When mothers are stressed about going back to work after maternity leave: associations with breastfeeding, room-sharing and partner support

Lotte Peters
s1015349
Master Healthcare Psychology, Radboud University
Master thesis
Dr. Roseriet Beijers
6 april 2023

Abstract

Despite the positive effects on both infant and mother, the number of mothers who breastfeed (exclusively) and room-share with their infant declines from birth onwards. It is important to better understand why parents discontinue (exclusive) breastfeeding and room-sharing. This answer has not been sought yet in the period of maternity leave, when mothers are about to resume their work. In this longitudinal and pre-registered study, the relationship between anticipated work resumption stress on (exclusive) breastfeeding and room-sharing duration was investigated in a Dutch community sample (*n* = 101). Further, the moderating effect of partner support was examined. When the infant was 6 weeks of age, mothers received an online questionnaire to measure their stress in anticipation about returning work. At 12 weeks of infant age, partner support was measured. At 8 months postpartum, breastfeeding and room-sharing practices were measured, via online questionnaires. Regression analyses revealed a significant main effect, whereby anticipated work resumption stress is associated with shorter breastfeeding durations. No associations were found with room-sharing, nor a moderating effect of partner support. This research is the first to acknowledge that mothers might experience stress in anticipation of the return to work after maternity leave, and this stress might have negative consequences for breastfeeding duration. More research is needed to replicate this finding and to further investigate the effects of anticipated work resumption stress on caregiving practices and other maternal and paternal outcomes.

Keywords: anticipated work resumption stress; (exclusive) breastfeeding; room-sharing; partner support

Introduction

In modern society, a significant proportion of women are employed. In the Netherlands, 85% of women between the ages of 25 and 35 are employed (Centraal Bureau voor de Statistiek [CBS], 2022). This is also the age at which most women have a (first) child (CBS, 2022). Moreover, about 90% of these women keep their job after giving birth (CBS, 2017), and Dutch women are given 10-12 weeks of parental leave after the infant is born (Rijksoverheid, n.d.). As a consequence, many women face the challenge of juggling work and caring for their new-born. Studies have shown that many mothers experience this return-to-work period as a stressful time, with mothers reporting twice as much negative thoughts about going back to their job than positive ones (Nichols & Roux, 2004). This stress might not originate after work resumption, but already exist before the return to work, in anticipation of the difficult or unpredictable situation ahead. This study will investigate if maternal stress in anticipation of this work resumption, called anticipated work resumption stress (AWRS), affects care for the new-born.

Research shows that experiencing anticipation stress is comparable to experiencing the stressor itself (Neubauer, et al., 2018). For example, research by van Eck and colleagues (1998) shows that the anticipation of a stressor is associated with more negative affect, as well as higher cortisol levels (Smyth et al., 1998). Anticipation stress does not only increase negative affect and cortisol levels, but may also lead to worse decision making. In an experiment by Starcke and collegues (2008), a group of participants were told they had to give a presentation. During a subsequent dice game, the anticipation stress group made more disadvantageous decisions than the comparison group (who were not told that they had to give a presentation), even when information about unforeseen circumstances was given. While mothers might also experience stress in the anticipation of resuming work, one can only wonder if stress in anticipation of the return-to-work also affects maternal choices, including choices related to caring for the new-born. Such choices include feeding and sleeping arrangements.

It is recommended by the World Health Organization (WHO, 2018) to exclusively breastfeed children until 6 months of age, and to give any breastfeeding until 2 years of age. Accumulating research has shown that exclusive breastfeeding for at least 6 months has various benefits for both the mother and the infant. For the infant, longer breastfeeding duration has been associated with the prevention of obesity and cardiovascular diseases later in life, better cognitive development, fewer dental malocclusions and increased mother and infant bond. In mothers, breastfeeding may prevent obesity, breast cancer and ovarian cancer

(Couto et al., 2020; Victora et al., 2016). Yet, 3 out of 10 mothers in the Netherlands do not even start breastfeeding at birth in the first place, and only 2 out of 10 mothers in the Netherlands exclusively breastfeed their infant for the first 6 months of life (Engelse & van Dommelen, 2021). Next to exclusive breastfeeding, the American Academy of Pediatrics (AAP) recommends parents and their infant to room share for the first six months to decrease Sudden Infant Death Syndrome (SIDS; Moon et al., 2016). Room-sharing refers to the practice that parents and the infant sleep in the same room, in separate beds. In accordance with breastfeeding, the number of infants and parents who room share during the first six months also declines. While 80% of the parents initiate room-sharing at birth, only 25% of the infants still shared a room with their parents at the age of 6 months (Beijers et al., 2013). As such, it is important to better understand why parents continue or stop (exclusive) breastfeeding and room-sharing.

One reason for not continuing breastfeeding and room-sharing might be maternal stress. For example, Ystrom and colleagues (2008) found that higher maternal negative affect has a relation with more formula feeding and less predominant breastfeeding. Next to this, it is found that mothers who report high levels of postpartum anxiety are less likely to exclusively breastfeed their baby than mothers with low levels of postpartum anxiety (Adedinsewo, 2014; Hoff et al., 2019). A source of stress for mothers might be work. The Spillover-crossover model states that work stress first spills over to the home domain, and subsequently crosses over to other people at home (Bakker et al., 2009; Bakker & Demerouti, 2013). Studies on associations between stress at work and caregiving practices at home mainly show that parents who had negative workday experiences, had more negative interactions with their child after work (Malinen et al., 2017; Danner-Vlaardingerbroek et al., 2013). However, these studies look into the stress mothers experience beyond the work resumption period and its effects on older children. These studies do not look into the stress within, or even before, the return-to-work period and its effect on younger children.

A buffer of maternal anticipated work resumption stress might be partner support. Partner support has been found to be related to breastfeeding and room-sharing. Namely, Tombeau-Cost and colleagues (2018) found that breastfeeding mothers at 3 months postnatal, who were satisfied with their partners involvement at 6 months, were more likely to still breastfeed their infant at 6 months. This study focused on partner involvement, but there are different types of support, such as emotional and instrumental support. Literature shows that these two types of support may be most helpful to the mother (Johnson & Slauson-Blevins, 2022). Specifically, taking on additional domestic tasks, encouraging and acknowledging

breastfeeding labour and being responsive and sensitive to the mother's needs were helpful to the mother (Johnson & Slauson-Blevins, 2022; Davidson & Ollerton, 2020).

