Face-to-face mother-infant interaction: Differences between depressed and non-depressed mothers and according to the infant's sex

Leonor Macho da Costa

Uminho | 2023

Universidade do Minho
Escola de Psicologia

Leonor Macho da Costa

Face-to-face mother-infant interaction: Differences between depressed and non-depressed mothers and according to the infant's sex

january, 2023

Universidade do Minho
Escola de Psicologia

Leonor Macho da Costa

Face-to-face mother-infant interaction: Differences between depressed and non-depressed mothers and according to the infant's sex

Masters Dissertation
Integrated Master in
Psychology

Work supervised by
Professor Doctor Bárbara Figueiredo
and
Professor Doctor Raquel Costa

January, 2023

DIREITOS DE AUTOR E CONDIÇÕES DE UTILIZAÇÃO DO TRABALHO POR TERCEIROS

Este é um trabalho académico que pode ser utilizado por terceiros desde que respeitadas as regras e boas práticas internacionalmente aceites, no que concerne aos direitos de autor e direitos conexos.

Assim, o presente trabalho pode ser utilizado nos termos previstos na licença abaixo indicada.

Caso o utilizador necessite de permissão para poder fazer um uso do trabalho em condições não previstas no licenciamento indicado, deverá contactar o autor, através do RepositóriUM da Universidade do Minho.

Licença concedida aos utilizadores deste trabalho

Atribuição-NãoComercial-CompartilhaIgual
CC BY-NC-SA

https://creativecommons.org/licenses/by-nc-sa/4.0/

Acknowledgments

Primeiramente quero agradecer à minha Orientadora, Professora Doutora Bárbara Figueiredo, pelo seu apoio, paciência e dedicação. Sem dúvida alguma, uma fonte de inspiração, que além de me motivar também me ajudou a crescer e me ensinou a lidar melhor com as adversidades e dificuldades que fui encontrando ao longo desta jornada.

De seguida quero agradecer à minha coorientadora, Professora Doutora Raquel Costa, por toda a sua disponibilidade, apoio e interesse.

Agradeço, ainda, a todo o Grupo de Investigação, em especial à minha querida Bárbara, parceira desta viagem, que partilhou e esteve a meu lado desde os momentos mais complicados aos mais felizes.

Quero agradecer aos meus grandes amigos, Beatriz, Inês, João e Soraia pela ajuda, apoio e confiança que me deram ao longo deste ano. É nestas alturas mais stressantes e exigentes que se revelam os verdadeiros amigos, e com isto posso afirmar que sou eternamente grata por os ter na minha vida.

Quero ainda agradecer à minha psicóloga por todo o apoio e reflexão que me fez ter, sem dúvida uma pessoa indispensável no meu crescimento ao longo desta jornada.

Por fim, quero agradecer à minha família pela preocupação, interesse e apoio. Por sempre me incentivaram a seguir os meus sonhos e a nunca desistir. Agradecer aos meus pais por todo o esforço que fizeram para me puder conceder esta oportunidade de formação, e em especial à minha tia Vivi, por toda a ajuda e incentivo, sem dúvida uma excelente pessoa com um enorme coração.

Assim, termino com um grande obrigada a todos aqueles que de uma forma ou outra fizeram parte desta jornada.

STATEMENT OF INTEGRITY

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism or any form of undue use of information or falsification of results along the process leading to its elaboration.

I further declare that I have fully acknowledged the Code of Ethical Conduct of the University of Minho.

University of Minho, 30th January 2023

Signature:

Interação face a face mãe-bebé: Diferenças entre mães deprimidas e não deprimidas e de acordo com o sexo do bebé

Resumo

A interação face a face é um contexto chave para entender a qualidade da interação mãe-bebé, sendo que pode ser influenciada por fatores externos que estão bastante presentes na atualidade. Desta forma, este estudo tem como objetivo (1) analisar diferenças na interação face-a-face mãe-bebé entre mães deprimidas e mães não deprimidas no pós-parto, e (2) analisar diferenças na interação face-a-face mãe-bebé entre o sexo do bebé (raparigas vs rapazes). A amostra foi composta por 63 mulheres recrutadas no 3º trimestre da gestação, maioritariamente portuguesas (92%). Os instrumentos utilizados neste estudo foram: Questionário Sociodemográfico, Escala de Depressão Pós-Natal de Edimburgo e Escala de Avaliação da Interação. Os resultados revelaram que (1) a depressão influencia alguns comportamentos maternos, como a reduzida atividade física significativa e o aumento da presença de expressões faciais de tensão e raiva. Bem como revelaram que (2) o sexo do bebé influencia o modo como este interage com a mãe, sendo que os rapazes têm comportamentos mais direcionados para a mãe do que as raparigas. Em suma, é importante implementar programas educativos para grávidas e mães recentes, de forma que estas consigam responder adequadamente a possíveis comportamentos que possam existir durante a interação face a face.

Palavras-chave: Depressão pós-natal; face a face; interação mãe-bebé; sexo do bebé

Face-to-face mother-infant interaction: Differences between depressed and non-depressed mothers and according to the infant's sex

Face-to-face interaction is a key context for understanding the quality of mother-infant interaction and can be influenced by external factors that are strongly present nowadays. Thus, this study aims to analyze (1) differences in face-to-face mother-infant interaction between depressed mothers and non-depressed mothers in the postpartum period, and (2) to analyze differences in face-to-face mother-infant interaction between the sex of the infant (females vs males). The sample was composed of 63 women recruited in their third trimester of pregnancy, mostly Portuguese (92%). The instruments used in this study were: Sociodemographic Questionnaire, Edinburgh Postnatal Depression Scale, and Interaction Rating Scale. The results revealed that (1) depression influences certain maternal behaviors, such as reduced significant physical activity and increased presence of facial expressions of tension and anger. They also revealed that (2) the sex of the infant influences the way they interact with their mother, with males having more mother-oriented behaviors than females. In summary, it is important to implement educational programs for pregnant women and recent mothers so that they can respond appropriately to possible behaviors that may exist during face-to-face interaction.

