving Assessment Scale, PTSD-SS: Post-traumatic Stress Disorder-Short Scale

Table 3 shows the distribution of the mean PCAS and PTSD-SS scores of the mothers participating in the study. Accordingly, mean scores were found as PCAS 14.18±2.91 and PTSD-SS 28.94±3.99, respectively. The minimum-maximum values received from PCAS and PTSD-SS were 2-19 and 18-36, respectively.

Table 4: Correlations between PCAS and PTSD-SS Scores of mothers whose babies were hospitalized in the neonatal intensive care unit

Variables	PCAS		PTSD-SS	
	r*	p-value	r*	p-value
PCAS	1	-	-.079	0.184
PTSD-SS	-.079	0.184	1	-

PCAS: Participation in Caregiving Assessment Scale, PTSD-SS: Post-traumatic Stress Disorder-Short Scale, *Pearson Correlation Analysis

Table 4 shows the correlation coefficients between PCAS and PTSD-SS scores of mothers whose babies were hospitalized in the neonatal intensive care unit. Accordingly, it was determined that there was a negative relationship between PCAS and PTSD-SS, but this relationship was not statistically significant ($p>0.05$).

DISCUSSION

In this study, which was conducted to determine the relationship between post-traumatic stress disorders and the participation of mothers whose babies were hospitalized in the neonatal intensive care unit, it was determined that mothers; with a university education level or higher, employed and who had a nuclear family structure were more likely to participate in baby caregiving. Although not many studies are conducted for the same purpose in the literature, some findings support our findings or have different results.

According to our findings from the study, it was determined that as the level of education increased, participation in baby caregiving was higher, and the participation of working mothers in baby caregiving was higher. Similarly, in their study to determine the effect of premature births on mothers' mental health, Davis et al. found that families with low education levels could not fully learn how to use coping methods (Davis, Edwards, Mohay & Wollin, 2003). According to study results, it was revealed that these families had more difficulty understanding what happened in the neonatal intensive care unit due to their low level of knowledge; therefore, they experienced more stress.

Another study determined that mothers with the nuclear family structure were more involved in baby caregiving than mothers with extended families. In a study conducted to determine the factors affecting the anxiety level in the family, it was observed that the increase in the number of individuals in the family increased the anxiety level score towards neonatal caregiving, and it was revealed that this finding supports our study finding (Okanlı, Tortumluoğlu & Kırpınar, 2003).

Our study determined that the participation of breastfeeding mothers in baby caregiving was higher than that of non-breastfeeding mothers. It could be argued that this result is due to establishing the coexistence of mother and baby in the same environment. In the hospital where the study was conducted, a hotel practice was applied for mothers whose babies are in the intensive care unit, and breastfeeding mothers were encouraged to participate in the caregiving themselves. In addition, a study revealed that mothers with a nuclear family structure were more willing to feed their babies with breast milk (Ekşioğlu, 2016). Thus, it could be argued that mothers would spend more time for breastfeeding and, therefore, increase their participation in caregiving. Considering that 80% of the mothers in our study had a nuclear family, this result seems to support our study finding.

Another study determined that the participation in baby caregiving of mothers who received discharge training was higher than that of mothers who did not receive training. It

could be argued that discharge training would relieve mothers' concerns, increasing their participation in baby caregiving. In a study conducted to support this finding, 91.4% of the mothers who gave birth stated that they wanted to ask questions and receive information about their baby, which would relieve them (Keklikçi et al., 2020). In another study that concluded with similar findings, it was found that the information given to the parents had a positive effect on the mothers and reduced their stress (Turan, Başbakkal & Özbek, 2008). Similar results were reached in the study by Erdeve et al. It was noted that the parents who were being discharged felt anxious, incomplete, unprepared for their babies, and needed more support (Erdeve, Atasay, Arsan & Türmen, 2008).

According to another finding, it was determined that housewife mothers experienced post-traumatic stress disorder more. The literature review conducted to explain this situation determined that unemployed women experienced stress more than employed women. However, another study determined that working mothers experienced stress more than housewives, and the difference between the groups was significant (Keklikçi et al., 2020). In another study, it was stated that the reason housewife mothers experienced more stress was the level of knowledge, and the mean score of information level of housewife mothers was significantly lower than that of working mothers (Özçelik, 2006).

According to the findings of our study, it was determined that those who had two children experienced more stress than those who had only one child. In the literature, instead of studies that support our study finding, some studies show that stress levels change independent of the number of children. In a study conducted to determine the effect of planned training given to mothers whose babies were hospitalized in the neonatal intensive care unit on the anxiety level of mothers, it was determined that the anxiety levels of mothers with 1-3 children were higher than other women, revealing a different result in this respect (Özçelik, 2006; Gülçek, 2015).

Our study determined that post-traumatic stress disorders were higher in mothers whose babies had the desired gender. Contrary to our study finding, in a study on mother-baby attachment and related factors in mothers with premature babies hospitalized in neonatal intensive care units, it was stated that there was no significant difference between the groups when the maternal attachment score averages of the mothers were examined according to the baby's gender (Balcı, 2018). Another study finding noted that mothers are attached to their babies regardless of gender (Öztürk, 2010).

According to another finding, mothers that describe the health of their babies and themselves as “medium” (good-medium-bad) had higher post-traumatic stress disorders compared to mothers that describe their health as “good”. Thus, it could be argued that having a positive opinion about assessing a woman’s health reduces the perceived trauma, and negative emotions would have the opposite effect. Studies have shown that positive perception of birth plays a role among affecting factors. It has been stated that some women who have negative feelings about birth accept their babies as a positive result when they hold their babies in their arms in a healthy way, and thus the stress they experience can be reduced (Ayers, 2004; Elmir, Schmied, Wilkes & Jackson, 2010). On the other hand, providing quality care in the postpartum period to the woman who experienced a traumatic birth reduces her stress, and her perception of childbirth can be transformed into a positive one (Furuta, Sandall, Cooper & Bick, 2014).

Limitations of the Study

Since the research was conducted in a single center, the study results can only be generalized to this group.

CONCLUSIONS

This study is conducted to determine the relationship between participation of mothers whose babies are hospitalized at a neonatal intensive care unit in baby caregiving and post-traumatic stress disorders, and it was determined that mothers who have a university degree or above, who are employed, who have a nuclear family structure, who breastfeed and receive discharge training have higher participation in baby caregiving. Housewife mothers whose babies were of an undesired gender, who have two living children, who assess the health of their babies and themselves as a medium have a higher post-traumatic stress disorder. When these results are taken as the reference, it could be argued that participation in baby caregiving would increase with increasing the education level of mothers, ensuring their participation in working life, explaining the importance of and supporting mothers in breastfeeding, and placing the necessary emphasis on discharge training. It could be argued that mothers' stress can be minimized by ensuring their participation in working life, psychological support, and increasing social support. It can be said that these initiatives will contribute significantly to the development of mother and baby health.

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