Moreover, support seems to also buffer anticipation stress. In one experiment two groups of young women participated in a modified version of Trier Social Stress Test (TSST; Kirschbaum et al., 1993). One group received positive bogus feedback before the task, and the other group received negative bogus feedback. Results show that the women who received positive feedback felt more capable of doing the task and thought it would be less challenging than the group who received negative feedback. Next to this, the positive feedback group showed a lower cortisol response to stress than the negative feedback group (Pulopulos et al., 2020). In line with this, a study by Giesbrecht and colleagues (2013) showed that experienced partner support also has an effect on pregnant women's cortisol levels. Whereby, the women who experienced more effective partner support had lower cortisol levels during negative emotional experiences than pregnant women who experienced less effective partner support. These studies show that positive partner support may have an effect on how mothers appraise a future stressor and may reduce the effects of stress. Thus, when the mother experiences helpful support from their partner, anticipated work resumption stress might not cross over to the infant through terminating breastfeeding and room-sharing early on.

The aim of this study is to investigate whether anticipated work resumption stress predicts the duration of breastfeeding and room sharing, and if this relation is moderated by partner support. It is hypothesized that higher maternal anticipated work resumption stress predicts shorter duration of exclusive/any breastfeeding during the first six/eight months of an infant's life, especially when partner support is low. Furthermore, it is hypothesized that higher maternal anticipated work resumption stress predicts shorter duration of room-sharing during the first six months of an infant's life, especially when partner support is low.

Methods

Participants

This paper was preregistered on 6 march 2023 (#124119) at AsPredicted (https://aspredicted.org/NJF_149). The data used in this study came from the longitudinal SMILEY study (Study of Microbiota and Lifestyle in the Early Years). Participants were recruited through the Baby & Childs Research's Centre's network of midwifery practices around the area of Nijmegen and Arnhem (the Netherlands) and via social media. Mothers were recruited in the first half of pregnancy and followed until 12 weeks after birth, with a

follow-up at 8 months. Inclusion criteria for the mothers were: above 18 years of age, mastery of the Dutch language, singleton pregnancy and a BMI < 30kg/m^2 before pregnancy, no (severe) obstetric complications, no (severe) mental or physical health issues. Inclusion criteria for the infant were: born > 37 weeks of pregnancy, birth weight > 2500 g and the 5-minute Apgar score > 7, no serious malformation, diseases or developmental conditions. This resulted in 160 women to participate in the study.

Of the 160 mothers included at the start of the study, 140 mother-infant dyads were still included at the start of the 8 months follow-up measurement round. The flowchart (see figure 1) shows the number of participants that were included and reasons for exclusion per measurement round. From the 140 mother-infant dyads included at the start of the 8 months follow-up, 36 mothers did not participate in the follow-up. Reasons for not participating were: too busy at the time to participate (n=11), unable to reach (n=13), not wanting to participate without a specific reason (n=9) and not filling in the informed consent form (n=3). Participants with missingness (n=3) on the 8 months follow-up measurement outcomes were excluded from further analyses. This results in a final sample of 101 participants used in this study (for demographics see Table 1). With an α of 0.05, a β of 0.80, a sample size of 101, and 3 predictors, the G*Power 3.1 calculations indicated that small effects can be detected (≥0.079).

Procedure

When eligible to participate in the study, women received study information per mail, including information on compensation for participating. At the start of each measurement round, participants received information about the measurement round through a phone call and a letter. After agreeing to participate, participants filled in an informed consent form for each measurement round they took part in. The measurement rounds that are used in this study are at 6 weeks, 12 weeks and at 8 months postnatal. At 6 weeks postnatal mothers filled in an online questionnaire about anticipated work resumption stress. At 12 weeks postnatal mothers filled in an online questionnaire about the support they experienced from their partners. Lastly, at 8 months follow-up, mothers filled in an online questionnaire about the feeding and sleeping practices of their child. The data was collected anonymously and participants could quit at any given time during the study. This study was ethically approved by the Ethics Committee Faculty of Social Sciences of the Radboud University.