Keyword: Face-to-face; mother-infant interaction; postnatal depression; sex of the infant

Contents

Introduction....9

Method....11

Participants....11

Procedure....13

Measures....13

Sociodemographic Questionnaire....13

Edinburgh Postnatal Depression Scale (EPDS)....14

Interaction Rating Scales (IRS)....14

Statistical analysis....15

Results....15

Discussion....21

Limitations and strengths....23

Implications for clinical practice and research....23

Conclusion....24

References....25

Appendix 30

Table Contents

Table 1: *Sample's socio-demographic characteristics*.......... 12

Table 2: *Descriptive statistics of face-to-face mother-infant interaction*.......... 16

Table 3: *Mother and infant interactive behavior in depressive mothers (EPDS ≥ 7) and non-depressive mothers (EPDS < 7)*.......... 17

Table 4: *Mother and infant interactive behavior items in depressive (EPDS ≥ 7) and non-depressive mothers (EPDS < 7)*.......... 18

Table 5: *Mother and infant interactive behavior in male infants and in female infants*.......... 19

Table 6: *Mother and infant interactive behavior items in male infants and in female infants* 20

Introduction

Mother-infant interaction refers to the exchange of expressions and behaviors between mother and child. Since the unique characteristics and actions of the mother and infant contribute to the quality of this interaction (Mäntymaa, 2006), both change their behaviors according to the feedback they receive from each other (Brazelton et al., 1975; Costa & Figueiredo, 2012). Mother-infant interaction begins in the gestational period and is, therefore, the newborn first social interaction. For this reason, this specific interaction has a huge impact on the development of the child's personality characteristics (Figueiredo & Dias, 2013), on the development of language, cognition, and social skills (colonnesi et al., 2020), and the increase of the infant's self-regulation capacity (Benson et al., 2010). Therefore, the better the quality of mother-infant interaction the better the infant's ability to respond effectively to the environment (Brazelton et al., 1974). This way, a good quality mother-infant interaction predicts good well-being in the development of the infant (Mäntymaa, 2006).

Due to the sharing of verbal and nonverbal behaviors, a face-to-face situation is key to better understanding the quality of this interaction. In this situation, the mother and infant directly observe and communicate through certain behaviors (ex: gestures, smiles, mutual glances, and vocalizations) that are important for the establishment of good relationships (Colonnesi et al., 2012). Through this interaction, it is possible to observe certain behavior patterns that co-occur and contingent responses that exist, namely the exchange of glances and touch, the imitation of facial expressions, and the type and rhythm of vocalizations, among others (Beebe et al., 2016; Lavelli & Fogel, 2005). Besides that, it is possible to observe expressions of warmth and positivity, which are important positive social cues in mother-infant interaction (Mäntymaa, 2006). It is around 2-3 months of age that these behaviors start to emerge more frequently, and it is also when infants have more interest in face-to-face interaction (Lavelli & Fogel, 2002). For this reason, it is important to study, the face-to-face mother-infant interaction at this age.

Postpartum depression is a condition that is universal and prevalent in society, affecting about 10 to 15% of women (Fonseca & Canavarro, 2017). Thereby, it deserves elevating emphasis and attention to better understand the impact that this disease can have on mother-infant interaction. This disorder can be explained by the fact that pregnancy is a period characterized by major changes, both at the level of reorganization of routines (learning new skills and acquisition of distinct roles) and at the intrapersonal level (biological and psychological changes, among others) (Canavarro, 2009). Nevertheless, it is important to mention that

postpartum depression does not only affect the woman but also the relationships in her household, thus having an impact on her interaction with the infant. Maternal depression seems to compromise a child's emotional, social, and cognitive development, which leads to internalizing and externalizing problems in the infant's future (e.g., anger, sadness, irritability) (fiele et al., 2011; Goodman et al., 2011).

It is known that the mental health of the mother influences early interaction experiences. The mother-infant interaction in depressed women after childbirth is less adequate and poorer when compared to non-depressed mothers (Field, 1984). This may be due to the fact that the mother is less emotionally involved with the infant thus impairing her in interpreting the needs and cues provided by the infant (Benson, 2010; Figueiredo, 1996). Mother-infant interaction has a bidirectional effect, as maternal behaviors influence the infant's behavior and vice-versa, both regarding depressed and non-depressed mothers (Beardslee et al., 2011; Cohn et al., 1990; Reck et al., 2004). Therefore, based on this effect it can be observed that the expression of positive behaviors such as the mother's smile, mirroring, and vocalizations promote positive feelings in the child. Consequently, as it characterizes depression, the most common traits are negative feelings such as sadness, irritation, hostility, and intrusiveness (Reck et al., 2004), which causes the infant to experience more negative feelings and negative behaviors (e.g., gaze avoidance, less vocalize), which has implications on the quality of his interaction with the mother (Field, 1984). Additionally, depressed mothers have a lower number of contingent responses to the infant's needs (Field, 2008; Hummel et al., 2016). An effective way to assess this difference in the quality of mother-infant interaction between depressed and non-depressed mothers regards face-to-face situations since allows observing the mother's expressions and behaviors in the depressive forum that have implications on the quality of this interaction.

Another topic that has shown high relevance over time is the theme of sex differences. These differences found in sex behaviors may be for biological, cultural, or social factors. From a biological perspective, researchers showed that the differences found in male and female newborns are related to the innate biological differences that they have. Male infants have higher arousal levels (ex: cortisol and testosterone), while females show higher rates of heart reactivity (Figueiredo, 2001; Chaplin & Aldao, 2013). This can be one explanation for males having more tendency to externalize emotions (ex: anger, and hostility) while females tend to internalize them (ex: anxiety, and depression). From a more cultural and social perspective, this leads to sex-role stereotypic behaviors, which means that some characteristics and behaviors are more likely to be found in male members, and others in female members of society (Brody, 2000; Chaplin

& Aldao, 2013). This line of thinking can cause mothers to adopt beliefs and behaves differently towards the sex of the infant. In turn, as the infant feels that they have a certain role to play, they may adopt behaviors that go toward the assumption. In this way, the sex of the infant can influence the mother-infant interaction.

Regarding the mother's interactive behaviors, she has a greater tendency to match and imitate the male infants' facial expressions and has a more contingent positive effect on them (Malatesta & Haviland, 1982; Tronick & Cohn, 1989). In addition, she also shows better gaze coordination with males, i.e., they look at each other more often and share attention to the same objects when compared to females (Friedman, 2005; Weinberg et al., 1999). However, mothers are more likely to talk and smile more with their daughters (Fischer, 2000). As for the duration of behavior type, mothers of male infants are more likely to spend more time in positive states and less time in negative states compared to female mothers (Crugnola et al., 2016). Regarding the infant's interactive behavior, and based on what was said before, male infants are more sensitive to their mothers (Gallas & Lewis, 1977), and when the mother has higher-quality behaviors, male infants tend to be more expressive, while females remain neutral (Carter et al., 1990). So, the point here is to better understand how sex differences influence the quality of mother-infant interaction in face-to-face interaction.

