



Original Article

Examining exclusive breastfeeding in Iranian mothers using the five-factor model of personality traits



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المخلص

أهداف البحث: إن بدء الرضاعة الطبيعية الحصرية واستمرارها يلعب دوراً حيوياً في صحة الأم والطفل. تبحث هذه الدراسة في التنبؤ بالرضاعة الطبيعية الحصرية للأمهات الإيرانيات باستخدام نموذج العوامل الخمسة للسمات الشخصية.

طرق البحث: شارك في هذه الدراسة المقطعية ما مجموعه 120 أمًا، لديهن أطفال تتراوح أعمارهم بين 6 إلى 12 شهراً، تمت إجلاتهم إلى مراكز الصحة في Shiraz في إيران. طُلب من المشاركات ملء استبانة ديموغرافية، ومقياس الرضاعة الطبيعية الحصري، ومقياس العوامل الخمسة الكبرى للسمات الشخصية. كما تم تحليل البيانات باستخدام معامل ارتباط بيرسون والانحدار المتعدد.

النتائج: أظهرت النتائج أن صفة التوافق حصلت على أعلى درجة (متوسط الدرجات = 16.13، والانحراف المعياري = 2.10) وسجلت صفة العصبيّة أقل درجة (متوسط الدرجة = 12.13، والانحراف المعياري = 2.68). أشارت النتائج الرئيسية إلى وجود علاقة معنوية بين سمة الانبساط والرضاعة الطبيعية الحصرية (معامل الارتباط = 0.36) في تحليل الانحدار، وكانت النتائج تدل على التنبؤ الإيجابي بالرضاعة الطبيعية الحصرية لكل من سمة الانبساط (بيتا = 0.43) وسمة الضمير (بيتا = 0.18).

الاستنتاجات: قد تؤثر سمات الشخصية على الرضاعة الطبيعية الحصرية، ويمكن أن تكون أداة مفيدة في تقليل العوائق التي تحول دون الرضاعة الطبيعية الحصرية، وفي تحديد الأمهات اللاتي يحتجن إلى مزيد من الدعم النفسي.

الكلمات المفتاحية: الرضاعة الطبيعية؛ سمات الشخصية؛ سمة الانبساط، سمة الضمير

Abstract

Objectives: The initiation of exclusive breastfeeding and its continuation plays a vital role in maternal and child health. This study investigates the prediction of exclusive breastfeeding in Iranian mothers using the five-factor model.

Methods: A descriptive correlational study was conducted using cluster random sampling. and 120 mothers with children aged 6 to 12 months, referred to health centres of Shiraz University of Medical Sciences in Val-fagr and Enghelab in Iran, participated in this cross-sectional study. The participants were requested to fill 3 questionnaire containing demographic questionnaire, the exclusive breastfeeding scale, and the Big Five factors (BFF) questionnaire of personality traits. The data were collected between May and December 2019 and analysed using Pearson's correlation coefficient and multiple regression.

Results: The results showed that the agreeableness trait had the highest score (mean score = 16.13, SD = 2.10) and the neuroticism trait had the lowest score (mean score = 12.13, SD = 2.68). The main results indicated a significant relationship between the extraversion trait and

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exclusive breastfeeding ($r = 0.36$, $p < 0.01$). In the regression analysis, the results were indicative of the positive prediction of exclusive breastfeeding for the extraversion ($p < 0.01$, $\beta = 0.43$) and the conscientiousness traits ($p < 0.05$, $\beta = 0.18$).

Conclusions: Personality traits may potentially affect exclusive breastfeeding and could be a useful tool in reducing impediments to exclusive breastfeeding and in identifying mothers who need more mental support.

Keywords: Breastfeeding; Conscientiousness trait; Extraversion trait; Personality traits

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Introduction

In addition to the World Health Organisation's (WHO) emphasis on the importance of exclusive breastfeeding,¹ reports of the WHO and the United Nations International Children's Emergency Fund (UNICEF) have indicated the prevalence of low rates of breastfeeding and insufficient complementary nutrition worldwide. According to the report, only 43% of infants under 6 months of age are exclusively breastfed.² The rate has been reported to be 37% in low-income and middle-income countries and as low as 20% in high-income ones.³ Although in the UK 81% of mothers begin breastfeeding at birth, after 6 weeks this rate is reduced to 48% and only 25% observe exclusive breastfeeding.⁴ A national study reported the rate of exclusive breastfeeding to be 53.1% in Iran.⁵ Because breast milk is closely related to maternal and child health, many studies have emphasised breast milk, especially exclusive breastfeeding, as the ideal source nutrition for infants.^{6,7}