Table 1

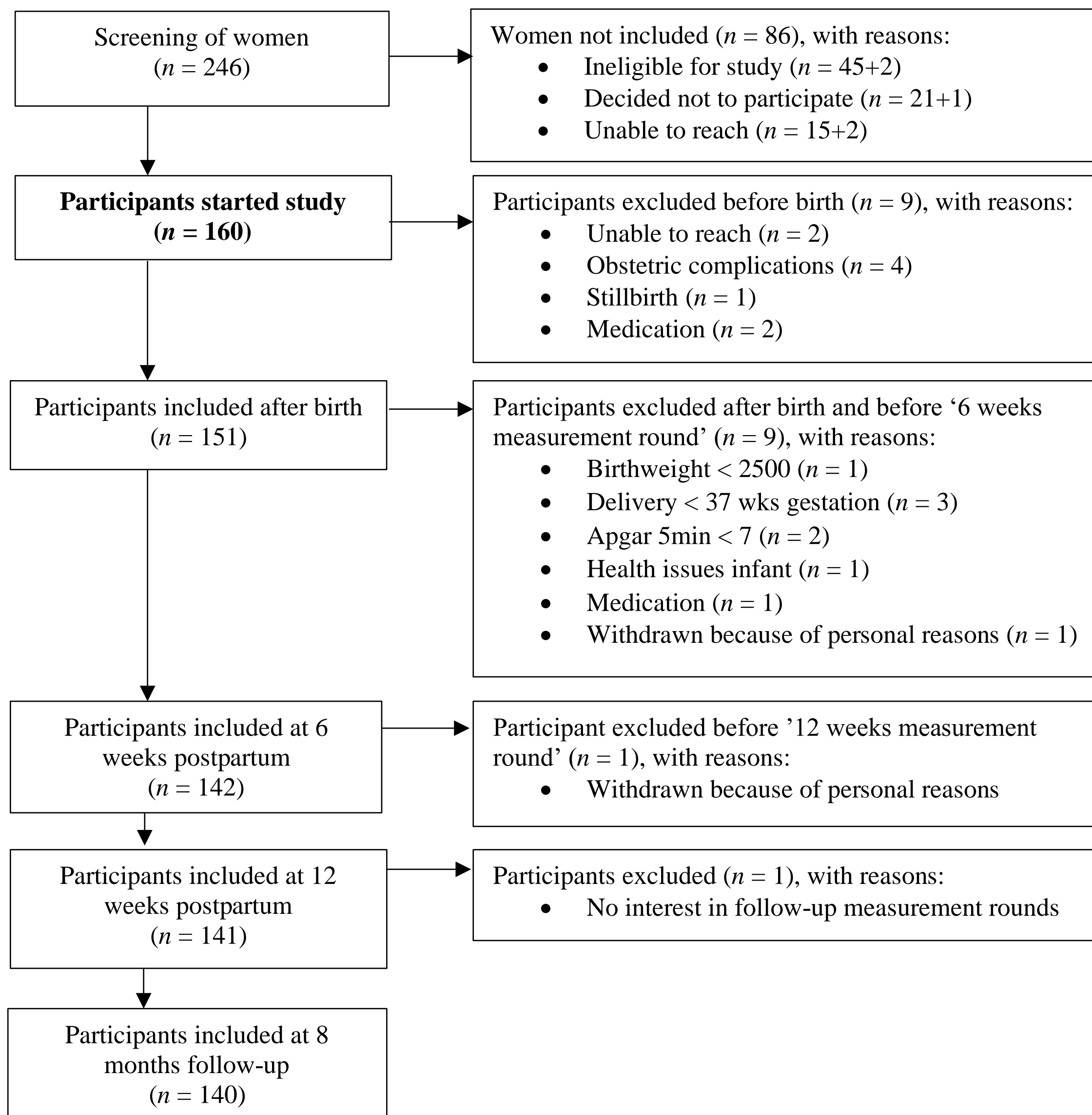
Demographics

Baseline characteristic	*n*	%
Maternal educational level	101	
Secondary education		9.8%
Higher education		90.2%
Job	101	
Yes		97.1%
No		2.9%
Job hours	98	
11-20 hours		2.9%
21-30 hours		36.3%
31-40 hours		57.8%
Partner	101	
Yes		98%
No		2.0%
Job, Partner	99	
Yes		95.1%
No		2.9%
Partner educational level	99	
Secondary education		23,6%
Higher education		73,6%
Other		1.0%
Job hours, partner	94	
21-30 hours		3.9%
31-40 hours		93.1%
Infant sex	101	
Girl		52,9%
Boy		47,1%
Parity	101	
First child		46.1%
Breastfeeding intention	101	
Yes		97.1%
No		2.9%
Intended sleeping arrangements first 3 months	101	
Own bedroom		7.8%
Room-sharing		83.4%
Co-sleeping		2.0%
Unknown		6.9%
Have there been problems with breastfeeding?	101	
Yes		41.2%
No		58.8%

Note. *N* = 101. Participants were on average 32.7 years old (*SD* = 3.6) at 6 weeks postnatal.

Figure 1.

Flowchart SMILEY participants



Materials

Anticipated work resumption stress was measured via the online questionnaire when the infant was 6 weeks of age, with the following measures:

The backtowork question: this question is taken from the own list of the SMILEY study, given at 6 weeks postnatal. The question is as follows: "On a scale of 1 (feeling very bad) to 10 (feeling very good), how would you rate your feelings when you think about the period around resuming work after your maternity leave?". In subsequent analyses, the score on the backtowork question will be reversed, so that higher scores represent higher anticipated work stress.

Job-related Affective Wellbeing Scale (JAWS; Katwyk et al., 2000; Schaufeli & van Rhenen, 2006): The JAWS is a questionnaire which asks the mother to indicate how strongly she feels certain emotions when she thinks about resuming work after maternity leave. The short version of the JAWS will be used (Schaufeli & van Rhenen, 2006). The short version consists of 12 questions. In subsequent analyses, the reversed sum score on the JAWS will be used, so that higher sum scores indicate higher levels of anticipated work stress. The questionnaire can also be divided in 4 different scales: high activation/positive valence; low activation/positive valence; low activation/negative valence; high activation/low valence. For example, a high score on the scale high activation/positive valence means the participant experiences positive emotions with a high activation level, such as enthusiasm. Research shows that the JAWS has sufficient internal consistency reliability and that there is also evidence for predictive validity (Katwyk et al., 2000; Schaufeli & van Rhenen, 2006).

Partner support was measured via the online questionnaire when the infant was 12 weeks of age, with the following measure:

Support in Intimate Relationships Rating Scale (SIRRS; Barry et al., 2009): This questionnaire is a self-report measure that assesses partner support. It consists of 25 items that asks participants how often their partners showed each behaviour in the past month, using a 5-points Likert type scale ranging from 0 (never) tot 4 (almost always). A higher sum score indicates a higher level of experienced partner support. The questionnaire can also distinguish 4 types of partner support: Esteem/emotional, Physical comfort, Information and Tangible. A higher score on one of the 4 support types indicates a higher level of experienced partner support of that type. E.g., a high score on Physical comfort means the participant experiences a high level of physical comfort from their partner. This questionnaire's reliability and validity has been measured by Barry and colleagues (2009) in dating and married couples across 5 years, showing for each support type substantial reliability, validity and utility.

Breastfeeding was measured via the questionnaire filled in by the mother when the infant was 8 months of age, with the following measure:

Exclusive breastfeeding is defined as feeding the baby only breast milk, not any other foods or liquids, including infant formula or water. The duration of exclusive BF in the first six months of life is calculated with the use of the following question: "Was your baby

exclusively breastfed during the first 6 months (no formula milk and/or snacks)?”. The answer to this question is used to determine exclusive breastfeeding duration, in the following way:

- “Yes, in the first six months my baby only received breastfeeding”: if this answer is crossed, the answer will be transformed to 6 months exclusive BF.
- “No, there was never any breastfeeding”: if this answer is crossed, the answer will be transformed to 0 months exclusive BF.
- “No, breastfeeding was stopped” or “No, formula milk and/or solids were given next to breastfeeding”. If one of these two answers are crossed, we will look at the answers on the following questions to calculate at what infant age in months exclusive BF stopped:
  - Question: “At what infant age did you start giving formula milk?”
  - Question: “At what infant age did you start giving rice flour porridge/ fruit snacks / vegetable snacks?”

From the answers to these two questions, the answer with the youngest infant age will be transformed to the corresponding number of exclusive BF months (e.g. if the infant received formula milk from 5 months onwards, but solids from 4 months onwards, the number of months of exclusive BF is 4).

Any breastfeeding: For determining duration of any breastfeeding in the first 8 months of life, the following question is used: “Does your baby get breastfeeding at the moment?”. The answer to this question is used to determine any breastfeeding duration, in the following way:

- If the mother crossed “Yes”, the age of the infant in months at the time the mother completed the questionnaire is transformed to the corresponding number of total months receiving any breastfeeding (e.g. if the infant was 7.5 months old at the time the mother completed the questionnaire, the number of any breastfeeding months are 7.5 months; the max number of months are 8 months).
- If the mother crossed “No”, we will look at the answer to the follow-up question (i.e. “At what age did you stop breastfeeding?”), to calculate the number of weeks of any BF.

Sleeping arrangements were measured via the questionnaire filled in by the mother when the infant was 8 months of age, with the following measure:

Room-sharing in the first six months of life is calculated with the following question: “Where has your baby slept the past months at night? Cross the right box for each month”.

Room-sharing is calculated as the number of months the infant slept in the parents' room (i.e. when the answer "own bed in our room" or "own bed next to our bed" are crossed) during the first six postnatal months.

Preliminary analyses

Missingness in the data collected at 6 weeks and 12 weeks was imputed with expectation maximization. Thereafter, the variables were checked for outliers (greater or smaller than 3SD from the mean; Tukey, 1977). There were no outliers in the data, so no values were winsorized. Next, a bivariate correlation analysis was performed between the backtowork question and the JAWS sum score to see if these variables correlate highly and cause multicollinearity. If the correlation was above .70, a composite measure was created with the backtowork question and the JAWS sum score. The correlation was r = -.429, so the variables were used separately. Subsequently, the independent and moderator variables were mean centered. The sum scores of the backtowork question and the sum score of the JAWS were multiplied separately with the sum score of the SIRRS into an interaction variable.