Therefore, the core objectives of the current study are: (1) to analyze differences in face-to-face mother-infant interaction between depressed mothers and non-depressed mothers in the postpartum period, and (2) to analyze differences in face-to-face mother-infant interaction between the sex of the infant (females vs males).

Method

Participants

A sample of 63 pregnant women was included in this study. The majority were Portuguese (92.1%), married or cohabiting (71.5%), were in maternity license (66.7%), had upper-level education (57%) and more than half were aged between 25 and 34 years old (68.2%). Of the 63 women, 51 were not depressive (EPDS ≥ 7) 3 months after the delivery (81%). Regarding infants, half of them had a normal birth (52.4%), the majority were born at term (≥ 37 gestations' weeks: 98.4%), were not resuscitated at birth (88.9%), had normal birth weight (98.4%) and length (87.3%), were born by vaginal delivery (52.4%) and were males (50.8%).

Table 1.

Participants socio-demographic characteristics

			n=63	
			n	%
Mothers	Age (years)	18-24	11	17.5
		25-34	43	68.2
		35-44	9	14.3
	Nationality	Portuguese	58	92.1
		Brazilian	1	1.6
		PALOP	2	3.2
		Other	2	3.2
	Educational level	Elementary School	0	0.0
		Secondary Education	27	42.9
		Upper-Level Education	36	57.1
	Marital Status at 3 months postpartum	Single/Divorced/ Widow	18	28.5
		Married/ Cohabitation	45	71.5
	Occupational Status at 3 months postpartum	Employed (Full time/Part-time)	7	11.1
		Unemployed	14	22.2
		Maternity License	42	66.7
	Depressive Status at 3 months postpartum (EPDS ≥ 7)	Depressive	12	19.0
		Non-depressive	51	81.0
Infants	Type of part	Normal part	33	52.4
		Cesarean section	20	31.7
		Suction cup delivery	7	4.8
		Forceps delivery	3	11.1
	Gestation' age	< 37 weeks	1*	1.6
		≥ 37 weeks	62	98.4
	Resuscitation at birth	No	56	88.9
		Yes	7	11.1
	Sex	Male	32	50.8
		Female	31	49.2
	Length at birth	< 48 cm	8**	12.7
		≥ 48 cm	55	87.3
	Weight at birth	< 2500g	1***	1.6
		≥ 2500g	62	98.4

Notes. PALOP: Países Africanos de Língua Oficial Portuguesa (African Countries with Portuguese Official Language); cm= centimeter; g= gram

**35weeks*

***Min: 45.50cm, Max: 47.80cm*

****2230g*

Procedure

This study is part of a larger research project (“Breastfeeding and post-partum depression”; Figueiredo, 2011), that received approval from the Ethics Committee of the University of Minho and the hospitals where pregnant mothers were recruited. Pregnant women who attended two public hospitals in Northern Portugal during the third trimester of pregnancy (30 to 34 weeks gestation) were contacted. In this contact, they were informed about the objectives and procedures of the study and invited to participate voluntarily. Of the women who were contacted, the ones who do not read/write Portuguese, with gestational complications, took psychiatric medications, and had multiple births were excluded. After agreeing to participate, participants were asked to sign an informed consent form and asked to complete some measures in self-report format, namely the Sociodemographic Questionnaire (Figueiredo et al., 2009) and the Edinburgh Postnatal Depression Scale (Cox et al., 1987).

Two days, 2 weeks, and 3 months after birth, all participants were asked again to fill out the Sociodemographic Questionnaire (Figueiredo et al., 2009) and the Edinburgh Postnatal Depression Scale (Cox et al., 1987). At 3 months after birth, a face-to-face mother-infant interaction was videotaped for 5–8 minutes, to be assessed with the Face-to-Face Interaction Rating Scale (IRSff) (Field, 1980). During the recording, mothers were told to interact as they typically would with their infants, ignoring the presence of the observer. Of all participants, 63 mothers agreed to be recorded and completed the full study. Of these recordings 58 were recorded at home, 4 at the hospital, and 1 at the cafe according to the mother's preference.

Measures

Sociodemographic Questionnaire:

The *Sociodemographic Questionnaire* (Figueiredo, et al., 2009) is a self-report measure with a set of social, demographic, and obstetric questions that include information such as age, nationality, marital status, occupational status, educational level, type of part, gestation’ age, resuscitation at birth, sex of the infant, birth weight and birth length.

Edinburgh Postnatal Depression Scale (EPDS):

The *Edinburgh Postnatal Depression Scale* (EPDS) (Cox et al., 1987) was used to assess depression symptoms. It is a self-report questionnaire and a simple means to screen for postnatal depression in healthcare settings. This scale reveals the intensity of depressive symptoms relative to the previous seven days and has been used in several studies during pregnancy and the postpartum period (Figueiredo et al., 2013). In this study, we used the Portuguese version (Augusto et al., 1996), which was composed of 10 items, and scored on a 4-point Likert scale (0-3). It has good internal consistency (Cronbach's alpha= 0.85) and test-retest reliability (Spearman Correlation= 0.75) (Figueiredo & Costa, 2009). According to Tendais et al. (2014), the optimal cut-off score is 7 for postpartum, and for that reason, the same cut-off point for the detection of depressed mothers in this study was used.

Interaction Rating Scales (IRS):

The *Face-to-Face Interaction Rating Scale* (IRSff) (Field, 1980) was used to evaluate the face-to-face mother-infant interaction at 3 months post-partum. This scale was initially developed for Field (1980) and validated for the Portuguese population by Figueiredo and Dias (2013). The IRSff consists of 10 items assessing the mother's interactive behavior and 10 items assessing the infant's interactive behavior, in a face-to-face context. Each item is rated on a scale from 1 to 3 points, where the maximum value of the rating of each subscale and the total scale is 3. Higher values indicate better quality in the behavior of both mother and infant during a face-to-face situation. The IRSff validated for the Portuguese population, shows high internal consistency (Cronbach's alpha 0.91 (IRSff mother), 0.85 (IRSff infant)) high reliability, and concurrent and predictive validity (Figueiredo & Dias, 2013). This subscale was filled after viewing a 5 to 8-minute video of the mother-infant interaction, which was rated by two independent researchers previously trained. After their assessment, they met to discuss the items they disagreed on, i.e., items with a difference greater than 1 value. The average agreement in the total scale was 87.9%, and on each subscale, items ranged from 57% to 100%, with the highest disagreement found on the infant subscale item, which concerns the "Play Behavior" item. After this meeting, the video of the interaction was watched again in order to reach an agreement, in case of difficulty in reaching a decision a third researcher was consulted. After that, its congruence was assessed once more, and the total sum regarding the mother and infant scale was made based on the average of the raters' scores.