Benefits of exclusive breastfeeding for infants include reduced diarrhoea and pneumonia, and as a result, it reduces the mortality rate among children. Additionally, exclusive breastfeeding reduces the risk of obesity and chronic diseases, such as diabetes (type I & II), hypertension, heart diseases, and hyperlipidaemia, in adulthood and improves cognitive development.^{8–10} Advantages of exclusive breastfeeding for the mother include better mother–infant bonding and secure attachment, quicker uterine tonicity and involution, post-delivery weight loss, reduced postpartum amenorrhoea, and reduced risk of breast cancer, ovarian cancer, and type II diabetes.^{3,11}

Basically, breastfeeding is a complex phenomenon. The beginning and continuation of this phenomenon are affected by physical, mental, cultural, and social factors.¹² Other factors that affect breastfeeding include the mother's personality traits especially self-esteem, self-efficacy, and emotional stability.¹³ McCrae and Costa documented the relationship between a healthy life style and personality traits.¹⁴ It has been found that breastfeeding, especially exclusive breastfeeding, is an individual skill that is related

to some of the mother's personality traits.¹⁵ According to the Big Five factors (BFF) theory by McCrae and Costa, personality traits consists of five factors, which include neuroticism (people who are emotionally vulnerable, temperamental, and inclined to be anxious and depressed), extraversion (people who are joiner, sociable, passionate, with positive inclinations), openness to experience (people who are imaginative, curious, and prefer new experiences), agreeableness (people who are affectionate, sympathetic, humble, and good-natured), and conscientiousness (people who are conscientious, trustworthy, and well-organised).¹⁴ In this regard, several studies have demonstrated that all the dimensions of personality traits remain stable and people's personality profiles do not considerably change, even in the case of mothers who experience the pain of delivery and breastfeeding.^{16–18} In connection with this study, a few studies have been carried out with a focus on the mother's personality traits and how they impact breastfeeding. For instance, Brown (2014) indicated that highly extroverted mothers who were emotionally stable and conscientious were more inclined to initiate and continue breastfeeding.⁴ Several studies have demonstrated that extraversion, agreeableness, and openness to experience are likely to encourage the initiation and continuance of breastfeeding.^{19,20} However, neuroticism conversely affects the decision to initiate and continue breastfeeding.^{21,22} Anxiety and depression that are components of neuroticism also result in reduced breastfeeding. This has also been reported by investigators in Iran.²³

In meeting the global breastfeeding targets for 2025, an international exclusive breastfeeding rate of 50% has been set.⁵ This study is original in that it examines the factors that affect exclusive breastfeeding, especially maternal personality traits. Considering the scarcity of studies carried out in this field, the objective of the present study was to investigate the impact of personality traits on exclusive breastfeeding among Iranian women.

Materials and Methods

Study design

A descriptive correlational study was conducted using cluster random sampling. The health centres of Shiraz University of Medical Sciences in Valfagr and Enghelab county were selected as the main clusters, out of which six health centres were chosen randomly. The data were collected between May and December 2019.

Questionnaire development and structure

The data were collected using by 3 questionnaire including demographic questionnaire, an exclusive breastfeeding scale, and the shortened scale of BFF personality traits. The exclusive breastfeeding scale included 23 items pertaining to attitude, abstract norms, perceived behaviour control, and behavioural intention.²⁵ The shortened scale of BFF personality traits included 5 domains with 21 items. These domains were extraversion (5 items),

neuroticism (4 items), openness to experience (4 items), conscientiousness (4 items), and agreeableness (4 items). Exploratory factor analysis through principal component analysis with varimax rotation was employed to determine the validity of this 21-item BFF questionnaire'. The results of factor analysis confirmed the presence of the five factors. The validity of the questionnaire was determined by measuring the correlation coefficient of the items of each factor with the total score. All coefficients were reported to be significant, and each item showed the highest correlation with its factor. In this respect, the correlation of the items with the total score was estimated to be 0.48–0.64, 0.61–0.77, 0.50–0.71, 0.54–0.72, and 0.66–0.70 for the dimensions of extraversion, agreeableness, conscientiousness, openness to experience, and neuroticism, respectively. Further more, Cronbach's alpha reliability estimate was 0.70, 0.68, 0.55, 0.74, and 0.53 for the dimensions of extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience, respectively.²⁶