Main analyses

For the main analyses, linear regression analyses were performed. To answer the first research question on the moderating effect of partner support on the relation between AWRS and exclusive breastfeeding, two regression analyses were conducted with the backtowork sum score and JAWS sum score as independent variables and exclusive breastfeeding in months as dependent variable. The interaction term between AWRS and partner support were added as a covariate. To answer the second hypothesis on the moderating effect of partner support on the relation between AWRS and any breastfeeding in weeks, two regression analyses were conducted with the backtowork sum score and JAWS sum score as independent variables and any breastfeeding in months as dependent variables. The interaction term between AWRS and partner support were added as a covariate. To answer the third hypothesis on the moderating effect of partner support on the relation between AWRS and rooms-sharing in months, two regression analyses were conducted with the backtowork sum score and JAWS sum score as independent variables and room-sharing in months as dependent variable. The interaction term between AWRS and partner support were added as a covariate. In a simple slopes analysis the interaction effects of AWRS x partner support were visualized on number of months of exclusive and any BF duration.

In all analyses there was controlled for parity and maternal level of education. Furthermore, all three regression analyses were performed twice: once with all participants (also the 2 participants without a partner), and once without the 2 participants that do not have a partner. All analyses were done in SPSS 27.

Exploratory analyses

In addition, pre-registered exploratory analyses were conducted. One to investigate the effect of the different types of partner support on the relation between AWRS and (exclusive) breastfeeding and AWRS and room-sharing duration, to see if there is a difference in effect of each type of support. The exploratory analyses consist of interactions of the four different types of partner support and AWRS on exclusive breastfeeding duration, any breastfeeding duration and room-sharing duration. The second exploratory analyses investigated the effect of different types of AWRS on (exclusive) breastfeeding and room-sharing duration, and of the four types of AWRS in interaction with partner support, on breastfeeding duration and room sharing. Because these do not concern the hypotheses and there are no studies yet on the types of partner support or types of anticipated work resumption stress on breastfeeding duration or room sharing, these analyses were exploratory. All analyses were performed in SPSS 27.

Results

Descriptive statistics

In this sample the average weeks of official parental leave was 12 weeks (*SD* = 2.6), but the average amount of weeks mothers took parental leave was 15 weeks (*SD* = 6.3). The descriptive statistics of the study variables are presented in Table 2. On the Backtowork question about 11% of mothers felt bad (grade 1-4) and 61.2% of mothers felt good (grade 7-10) when thinking about the period around resuming work.

Table 2 displays Spearman's correlations between the study variables. First, exclusive breastfeeding and any breastfeeding correlated positively ($p = .606$), as well as any breastfeeding and room-sharing duration ($p = .267$). Next, more AWRS on the JAWS was related to shorter any breastfeeding duration ($p = -.252$). No other significant correlations emerged between the AWRS variables and (exclusive) breastfeeding or room-sharing.

Table 2

Spearman correlations between study variables

Variable	*n*	*M*	*SD*	1	2	3	4	5
1. Exclusive BF	101	4.1	1.8	-				
2. Any BF	101	5.7	2.9	.606**	-			
3. Room-sharing	101	4.4	2.6	.163	.267**	-		
4. SIRRS sum score[a]	99	60.8	20.3	.075	-.075	-.156	-	
5. JAWS sum score[b, c] reversed	98	52.8	4.1	-.123	-.252*	.083	-.028	-
6. Backtowork question reversed[c]	98	4.3	1.6	-.008	.051	-.136	-.025	.106

Note. BF = breastfeeding, RS = Room-sharing
* $p < 0.05$; ** $p < 0.01$
[a] range 0-100
[b] range 12-84
[c] The lower the number, the less AWRS

Main analyses

Table 3 indicates the results of the regression analyses with $N = 101$. Table 4 indicates the results of the regression analyses with $N = 99$, that is without the participants that indicated they had no partner ($n = 2$). Results show that higher AWRS is associated with shorter any breastfeeding duration ($p = .0155$). As there were four mothers who never started breastfeeding (and thus did not breastfeed their infant at 6 weeks of infant age), a sensitivity analysis excluding these mothers was performed which indicated no difference in results. AWRS remained predictive of shorter breastfeeding duration ($p = .0192$). It is not found that that higher AWRS is associated with shorter exclusive breastfeeding duration ($p = .3342$). A sensitivity analysis without the mothers who never started breastfeeding ($n = 4$) indicates similar results ($p = .4335$).

Moreover, AWRS did not prove predictive of room-sharing duration ($p = .2041$). There is a marginally significant interaction effect of partner support moderating the association of AWRS on shorter exclusive breastfeeding ($p = .0546$) and any breastfeeding ($p = .0982$). These trends are plotted in figure 2 and 3. Analyses indicate an association between shorter exclusive breastfeeding duration if it is the first child ($p = .0422$) when using the Backtowork question as independent variable. Both in the analyses using the Backtowork

question and JAWS sum score as independent variable, there was an association between longer room-sharing duration and the mother having followed higher education (p = .0471; p = .0378).

Table 3

Moderation Analysis: Types of AWRS and caregiving practices

Main analyses	*Coeff*	*SE*	95% CI		*p*
			LL	*UL*	
JAWS sum on exclusive BF	-.0418	.0430	-.1272	0.0437	.3342
JAWS sum on any BF	-.7588	.3077	-1.3697	-.1479	.0155*
JAWS sum on RS	.0646	.0505	-.0659	.1854	.2041
Backtowork on exclusive BF	.0000	.0000	.0000	.0000	.3914
Backtowork on any BF	.0000	.0001	-.0002	.0002	.7750
Backtowork on RS	0000	0000	-.0001	.0000	.6627
JAWS x SIRRS on excl. BF	-.0027	.0026	-.0078	.0025	.3086
JAWS x SIRRS on any BF	-.0222	.0186	-.0589	.0150	.2411
JAWS x SIRRS on RS	-.0010	.0031	-.0099	.0053	.7537
Backtowork x SIRRS on excl. BF	.0000	.0000	.0000	.0000	.0547
Backtowork x SIRRS on any BF	.0000	.0000	.0000	.0000	.1018
Backtowork x SIRRS on RS	.0000	.0000	.0000	.0000	.4472
Confounding factors	*Coeff*	*SE*	95% CI		*p*
			LL	*UL*	
Backtowork					
Parity on excl. BF	-.7257	.3524	-1.4253	-.0262	.0422*
Maternal level of education on RS	.3757	.1868	.0776	1.0060	.0471*
JAWS					
Parity on excl. BF	-.6098	.3554	-1.3153	.0967	.0894
Maternal level of education on RS	.5435	.2329	.0812	1.0059	.0217*