Statistical analysis

In order to analyze (1) the differences in face-to-face mother-infant interaction between depressed mothers and non-depressed mothers, and (2) between the male infants and female infants, the same statistical analysis was conducted. Independent Samples T-Tests were performed on the full scale of mother-infant interaction, a Multivariate Analysis of Variance (MANOVA) was performed to analyze the subscale of mother interactive behavior and the subscale of infant interactive behavior, a MANOVA analysis was performed to analyze the specific items of the mother's interactive behavior, and a MANOVA analysis was performed to analyze the specific items of the infant's interactive behavior.

All statistical analyses were performed using the 28th version of the IBM® SPSS® (Statistical Package for the Social Sciences) software, with a test's significance level p-value probability of $< .05$. All variables were previously tested and followed the normal distribution.

Results

Table 2 shows the descriptive analyses of mother interactive behavior, infant interactive behavior, and mother-infant interaction at three months postpartum on the IRSff scores. The items whit the highest mean was "State" in both mother (M=2.85, SD=0.29) and infant (M=2.87, SD=0.34) subscales. The lowest mean was relative to the "Silence on the aversion to looking" in the mother's subscale (M=1.48, SD=0.74) and to the "Deviation of the mother's direction" (M= 1.51, SD=0.67) in the infant subscale. The items with the highest variance were the "Silence on the aversion to looking" in the mother's subscale (DP= 0.74) and the "Gaze Aversion" in the infant's subscale (DP= 0.82). On the other hand, in both the mother and the infant subscales, the item ''State'' had the lowest variance (DP=0.29; DP=0.34, respectively).

Table 2.

Descriptive statistics of face-to-face mother-infant interaction

	M	SD	Minimum	Maximum
Mother interactive behavior- items	2.38	0.30	1.65	2.90
State	2.85	0.29	2	3
Significant physical activity	2.51	0.58	1	3
Head deviation	2.75	0.51	1	3
Eye contact	2.28	0.73	1	3
Facial expression	2.60	0.51	1.5	3
Meaningful Vocalization	2.49	0.55	1	3
Silence on the aversion to looking	1.48	0.74	1	3
Contingent response	2.57	0.52	1	3
Infantilized behavior	2.25	0.51	1.50	3
Gaming behavior	1.99	0.72	1	3
Infant interactive behavior- items	2.27	0.31	1.60	2.90
State	2.87	0.34	1.50	3
Significant physical activity	2.06	0.61	1	3
Atypical physical activity	2.73	0.48	1	3
Deviation of the mother's direction	1.51	0.67	1	3
Eye contact	2.65	0.61	1	3
Gaze Aversion	2.02	0.82	1	3
Facial expressions	2.36	0.58	1	3
Positive Vocalizations	2.06	0.74	1	3
Negative Vocalizations	2.45	0.67	1	3
Gaming behavior	1.98	0.63	1	3
Mother-infant interaction	2.32	0.28	1.70	2.90

Differences in face-to-face mother-infant interaction between depressed mothers and non-depressed mothers in the postpartum period

Results of the independent samples T-Test did not reveal significant differences in the face-to-face mother-infant interaction between depressed and non-depressed women in the postpartum period ($t(61)= 1.554$, $p =.125$). The MANOVA including the mother and the infant subscales scores showed that there were no significant differences in the subscales of the mother and infant's interactive behaviors [$\Lambda = 0.962$; $F(2, 60) = 1.189$; $p = .312$] between depressed and non-depressed women (Table 3). The MANOVA including the mother's interactive behavior items [$\Lambda = 0.814$; $F(10, 52) = 1.185$; $p = .322$], showed that there were significant differences in the item "Significant physical activity" ($Z= 5.552$, $p= .022$) and the item "Facial Expression" ($Z= 4.328$, $p= .042$). Depressed mothers had less significant physical activity regarding their baby (M=2.24; SD=0.62) compared to non-depressed mothers (M=2.61; SD=0.54), and less positive facial expressions (M=2.38; SD=0.52) in interacting with their infants compared to non-depressed mothers (M=2.67; SD=0.48). The MANOVA including the infant's interactive behavior items did not show significant differences according to the mother's depression status [$\Lambda = 0.828$; $F(10, 52) = 1.081$; $p = .394$] (Table 4).

Table 3.

Mother and infant interactive behavior scores in depressive mothers (EPDS ≥ 7) and non-depressive mothers (EPDS < 7)

	Depressive Mothers n=17		Non-depressive Mothers n=46		*Z*	*p*
	M	SD	M	SD		
Mother interactive behavior	2.29	0.27	2.41	0.31	1.96	.167
Infant interactive behavior	2.18	0.32	2.30	0.30	2.09	.153

Table 4.

Mother and infant interactive behavior items in depressive mothers (EPDS ≥ 7) and non-depressive mothers (EPDS < 7)

	Depressive mothers n=17		Non-depressive mothers n=46		Z	p
	M	SD	M	SD		
Mother interactive behavior- items						
State	2.79	0.25	2.87	0.31	0.82	.368
Significant physical activity	2.24	0.62	2.61	0.54	5.55	**.022**
Head deviation	2.76	0.50	2.75	0.51	0.01	.920
Eye contact	2.18	0.83	2.32	0.70	0.44	.510
Facial expression	2.38	0.52	2.67	0.48	4.33	**.042**
Meaningful Vocalization	2.38	0.54	2.52	0.56	0.78	.379
Silence on the aversion to looking	1.44	0.70	1.49	0.76	0.05	.822
Contingent response	2.50	0.50	2.60	0.53	0.43	.514
Infantilized behavior	2.20	0.53	2.26	0.50	0.14	.706
Gaming behavior	2.00	0.77	1.99	0.71	0.00	.958
Infant interactive behavior- items						
State	2.79	0.44	2.90	0.29	1.29	.260
Significant physical activity	1.82	0.73	2.14	0.54	3.51	.066
Atypical physical activity	2.70	0.50	2.74	0.48	0.06	.810
Deviation of the mother's direction	1.50	0.66	1.51	0.69	0.00	.955
Eye contact	2.53	0.72	2.70	0.57	0.91	.344
Gaze Aversion	1.88	0.84	2.08	0.82	0.69	.410
Facial expressions	2.15	0.68	2.44	0.53	3.38	.071
Positive Vocalizations	2.03	0.82	2.08	0.71	0.05	.826
Negative Vocalizations	2.41	0.80	2.47	0.63	0.08	.773
Gaming behavior	1.97	0.82	1.99	0.55	0.01	.918