Note. N = 101 (with n = 2, no partner). Results include n = 4 (never started BF). BF = breastfeeding, RS = room-sharing. CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

* p = <.05

Table 4

Moderation Analysis: Types of AWRS and caregiving practices

Main analyses	*Coeff*	*SE*	95% CI		*p*
			LL	*UL*	
JAWS sum on exclusive BF	-.0351	.0437	-.1219	.0516	.4232
JAWS sum on any BF	-.6998	.3086	-1.3127	-.0869	.0257*
JAWS sum on RS	.0625	.0635	-.0636	.1886	.3273
Backtowork on exclusive BF	.0000	.0000	.0000	.0000	.4071
Backtowork on any BF	.0000	.0001	-.0002	.0002	.7582
Backtowork on RS	.0000	.0000	-.001	.0000	.5104
JAWS x SIRRS on excl. BF	-.0027	.0026	-.0079	.0024	.2964
JAWS x SIRRS on any BF	-.0218	0.185	-.0585	.0149	.2409
JAWS x SIRRS on RS	-.0022	.0038	-.0097	.0053	.5639
Backtowork x SIRRS on excl. BF	.0000	.0000	.0000	.0000	.0546
Backtowork x SIRRS on any BF	.0000	.0000	.0000	.0000	.0982
Backtowork x SIRRS on RS	.0000	.0000	.0000	.0000	.6728

Confounding factors	*Coeff*	*SE*	95% CI		*p*
			LL	*UL*	
Backtowork					
Parity on excl. BF	-.7818	.3575	-1.4916	-.0719	.0313*
Maternal level of education on RS	.5779	.2328	.1157	1.0402	.0148*
JAWS					
Parity on excl. BF	-.6701	.1597	-1.3878	.0477	.0669
Maternal level of education on RS	.5792	.2322	.1180	1.0403	.0144*

Note. N = 99 (without *n* = 2, no partner). Results include *n* = 4 (never started BF). BF = breastfeeding, RS = room-sharing. CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

* $p = <.05$

Figure 2

Interaction effect between AWRS and Partner Support on exclusive BF in months

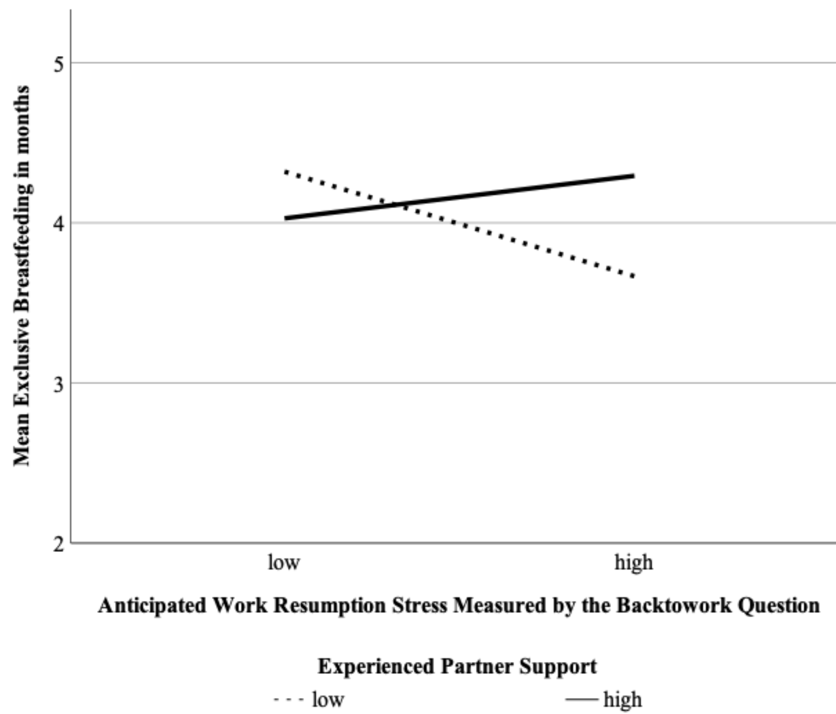
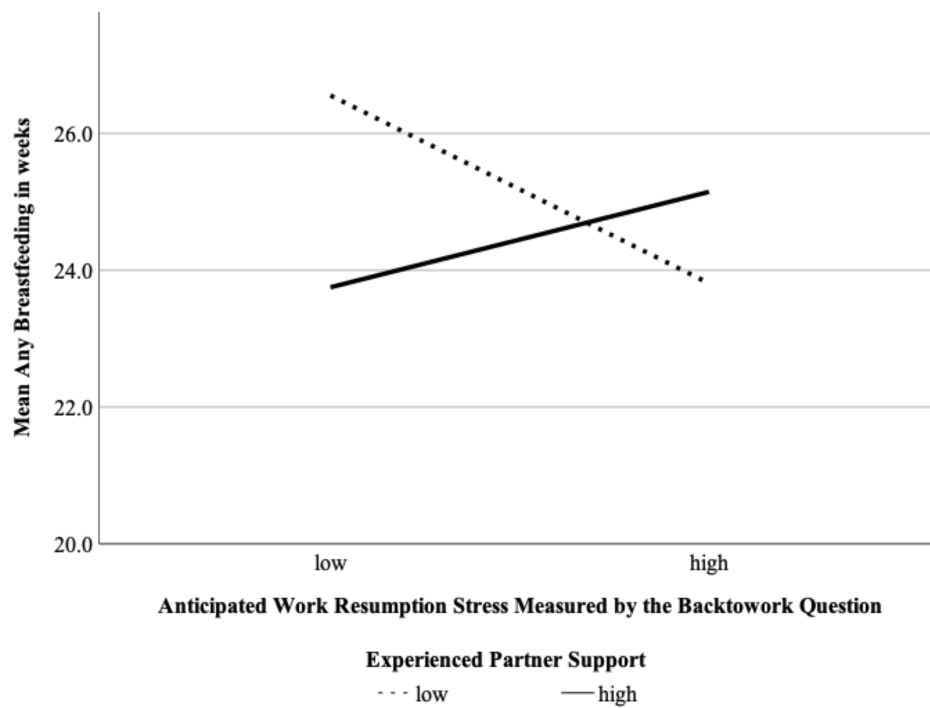


Figure 3

Interaction effect between AWRS and Partner Support on any BF in weeks



Discussion

The objective of this study was to investigate whether anticipated work resumption stress predicts the duration of breastfeeding and room-sharing, and if partner support buffers this effect. Moreover, it was investigated if there were any differences in helpfulness of the different support types and if there was a difference in types of AWRS on breastfeeding and room-sharing duration. Notably, results showed that higher AWRS was associated with shorter breastfeeding duration. However, opposed to what was predicted, no evidence was found for the remaining hypotheses. That is, higher levels of AWRS are not associated with shorter exclusive breastfeeding or room-sharing duration. There is also no evidence that partner support buffers the negative effect of AWRS on (exclusive) breastfeeding or room-sharing duration. With regard to the exploratory analyses, the were no differences found in effect of the types of AWRS on breastfeeding and room-sharing duration, or any differences in the perceived helpfulness of the types of partner support.