Differences in face-to-face mother-infant interaction between the sex of the infant (females vs males)

The independent samples T-Test did not reveal significative differences in the face-to-face mother-infant interaction according to the sex of the infant $T(61)= -1.557$; $p = .125$. The MANOVA including the mother and infant's interactive behaviors subscales showed that there were no differences according to the gender of the infant [$\Lambda = 0.942$; $F(2, 60) = 1.859$; $p = .165$ (Table 5). The MANOVA including the mother's interactive behavior items [$\Lambda = 0.844$; $F(10, 52) = 0.958$; $p = .490$] did not show significative differences according to the sex of the infant. The MANOVA including the infant's interactive behavior items did not reveal significative differences between males and females [$\Lambda = 0.809$; $F(10, 52) = 1.229$; $p = .295$], still, the subsequent univariate ANOVAs, show that there were significant differences in the item "Deviation of the infant's head" ($Z= 4.906$; $p= .031$) and a marginally significant difference in the item "Gaze aversion" ($Z= 3.873$; $p=.054$). Females were more likely to look away from their mother (M=1.33, SD=0.56) and avoid eye contact with her (M=1.83, SD=0.84) compared to the males (M=1.69, DP=0.74; M=2.22, DP=0.76, respectively) (Table 6).

Table 5.

Mother and infant interactive behavior in male infants and in female infants

	Males n=31		Females n=32		*Z*	*p*
	M	SD	M	SD		
Mother interactive behavior	2.41	0.31	2.34	0.29	0.94	.337
Infant interactive behavior	2.34	0.32	2.20	0.28	3.58	.063

Table 6.

Mother and infant interactive items behavior in male infants and in female infants

	Males n=31		Females n=32		Z	p
	M	SD	M	SD		
Mother interactive behavior- items						
State	2.85	0.29	2.84	0.30	0.02	.882
Significant physical activity	2.53	0.59	2.48	0.57	0.11	.745
Head deviation	2.74	0.51	2.76	0.51	0.03	.855
Eye contact	2.40	0.74	2.16	0.72	1.81	.184
Facial expression	2.50	0.55	2.69	0.45	2.20	.143
Meaningful Vocalization	2.50	0.62	2.47	0.49	0.05	.825
Silence on the aversion to looking	1.64	0.82	1.31	0.63	3.27	.075
Contingent response	2.58	0.52	2.56	0.54	0.02	.892
Infantilized behavior	2.29	0.53	2.20	0.49	0.46	.499
Gaming behavior	2.08	0.71	1.91	0.73	0.92	.341
Infant interactive behavior- items						
State	2.89	0.28	2.86	0.38	0.11	.746
Significant physical activity	2.03	0.72	2.08	0.49	0.09	.768
Atypical physical activity	2.81	0.28	2.66	0.61	1.54	.219
Deviation of the mother's direction	1.69	0.74	1.33	0.56	4.91	**.031**
Eye contact	2.66	0.64	2.64	0.60	0.02	.895
Gaze Aversion	2.22	0.76	1.83	0.84	3.87	**.054**
Facial expressions	2.39	0.67	2.34	0.50	0.09	.771
Positive Vocalizations	2.19	0.73	1.94	0.74	1.92	.170
Negative Vocalizations	2.50	0.75	2.41	0.59	0.30	.583
Gaming behavior	2.05	0.64	1.92	0.62	0.63	.429

Discussion

A central goal of this research was to better understand in which ways the presence of postnatal depression and the infant's sex had an impact on the face-to-face mother-infant interaction 3 months after birth. Previous literature has found that the presence of these factors can influence the quality of face-to-face mother-infant interaction.

So, relative to the face-to-face mother-infant interaction between depressed and non-depressed mothers the results of this study did not reveal significant differences. These findings are contrary to the results found in the studies of Binda et al. (2019) and Lovejoy et al. (2000). Yet, the results are in line with the study of Campbell et al (1995), which according to this: "In a relatively low-risk, community sample of first-time mothers, a diagnosis of depression in the postpartum period is not necessarily associated with less optimal mother-infant interaction" (Campbell et al., 1995, p. 7). Additionally, another possible explanation for the absence of significant results in the present study is that the number of infants with depressed and non-depressed mothers is quite different, which creates an imbalance in the two groups, which may have an impact on the statistical analysis.

Although no differences were found in the mother interaction subscale, we found conclusive effects on the mother's interactive behavior items, namely in the mother's significant physical activity and the mothers' facial expressions, which means that depressive mothers are more intrusive or indifferent to their infant's needs and tend to reveal more expressions of anger or indifference. These results of the mother's items interactive behavior are in line with the existing literature, which reports that mothers who have postnatal depression are less responsive to their infant's needs (Bernard et al., 2018; Binda et al., 2019), leading to the establishment of intrusive and hostile interactions (Crugnola et al., 2016; Murray et al., 2018).

Concerning the interactive behavior of the infant, we did not find significant results either in the infant subscale or in the respective items, which means infants of depressive and non-depressive mothers show similar behaviors in their interaction with their mothers. These results are consistent with Stanley et al. (2004) findings that maternal postnatal depression does not determine the infant's behavioral response, a possible justification for this finding can be the biological constitution of the infants. This means that they can have

certain characteristics in their temperament (e.g., reactivity and self-regulation) that may help them to respond effectively to their mother, even when the quality of the interaction is poorest.

This research did not find significant results of the sex of the infant on the face-to-face mother-infant interaction. Although there is some speculation that there are differences in the quality of face-to-face mother-infant interaction between the sex of the infant, there are notable inconsistencies in the literature. Some studies show that the infant’s sex influences the face-to-face mother-infant interaction (e.g., Else-Quest et al., 2006; Malatesta & Haviland, 1982; Hsu & Fogel, 2003), while others show no differences (e.g., Kosiak, 2013; Moszkowski, 2004). Our results regarding the influence of the infant's sex on face-to-face mother-infant interaction are in line with Kosiak's (2013) and Moszkowski's (2004) study which showed that sex had no impact on mother-infant interaction.

Furthermore, the mother's interactive behavior, whether in the subscale or in the respective items did not change significantly according to the sex of the infant, which is in line with Carter et al. (1990) who found that the way mothers interact with their infant is similar in males and females.

It is important to emphasize that, although no differences were found in the infant interaction subscale, we found significant differences in the interactive behavior items according to the sex of the infant, namely on the item “Deviation from the mother's head orientation” and marginally on the item “Gaze Aversion”. In these items, the females had a lower score than the males, which means that female infants tend to avoid more looking at their mothers. Thus, these findings suggest that infant males have better interaction with their mothers, which means that the sex of the infant affects the quality of face-to-face mother-infant interaction. The obtained results in the infant’s interactive behavior are consistent with the study of Weinberg et al. (1999) who showed that males are more socially oriented and more likely to look at their mothers than females and also in accordace with the study of Braungart-Rieker et al. (1998), who found that female infants are more oriented to objects than males. These results can be explained by the fact that infant males experience greater difficulty to self-regulate their affective states, so they search for their mother's help to facilitate it (Friedman, 2005; Weinberg et al., 1999).

Limitations and strengths

In this study, certain limitations should be considered in the interpretation of the results found and in future research. The first limitation is the size of the sample, which is small and should be enlarged in further studies in order to enhance the statistical power and the external validity of the results. Second, the presence of a stranger filming the interaction, even if in a position of minimal interference, may have interfered with the quality of the recorded interaction. Notwithstanding, the fact that this condition is the same for both groups minimizes the bias (Eirinaki, 2022). Yet, to solve this limitation, it would be better in future studies for the mother to be asked to use the phone to record her interaction with her infant when they were both alone at home so that there is a more natural environment for both. Moreover, the results found are not able to be generalized, since the sample is not representative. For this reason, the generalization of these results should be taken with caution, even for the Portuguese population.

This study included the strength of being a longitudinal study, having 4 points of maternal depression evaluation, being screened by the EPDS, during the third trimester of pregnancy (30 to 34 weeks gestation), 2 days, 2 weeks, and 3 months after birth. The EPDS is an internationally used screening tool, which is reliable and validated for the Portuguese population and allows to detection of cases of clinically significant symptoms with good accuracy. This way this periodic evaluation allows the reliable identification of depression development. Furthermore, the use of the IRSff is very reliable and meticulous for understanding mother-infant interaction, since it evaluates the mother's and infant's behavior, avoiding overgeneralizing and misinterpreting the existing differences. In addition, the instruments used in this research, in particular EPDS and IRS, have high internal consistency.

Implications for clinical practice and research

The study of face-to-face interaction is a novelty in science, and therefore it can be further developed. It is important to consider the difficulties mothers find in face-to-face interactions to create programs to help them be more sensitive and responsive toward their infants. Additionally, it is also important to create/insert pregnant women in maternity preparation programs in order to prevent the development of postpartum depression and consequently create better mother-infant interactions. It is also important to provide

interventions adjusted to depressed mothers to help them recover, aiming at achieving meaningful and contingent behaviors concerning infants' needs.

Future studies should investigate the types of behaviors mothers should have towards their daughters to get more attention from them, in a way that could improve the quality of this interaction. Moreover, further research should continue to explore multiple factors associated with the quality of face-to-face mother-infant interaction and intend to study a broader panorama of factors that may have an impact on the quality of this interaction.

Conclusion

In conclusion, the findings of the present study derived from a detailed examination of actual and observable face-to-face mother-infant interactions based on a reliable scale. Therefore, it has contributed to a better interpretation of the impact that depression and the sex of the infant may have on face-to-face mother-infant interaction. The present results suggest that depressed mothers have more negative facial expressions and less significant physical activity and that some behaviors of the infant are influenced by their sex, namely behaviors such as head deviation from the mother's orientation and gaze aversion to the mother. These findings lead us to conclude that non-depressed mothers and male infants have better interactions during face-to-face mother-infant interaction.

References

Abelkop, B., Frick J. (2003). Cross-task stability in infant attention: New perspectives using the still-face procedure. , 4(4), 567–588. https://doi:10.1207/s15327078in0404_09

Augusto, A.; Kumar, R.; Calheiros, J.; Matos, E.; Figueiredo, E. (1996). Post-natal depression in an urban area of Portugal: comparison of childbearing women and matches controls. *Psychol Med* 26: 135-141. https://doi.org/10.1017/S0033291700033778

Beardslee, W., Gladstone, T., & O'Connor, E. (2011). Transmission and prevention of mood disorders among children of affectively ill parents: A review. *Journal of the American Academy of Child and Adolescent Psychiatry*, 50, 1098–1109. https://doi.org/10.1016/j.jaac.2011.07.020

Beebe, B., Messinger, D., Bahrick, L. E., Margolis, A., Buck, K. A., & Chen, H. (2016). A systems view of mother–infant face-to-face communication. *Developmental psychology*, 52(4), 556. https://psycnet.apa.org/doi/10.1037/a0040085

Benson, J., Haith, M. (2010). Social and emotional development in infancy and early childhood (1st ed.). *Academic Press*,. https://books.google.com.br/books?hl=pt-PT&lr=&id=VUvdHreepDYC&oi=fnd&pg=PP1&dq=BENSON,+Janette+B.%3B+HAITH,+Marshall+M.+(Ed.).%E2%80%AFSocial+and+emotional+development+in+infancy+and+early+childhood.+Academic+Press,+2010.++&ots=OA-zhFsslc&sig=1XG_UYS16L0-6qb5yJmhGQ688c0#v=onepage&q&f=false

Bernard, K., Nissim, G., Vaccaro, S., Harris, J., & Lindhiem, O. (2018). Association between maternal depression and maternal sensitivity from birth to 12 months: a meta-analysis. *Attachment & Human Development*, 20(6), 578-599. https://doi.org/10.1080/14616734.2018.1430839

Binda, V., Figueroa-Leigh, F., & Olhaberry, M. (2019). Antenatal and postnatal depressive symptoms: Association with quality of mother–infant interaction. *Infant Behavior and Development*, 57, 101386. https://doi.org/10.1016/j.infbeh.2019.101386

Braungart-Rieker, J., Garwood, M., Powers, B., & Notaro, P. (1998). Infant affect and affect regulation during the still-face paradigm with mothers and fathers: the role of infant characteristics and parental sensitivity. *Developmental Psychology*, 34(6), 1428. https://psycnet.apa.org/doi/10.1037/0012-1649.34.6.1428

Brazelton, T., Koslowski, B., & Main, M. (1974). The origins of reciprocity: The early mother-infant interaction. In M. Lewis & L. A. Rosenblum, *The effect of the infant on its caregiver.* Wiley-Interscience.