The results indicating that mothers who are more stressed about their upcoming return to work breastfeed less long are in line with previous research, suggesting that negative affect is associated with less predominant breastfeeding (Ystrom et al., 2008). Another study also found that resuming work, which most often takes places around 3 months, is significantly related to breastfeeding cessation at 3 months (Shiraisi et al., 2020). So, how might more stress in anticipation of the return-to-work be related to shorter breastfeeding duration.

One factor that might explain this relationship, may be the absence of adequate lactation rooms. A review article of Dinour & Szaro (2017) shows that there is a significant higher chance of longer breastfeeding duration if there is a lactation space available at work and if there were breaks available to express milk. Lactation rooms should have at least adequate lighting, ventilation, privacy, seating, a sink, an electrical outlet, and possibly a refrigerator to store the milk (Bar-Yam, 1998). By contrast, a study of van Dellen and collegues (2021) showed, in a Dutch sample, that only 38% of lactation rooms had a fridge, 40% an occupied sign and 49% a sink. The same study also showed that a dedicated lactation room instead of a multi-purpose room may help mothers to feel more at ease to express milk at work (van Dellen et al., 2021). Furthermore, mothers who saw a high-quality lactation room online, felt less anticipated stress and had more positive thoughts about expressing milk at work than mothers who saw a low-quality lactation room online. A high-quality room met the minimum requirements of the Dutch law guidelines and also gave a perception of control, had positive distractions and supportive messages about breastfeeding. The low-quality room only met the minimum requirements. Thereafter, the mothers who used the high-quality room

experienced less stress than mothers who used the low-quality room (van Dellen et al., 2022). This indicates that there is an effect of the quality of the lactation room on how mothers feel about expressing milk at work, even before using the room. Thus, knowing there is no adequate lactation room available at work may be related to anticipation work resumption stress and subsequent shorter breastfeeding duration.

In addition, the type of job may also play a part in the relation between AWRS and breastfeeding. About 25% of women working in the service industry did not receive an adequate lactation space or breaks to express milk (Snyder et al., 2018). Another study showed that mothers with professional jobs or Stay-at-Home moms have a longer breastfeeding duration than mothers with administrative and manual occupations. The latter have a 35% higher odd of quitting breastfeeding, respectively. Therefore, women who have a service, administrative or manual occupation, may already experience stress before returning to work, because of knowing there is no adequate lactation space or breaks available. As a result, these mothers may breastfeed their new-born less long. It is advised that future research looks into the differences in job types, job flexibility and quality of lactation rooms on AWRS and subsequent breastfeeding duration.

Though, it leaves to wonder if the stress measured is uniquely AWRS. It may also be that these mothers experienced overall negative affect. This study took place during the Covid-19 pandemic, during which there were more (expectant) mothers that experienced higher levels of depression and anxiety than women prior to the pandemic (Cameron et al., 2020; Vacaru et al., 2021). A review article shows that mothers who experience pregnancy and postpartum depression tend to have shorter breastfeeding duration (Dias & Figueiredo, 2015). As is the case for postpartum anxiety, whereby higher anxiety levels are related to shorter exclusive breastfeeding duration (Adedinsewo, 2014; Hoff et al., 2019). Stress, anxiety and depression disorders overlap in symptom characteristics and display frequent comorbidities (Kessler et al. 2005; Bener et al., 2012). Thus, it is important for future research to distinguish the unique effect of AWRS on breastfeeding from other psychological distress.

However, in comparison to any breastfeeding duration, there was no association found between AWRS and shorter exclusive breastfeeding duration. A possible reason for this reported null finding may be due to a ceiling effect. In contrast to the World Health Organization, who recommends exclusive breastfeeding (i.e., no formula or solids introduction before infant age 6 months), it is recommended by the common health service in the Netherlands to start giving ‘practice snacks’ to the infant from 4 months onwards. The

idea is that this way the infant can practice biting and gets used to new tastes (Voedingscentrum, 2021). In accordance with this, the average number of months of exclusively breastfeeding in this sample is 4 months. These seemingly conflicting recommendations thus limit the variation in exclusive breastfeeding duration.

To turn to experienced partner support, the findings in this study are somewhat in line with previous research. Literature shows that there is a positive effect of perceived partner support on breastfeeding duration (Tombeau-Cost et al., 2018). The results in this study seem to indicate a possible interaction effect of partner support and AWRS on breastfeeding duration. Figure 2 shows a marginally significant effect indicating that higher levels of experienced partner support moderate the relation between high AWRS and shorter exclusive breastfeeding duration. In contrast, Figure 3 shows the opposite. There is a marginally significant relation between low levels of AWRS and low levels of partner support on longer any breastfeeding duration. It may be that if a mother has low AWRS it does not matter if she experiences low or high partner support on how long she breastfeeds her new-born. The difference in breastfeeding duration may also be a result of other factors, such as within-person factors. Nonetheless, partner support seems to play some role in buffering the negative relation between AWRS and exclusive breastfeeding duration. Therefore, it is advised to further examine the moderating role of partner support on AWRS and caregiving practices.

Lastly, the null results of AWRS on room-sharing may be due to it being a decision that can be delayed. In contrast to breastfeeding, which is associated with pumping during the work-day, room-sharing is a caregiving practice that takes place at home during the night and does not directly interfere with work. Room-sharing is also associated with more infant night wakings (Volkovich et al., 2018); soothing the infant at night is subsequently a task that can be divided between parents and does not mainly depend on the mother, as does breastfeeding. However, the absence of evidence does not imply evidence for absence. Future research is needed to replicate the results.

This research has several strengths. First and foremost, whilst most studies, though mainly qualitive, look at the stress mothers experience during or after the return-to-work period, this is the first study to look at the period before the return-to-work takes place. Moreover, this study is longitudinal in nature and pre-registered. There are also limitations to this study. First, the study sample consists of a heterogenic sample of mostly highly educated women. It is known that highly educated women tend to breastfeed and room-share longer, as is also shown in this study. One can only wonder how the results would be when this study was performed in a lower-educated, higher-risk sample. Secondly, in this study breastfeeding

was measured only up to 8 months postnatal, whilst any breastfeeding is recommended until 2 years of age (WHO, 2018). Thirdly, quite a lot of mothers decided to not participate in the 8 months measurement round, which results in a lower sample than was originally started with. One of the reasons was that they were too busy at the time to participate, some mothers were unable to be reached, and some gave no reason. It may be that these mothers were very stressed, or received a lack of support from their partner and had struggles with juggling work and caring for their infant. This remains unknown. Not to mention, Covid-19 should also be taken into account, as this study was conducted during the pandemic. The SMILEY study consisted also of lab visits, the Covid-19 regulations and fear of getting sick may have stood in the way of participating. Then again, it is important to note that a post hoc analysis in G*Power 3.1 with a sample size of 101, 3 predictors and an α of 0.05, shows a β of 0.99, which is very high.