Brazelton, T., Tronick, E., Adamson, L., Als, H., & Wise, S. (1975). Early mother-infant reciprocity. Ciba Foundation Symposium 33- *Parent-infant interaction,* 33(137-154), 122. https://doi.org/10.1002/9780470720158.ch9

Brody, L. (2000). The socialization of sex differences in emotional expression: Display rules, infant temperament, and differentiation. *Sex and emotion: Social psychological perspectives*, *2*(11), 122-137. https://doi.org/10.1017/CBO9780511628191.003

Canavarro, M. (2009). Uma perspectiva desenvolvimentista e ecológica sobre a adaptação na transição para a maternidade: *Sumário da Lição*. https://eg.uc.pt/bitstream/10316/9897/1/sumario_licao.pdf

Carter, A., Mayes, L., & Pajer, K. (1990). The role of dyadic affect in play and infant sex in predicting infant response to the still-face situation. *Child Development*, *61*(3), 764-773. https://doi.org/10.1111/j.1467-8624.1990.tb02819.x

Chaplin, T., Aldao, A. (2013). Sex differences in emotion expression in children: A meta-analytic review.. Psychological Bulletin, 139(4), 735–765. https://doi:10.1037/a0030737

Cohn, J., Campbell, S., Matias, R., & Hopkins, J. (1990). Face-to-face interactions of postpartum depressed and nondepressed mother-infant pairs at 2 months. *Developmental psychology*, 26(1), 15. https://psycnet.apa.org/doi/10.1037/0012-1649.26.1.15

Costa, R., Figueiredo, B. (2012). Infants' behavioral and physiological profile and mother-infant interaction. *International Journal of Behavioral Development*, 36(3), 205–214. https://doi:10.1177/0165025411428248

Cox, J., Holden, J., & Sagovsky, R. (1987). Detection of postnatal depression: development of the 10-item Edinburgh Postnatal Depression Scale. *The British journal of psychiatry*, 150(6), 782-786. https://doi.org/10.1192/bjp.150.6.782

Colonnesi, C., Zijlstra, B., Van Der Zande, A., & Bögels, S. (2012). Coordination of gaze, facial expressions and vocalizations of early infant communication with mother and father. *Infant Behavior and Development*, 35(3), 523-532. https://doi.org/10.1016/j.infbeh.2012.02.004

Crugnola, C., Ierardi, E., Ferro, V., Gallucci, M., Parodi, C., & Astengo, M. (2016). Mother-infant emotion regulation at three months: the role of maternal anxiety, depression and parenting stress. *Psychopathology*, 49(4), 285-294. https://doi.org/10.1159/000446811

Else-Quest, N., Hyde, J., Goldsmith, H.; Van Hull, C. (2006). Sex differences in temperament: A meta-analysis. *Psychological Bulletin,* 132(1), 33–72. https://doi:10.1037/0033-2909.132.1.33

Eirinaki, V. (2022). The impact of postnatal depression on mother-infant interaction and infants' communication skills: A video-based analysis. https://pure.roehampton.ac.uk/portal/files/8279859/Eirinaki_Vasiliki_Final_Thesis.pdf

Field, T. (1984). Early interactions between infants and their postpartum depressed mothers. *Infant behavior and Development*, 7(4), 517-522. https://doi.org/10.1016/S0163-6383(84)80010-7

Field, T. (1980). Interactions of preterm and term infants with their lower- and middle-class teenage and adult mothers. In T.M. Field, S. Goldberg, D. Stern, & AM. Sostek (Eds.), Highrisk infants and children: Adult and peer interactions. (pp.113-132). *New York: Academic Press*.

Field, T. (2008). Problems in infancy. In M. Herson & A. M. Gross (Eds.), Handbook of clinical psychology: Children and adolescents (Vol. II, pp. 966–1011). Hoboken, NJ: Wiley. http://ndl.ethernet.edu.et/bitstream/123456789/65426/1/14.pdf.pdf#page=984

Figueiredo, B. (2001). Mães e bebés (1° ed.). Fundação Calouste Gulbenkian.

Figueiredo, B. (1996). Postpartum Depression: Is it a condition affecting the mother-infant interaction and the development of the child across the first year of life? https://files.eric.ed.gov/fulltext/ED415011.pdf

Figueiredo, B. (Principal Investigator) (2011-2014). Breastfeeding and post-partum depression. (Project n° PTDC/SAU-SAP/116738/2010). Universidade do Minho.

Figueiredo, B., Costa, R. (2009). Mother’s stress, mood and emotional involvement with the infant: 3 months before and 3 months after childbirth. Arch Womens Ment Health, 12,143–153. https://doi.org/10.1007/s00737-009-0059-4

Figueiredo, B., Dias, C. (2013). Escalas de avaliação da interação mãe-bebé: versão portuguesa das interaction rating scales. *Psicologia, Saúde & Doenças*, 14(3), 502-514. https://www.researchgate.net/publication/263165150_Escalas_de_avaliacao_da_interacao_mae-bebe_Versao_portuguesa_das_interaction_rating_scales

Fischer, A., & Manstead, A. (2000). The relation between gender and emotion in different cultures. In A. H. Fischer (Ed.), *Gender and emotion: Social psychological perspectives* (pp. 71–94). Cambridge University Press. https://doi.org/10.1017/CBO9780511628191.005

Fonseca, A., & Canavarro, M. (2017). Depressão pós-parto. PROPSICO: Programa de atualização em Psicologia Clínica e da Saúde–Ciclo 1, 111-164. http://hdl.handle.net/10316/45085

Friedman, D. (2005). 4-month infant vocal quality in mother-infant face-to-face interaction: 6-week maternal postpartum depressive symptomatology and infant gender. *New York University.*

Campbell S., Cohn J., Meyers T. (1995): Depression in first-time mothers: mother-infant interaction and depression chronicity. Developmental Psychology, 31(3), 349–357. . https://psycnet.apa.org/doi/10.1037/0012-1649.31.3.349

Gallas, H., & Lewis, M. (1977). Sex differences in the relationship between mother-infant interaction and the infant's cognitive development. https://files.eric.ed.gov/fulltext/ED139529.pdf

Goodman, S., Rouse, M., Connell, A., Broth, M., Hall, C., & Heyward, D. (2011). Maternal depression and child psychopathology: A meta-analytic review. Clinical child and family psychology review, 14(1), 1-27. https://doi.org/10.1007/s10567-010-0080-1

Hummel, A., Kiel, E. & Zvirblyte, S. (2016) Bidirectional effects of positive affect, warmth, and interactions between mothers with and without symptoms of depression and their toddlers. J Child Fam Stud 25, 781–789 (2016). https://doi.org/10.1007/s10826-015-0272-x.