In conclusion, this research is the first to acknowledge the importance of anticipated work resumption stress in mothers and its potential negative consequences for breastfeeding duration. The present study shows a relationship between more anticipated work resumption stress and shorter any breastfeeding duration. Since this is the first study examining these associations, more research is necessary to further delve into anticipated work resumption stress and its associated factors. It is important to know what factors shorten breastfeeding and room-sharing duration for mothers. So, that adequate support to mothers, and their partners, can be given and to be able to inform instances about the best circumstances for parents to continue breastfeeding and room-sharing.

References

Adedinsewo D. A., Fleming A. S., Steiner M., Meaney M. J., & Girard A. W. (2014). Maternal anxiety and breastfeeding findings from the MAVAN (Maternal Adversity, Vulnerability and Neurodevelopment) study. *J Human Lact 30*(1), 102-109. https://doi.org/10.1177/0890334413504244

Bakker, A.B., Demerouti, E., & Burke, R. (2009). Workaholism and relationship quality: A spillover-crossover perspective. *J Occupation Health Psychol 14(1),* 23-33.

Bakker, A.B., Demerouti, E., & Grzywacz, J.G. (2013). The spillover-crossover model. *New frontiers in work and family research.* Psychology Press, New York. pp. 54-70

Bar-Yam, N.B. (1998). Workplace lactation support, Part II: Working with the workplace. *J Hum Lact, 14(4),* 321-325. https://doi.org/10.1177/089033449801400424

Beijers, R., Riksen-Walraven, J.M., & de Weerth C. (2013). Cortisol regulation in 12-month-old human infants: associations with the infants' early history of breastfeeding and co-sleeping. *Stress, 16(3),* 267-77. https://doi.org/10.3109/10253890.2012.742057

Bener, A., Al-Kazaz, M., Ftouni, D., Al-Harthy, M., & Dafeeah, E. E. (2012). Diagnostic overlap of depressive, anxiety, stress and somatoform disorders in primary care. Asia-Pacific Psychiatry, 5(1), 29-38. https://doi.org/10.1111/j.1758-5872.2012.00215.x

Cameron, E. E., Joyce, K. M., Delaquis, C. P., Reynolds, K., Protudjer, J. L. P., & Roos, L. E. (2020). Maternal psychological distress & mental health service use during the COVID-19 pandemic. *Journal of Affective Disorders, 276*, 765-774. https://doi.org/10.1016/j.jad.2020.07.081.d

Centraal Bureau voor de Statistiek. (2022, 27 juli). Geboorte, kerncijfers [Dataset]. Geraadpleegd van https://www.cbs.nl/nl-nl/visualisaties/dashboard-bevolking/levensloop/kinderen-krijgen

Centraal Bureau voor de Statistiek. (2022). Emancipatiemonitor. Geraadpleegd van https://longreads.cbs.nl/emancipatiemonitor-2022/werken-en-zorgen/

Cooijmans, K. H. M., Beijers, R., Brett, B.E., & de Weerth, C. (2022). Daily skin-to-skin contact in full-term infants and breastfeeding: Secondary outcomes from a randomized controlled trial. *Matern Child Nutr. 2022 Jan;18(1),* e13241. https://doi.org/10.1111/mcn.13241

Couto, G. R., Dias, V., & de Jesus Oliveira, I. (2020). Benefits of exclusive breastfeeding: An integrative review. *Nursing Practise Today, 7*(4), 245-254. https://doi.org/10.18502/npt.v7i4.4034

Danner-Vlaardingerbroek G., Kluwer, E.S., van Steenbergen, E.F., & van der Lippe, T. (2013). The psychological availability of dual-earner parents for their children after work. *Fam Relations, 62(5), 741-754*. https://psycnet.apa.org/doi/10.1111/fare.12039

Davidson, E.L., & Ollerton, R.L. (2020). Partner behaviours improving breastfeeding outcomes: An integrative review. *Women Birth., 33(1),* e15-e23. https://doi.org/10.1016/j.wombi.2019.05.010

van Dellen, S.A., Wisse, B., Mobach, M. P., Albers, C. J., & Dijkstra, A. (2021). A cross-sectional study of lactation room quality and Dutch working mothers' satisfaction, perceived ease of, and perceived support for breast milk expression at work. *Int Breastfeed J 16*, 67. https://doi.org/10.1186/s13006-021-00415-y

van Dellen, S.A., Wisse, B. & Mobach, M.P. (2022). Effects of lactation room quality on working mothers' feelings and thoughts related to breastfeeding and work: a randomized controlled trial and a field experiment. *Int Breastfeed J 17,* 57. https://doi.org/10.1186/s13006-022-00499-0

Dias, C. C., & Figueiredo, B. (2015) Breastfeeding and depression: A systematic review of the literature. *Journal of Affective Disorders, 171*, 142-154. https://doi.org/10.1016/j.jad.2014.09.022.

Dinour, L. M., & Szaro, J. M. (2017). Employer-based programs to support breastfeeding among working mothers: A systematic review. Breastfeeding Medicine, 12(3). https://doi.org/10.1089/bfm.2016.0182

van Eck, M., Nicolson, N. A., & Berkhof, J. (1998). Effects of stressful daily events on mood states: Relationship to global perceived stress. *Journal of Personality and Social Psychology, 75(6),* 1572–1585. https://doi.org/10.1037/0022-3514.75.6.1572

Engelse, O, & van Dommelen, P. (2021). Peiling melkvoeding van zuigelingen in 2018. Tijdschr Jeugdgezondheidsz, 53, 118–123. https://doi.org/10.1007/s12452-021-00251-w

Giesbrecht, G. F., Poole, J. C., Letourneau, N., Campbell, T., & Kaplan, B. J. (2013). The buffering effect of social support on hypothalamic-pituitary-adrenal axis function during pregnancy. *Psychosomatic Medicine 75(9),* 856-862. https://doi.org/10.1097/psy.0000000000000004

Hoff, C. H., Movva, N., Rosen Vollmar, A. K., & Pérez-Escamilla, R. (2019). Impact of maternal anxiety on breastfeeding outcomes: A systematic review. *Advances in Nutrition, 10(5),* 816–826. https://doi.org/10.1093/advances/nmy132

Johnson, K. M., & Slauson-Blevins, K. S. (2022). “Perfectly supportive in theory…”: Women’s perceptions of partner support while breastfeeding. *Journal of Social and Personal Relationships, 39*(9), 2869-2889. https://doi.org/10.1177/02654075221090185