Hsu, H., & Fogel, A. (2003). Stability and transitions in mother-infant face-to-face communication during the first 6 months: a microhistorical approach. *Developmental psychology,* 39(6), 1061. https://psycnet.apa.org/doi/10.1037/0012-1649.39.6.1061

Kosiak, Klaudia. "Sex differences in mother-infant interaction." (2013).

Labbok, M., & Coffin, C. (1997). A call for consistency in definition of breastfeeding behaviors.

Social Science & Medicine, 44(12), 1931–1932. https://doi.org/10.2105/ajph.87.6.1060

Labbok, M., & Krasovec, K. (1990). Toward consistency in breastfeeding definitions. Studies in family planning, 21 (4), 226-230. https://doi.org/10.2307/1966617

Lavelli, M., & Fogel, A. (2002). Developmental changes in mother-infant face-to-face communication: birth to 3 months. *Developmental psychology*, 38(2), 288. https://psycnet.apa.org/doi/10.1037/0012-1649.38.2.288

Lavelli, M., & Fogel, A. (2005). Developmental changes in the relationship between the infant's attention and emotion during early face-to-face communication: the 2-month transition. *Developmental psychology*, 41(1), 265. https://psycnet.apa.org/doi/10.1037/0012-1649.41.1.265

Lovejoy, M., Graczyk, P., O'Hare, E., & Neuman, G. (2000). Maternal depression and parenting behavior: A meta-analytic review. *Clinical psychology review*, 20(5), 561-592.

https://doi.org/10.1016/S0272-7358(98)00100-7

Malatesta, C., & Haviland, J. (1982). Learning Display Rules: The Socialization of Emotion Expression in Infancy. *Child Development, 53(4), 991–.* https://doi:10.2307/1129139

Mäntymaa, M. (2006). Early Mother-Infant Interaction: Determinants and predictivity. *Tampere University Press*. https://urn.fi/urn:isbn:951-44-6604-7

Milgrom, J., Westley, D., & Gemmill, A. (2004). The mediating role of maternal responsiveness in some longer-term effects of postnatal depression on infant development. *Infant Behavior and Development*, *27*(4), 443-454. https://doi.org/10.1016/j.infbeh.2004.03.003

Moszkowski, R. (2004). Infant touching behaviour during mother-infant face-to-face interactions *(Doctoral dissertation, Concordia University).*

Murray, L., Halligan, S., & Cooper, P. (2018). Postnatal depression and young children’s development. *Handbook of infant mental health*, 4, 172-186.

Nishioka, E., Haruna, M., Ota, E., Matsuzaki, M., Murayama, R., Yoshimura, K., & Murashima, S. (2011). A prospective study of the relationship between breastfeeding and postpartum depressive symptoms appearing at 1–5 months after delivery. *Journal of affective disorders*, 133(3), 553-559. https://doi.org/10.1016/j.jad.2011.04.027

Reck, C., Hunt, A., Fuchs, T., Weiss, R., Noon, A., Moehler, E., Downing, G., Tronick, E. & Mundt, C. (2004). Interactive regulation of affect in postpartum depressed mothers and their infants: an overview. *Psychopathology*, 37(6), 272-280. https://doi.org/10.1159/000081983

Rocha, N., Dos Santos Silva, F., Dos Santos, M. & Dusing, S. (2020). Impact of mother–infant interaction on development during the first year of life: A systematic review. *Journal of Child Health Care*, 24(3), 365-385. https://doi.org/10.1177/1367493519864742

Stanley, C., Murray, L., Stein, A. (2004). The effect of postnatal depression on mother–infant interaction, infant response to the Still-face perturbation, and performance on an Instrumental Learning task. *Development and Psychopathology, 16(1).* https://doi:10.1017/s0954579404044384

Stern, D. (1974). Mother and infant at play: The dyadic interaction involving facial, vocal, and gaze behaviors. In M. Lewis & L. A. Rosenblum, *The effect of the infant on its caregiver.* Wiley-Interscience.

Tendais, I., Costa, R., Conde, A., & Figueiredo, B. (2014). Screening for depression and anxiety disorders from pregnancy to postpartum with the EPDS and STAI. *The Spanish journal of psychology*, 17. https://doi.org/10.1017/sjp.2014.7

Tronick, E. & Cohn, J. (1989). Infant-mother face-to-face interaction: age and sex differences in coordination and the occurrence of miscoordination. *Child Development, 60(1), 85–92.* https://doi:10.2307/1131074

Weinberg, M., Tronick, E., Cohn, J. & Olson, K. (1999). Sex differences in emotional expressivity and self-regulation during early infancy. *Developmental psychology*, 35(1), 175. https://psycnet.apa.org/doi/10.1037/0012-1649.35.1.175

Appendix

Approval of the Ethics Committee of The University of Minho

Universidade do Minho

SECVS

Subcomissão de Ética para as Ciências da Vida e da Saúde

Identificação do documento: SECVS – 022/2014
Titulo do projeto: *Breastfeeding and postpartum depression*
Investigador(a) responsável: Dra. Bárbara Fernandes de Carvalho Figueiredo, da Escola de Psicologia, Universidade do Minho
Outros investigadores: Cláudia Alexandra Castro Dias, Escola de Psicologia, Universidade do Minho; Sónia Maria Pereira de Azevedo Brandão, Instituto de Ciências Biomédicas Abel Salazar, Universidade do Porto; Ana Catarina Miranda Canário, Escola de Psicologia, Universidade do Minho; Rui Alexandre Nunes da Costa, Escola de Psicologia, Universidade do Minho; Cristina Isabel Nogueira Silva, Escola de Ciências da Saúde, Universidade do Minho; Diogo Jorge Pereira Vale Lamela da Silva, Escola de Educação, Instituto Politécnico de Viana do Castelo; Nadine Correia Santos, Escola de Ciências da Saúde, Universidade do Minho
Subunidade orgânica: Escola de Psicologia, Universidade do Minho
Outras Unidades: Serviço de Ginecologia e Obstetrícia, Hospital de Braga; Maternidade Júlio Dinis, Centro Hospitalar do Porto

PARECER

A Subcomissão de Ética para as Ciências da Vida e da Saúde (SECVS) analisou o processo relativo ao projeto intitulado *"Breastfeeding and postpartum depression"*.

Os documentos apresentados revelam que o projeto obedece aos requisitos exigidos para as boas práticas na experimentação com humanos, em conformidade com o Guião para submissão de processos a apreciar pela Subcomissão de Ética para as Ciências da Vida e da Saúde.

Face ao exposto, a SECVS nada tem a opor à realização do projeto.

Braga, 06 de maio de 2014.

A Presidente

(Maria Cecília de Lemos Pinto Estrela Leão)