Kessler, R.C., Chiu, W.T., Demler, O., Walters, E.E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the national comorbidity survey

replication. *Arch Gen Psychiatry, 62(6),* 617–627. https://doi.org/10.1001/archpsyc.62.6.617

Kim, J. H., Shin, J. C., & Donovan, S. M. (2019). Effectiveness of workplace lactation interventions on breastfeeding outcomes in the United States: An updated systematic review. Journal of human lactation, 35(1), 100-113. https://doi.org/10.1177/0890334418765464

Kimbro, R. T. (2006). On-the-job moms: Work and breastfeeding initation and duration for a sample of low-income women. Maternal and Child Health Journal, 10, 19-26. https://doi.org/10.1007/s10995-005-0058-7

Malinen, K., Ronka, A., Sevon, E., & Schoebi, D. (2017). The difficulty of being a professional, a parent, and a spouse on the same day: Daily spillover of workplace interactions on parenting, and the role of spousal support. *J Prev Interv Community 45(3),* 156-167. https://psycnet.apa.org/doi/10.1080/10852352.2016.1198121

Monberg Feenstra, M., Kirkeby, M. J., Thygesen, M., Danbjørg, D. B., & Kronborg, H. (2018). Early breastfeeding problems: A mixed method study of mothers' experiences. *Sexual & Reproductive Healthcare, 16*, 167-174. https://doi.org/10.1016/j.srhc.2018.04.003.

Moon, R.Y., & Task Force on Sudden Infant Death Syndrome. SIDS and other sleep-related infant deaths: Evidence base for 2016 updated recommendations for a safe infant sleeping environment. *Pediatrics, 138(5)*, e20162940. https://doi.org/10.1542/peds.2016-2940

Neubauer, A. B., Smyth, J. M., & Sliwinksi, M. J. (2018). When you see it coming: Stressor anticipation modulates stress effects on negative affect. *Emotion, 18(3),* 342-354. https://psycnet.apa.org/doi/10.1037/emo0000954

Nguyen, M.T., Snow, G., Wheeler, H., & Owens, T. (2016) Clinical question: In post-partum first-time mothers, what interventions are successful for helping women sustain exclusive breast feeding for one month or more? *J Okla State Med Assoc., 109(11),* 521-4. http://www.ncbi.nlm.nih.gov/pmc/articles/pmc5301907/

Nichols, M.R., & Roux, G.M. (2004). Maternal perspectives on postpartum return to the workplace. *J Obstet Gynecol Neonatal Nurs.,33(4),* 463-71. https://doi.org/10.1177/0884217504266909

Pulopulos, M. M., Baeken, C., & De Raedt, R. (2020). Cortisol response to stress: The role of expectancy and anticipatory stress regulation. *Hormones and behavior, 117*, e104587. https://doi.org/10.1016/j.yhbeh.2019.104587

Shiraishi, M., Matsuzaki, M., Kurihara, S. Iwamoto, M., & Shimada, M. (2020). Post-breastfeeding stress response and breastfeeding self-efficacy as modifiable predictors of exclusive breastfeeding at 3 months postpartum: a prospective cohort study. *BMC Pregnancy Childbirth 20,* 730. https://doi.org/10.1186/s12884-020-03431-8

Smyth, J., Ockenfels, M. C., Porter, L., Kirschbaum, C., Hellhammer, D. H., & Stone, A. A. (1998). Stressors and mood measured on a momentary basis are associated with salivary cortisol secretion. *Psychoneuroendocrinology, 23(4),* 353-370. https://doi.org/10.1016/S0306-4530(98)00008-0.

Snyder, K., Hansen, K., Brown, S., Portraz, A., White, K., & Dinkel, D. (2018). Workplace breastfeeding support varies by employment type: The service workplace disadvantage. Breastfeeding Medicine, 13(1), 23-27. https://doi.org/10.1089/bfm.2017.0074

Starcke, K., Wolf, O. T., Markowitsch, H. J., & Brand, M. (2008). Anticipatory stress influences decision making under explicit risk conditions. *Behavioral Neuroscience, 122(6),* 1352-1360. http://dx.doi.org/10.1037/a0013281

Svensson, K. E., Velandia, M. I., Matthiesen, A. S. T., Welles-Nyström, B. L., & Widström, A. E. (2013). *Effects of mother-infant skin-to-skin contact on severe latch-on problems in older infants: a randomized trial. Int Breastfeed J 8*, 1. https://doi.org/10.1186/1746-4358-8-1

Tombeau-Cost, K., Jonas, W., Unternaehrer, E., Dudin, A., Szatmari, P., Gaudreau, H., Kennedy, J., Atkinson, L., Steiner, M., Meaney, M., & Fleming, A. (2018). Maternal perceptions of paternal investment are associated with relationship satisfaction and breastfeeding duration in humans. Journal of Family Psychology, 32(8), 1025-1035. https://dx.doi.org/10.1037/fam0000468

Tsai, S. (2014). Employee perception of breastfeeding-friendly support and benefits of breastfeeding as a predictor of intention to use breast-pumping breaks after returning to work among employed mothers. Breastfeeding Medicine, 9(1), 16-23. https://doi.org/10.1089/bfm.2013.0082

Vacaru, S., Beijers, R., Browne, P.D., Cloin, M., van Bakel, H., van den Heuvel, M. I., & de Weerth, C. (2021). The risk and protective factors of heightened prenatal anxiety and depression during the COVID-19 lockdown. *Sci Rep, 11*, 20261. https://doi.org/10.1038/s41598-021-99662-6

Victora C.G., Bahl R., Barros A. J. D., França G. V. A., Horton S., Krasevec J., Murch, S., Sankar, M. J., Walker, N., & Rollins N. C. (2016). Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *The Lancet, 387*, 475-490. https://doi.org/10.1016/s0140-6736(15)01024-7

Voedingscentrum. (2021). De eerste hapjes. https://www.ggdhvb.nl/app/uploads/2021/06/De-eerste-hapjes.pdf

Volkovich, E., Bar-Kalifa, E., Meiri, G., & Tikotzky, L. (2018). Mother–infant sleep patterns and parental functioning of room-sharing and solitary-sleeping families: a

longitudinal study from 3 to 18 months, *Sleep, 4(2),* 1-14, https://doi.org/10.1093/sleep/zsx207

World Health Organization (2018). Breastfeeding. Accessed 27th june 2022 from https://www.who.int/health-topics/breastfeeding#tab=tab_1

Ystrom, E., Niegel, S., Klepp, K.I., & Vollrath, M.E. (2008). The impact of maternal negative affectivity and general self-efficacy on breastfeeding: the Norwegian Mother and Child Cohort Study. J Pediatr, 152(1), 68-72. https://doi.org/10.1016/j.jpeds.2007.06.005

Zilanawala, A. (2017). Maternal nonstandard work schedules and breastfeeding behaviors. *Matern Child Health J, 21,* 1308–1317. https://doi.org/10.1007/s10995-016-2233-4