The rule of thumb in the regression prediction model was used for estimating the sample size. According to Hair et al. the general rule is to have a minimum of 5 observations per variable, and the acceptable sample size should have 10 observations per variable (10:1).²⁴ Therefore, 120 eligible mothers were considered for this study. The inclusion criteria were the following: willingness to participate in the study, Iranian mother with an infant aged 6–12 month practising exclusive breastfeeding, singleton pregnancy, lack of any breast-related disorders, normal vaginal delivery, not using any lactation-inducing medications, not having any medical complications, not been hospitalised for any reason (neither the infant nor the mother), not using any psychiatric medications during the breastfeeding period, and term pregnancy. Those who did not complete all 21 items on the questionnaire were excluded from the study. Written informed consent was obtained from all subjects prior to the research, and all of 120 participants were assured that their personal information would remain confidential.

Data analysis

Descriptive data analysis was performed using SPSS (version 22) through mean and standard deviation and Pearson correlation coefficient. In order to predict exclusive breastfeeding based on personality traits, multiple linear regressions was performed using the enter method. Prior to the analysis, the assumptions of multiple regression analysis, including the multicollinearity and normality effects of the data, were evaluated. The variance inflation factor (VIF) index was found to be less than 1.5. The P value was set at 0.5 for all tests.

Results

Participants' socio-demographic data

A total of 120 participants were included in the study. Table 1 presents the characteristics of the participants.

Relation between personality traits and exclusive breastfeeding

Based on the results of the mean scores of personality traits, individuals with agreeableness showed the highest score among personality traits scores (mean score = 16.13, SD = 2.1) and individuals with neuroticism characteristics showed the lowest score among personality traits scores (mean score = 12.13, SD = 2.68) tendency for exclusive breastfeeding. Table 2 presents the details of the relationship between the personality traits of the mother and exclusive breastfeeding. The results of the Pearson correlation coefficient in Table 3 show that among the personality

Table 1: Frequency and average of the demographic variables of mothers who breastfed exclusively.

Variables	Classification	Means	SD
Descriptive Variables			
Mother's age	17–45 years	31.04	5.1
Infant's age	6–12 months	9.5	2.41
Demographic Variables			
monthly income			
	Less than a million	15 (12.5%)	
	1-3 million	53 (44.2%)	
	3-6 million	38 (31.7%)	
	Above 6 million	14 (11.7%)	
Mother's education			
	Elementary	3 (2.5%)	
	Middle level	14 (11.7%)	
	Diploma & associate's degree	45 (37.5%)	
	Bachelor's degree & above	58 (48.3%)	
Husband's education			
	Elementary	5 (4.2%)	
	Middle level	13 (10.8%)	
	Diploma & associate's degree	55 (45.8%)	
	Bachelor's degree & above	47 (39.2%)	
Wanted to get pregnant			
	Yes	98 (81.7%)	
	No	22 (18.3%)	
Gravid			
	Once	43 (35.8%)	
	Twice	44 (36.7%)	
	Thrice	22 (18.3%)	
	Four times	7 (5.8%)	
	Five times	3 (2.5%)	
	Seven times	1 (0.8%)	
BF training in pregnancy			
	Yes	107 (89.2%)	
	No	13 (10.8%)	
Father support in BF			
	Yes	110 (91.7%)	
	No	10 (8.3%)	
Family support in BF			
	Yes	114 (95%)	
	No	6 (5%)	
Mother's job			
	Housewife	106 (88.3%)	
	Employee	14 (11.7%)	

Table 2: Descriptive statistics of maternal personality traits and exclusive breastfeeding.

Variable	Number	minimum	maximum	Mean \pm SD
Neuroticism	120	7	20	12.13 \pm 2.68
Agreeableness	120	10	20	16.13 \pm 2.10
Conscientiousness	120	10	20	15.13 \pm 1.96
Extraversion	120	8	17	13.66 \pm 2.14
Openness to experience	120	9	20	13.97 \pm 2.27
Exclusive breastfeeding	120	67	109	91.13 \pm 11.92

Table 3: Correlation coefficients for maternal personality traits and exclusive breastfeeding.

Variable	1	2	3	4	5	6
Neuroticism	–					
Extraversion	–0.03	–				
Conscientiousness	–0.22*	–0.01	–			
Agreeableness	–0.07	0.07	0.18*	–		
Openness to experience	–0.03	0.34**	0.17	0.23**	–	
Self-efficacy	–0.10	0.20*	0.02	–0.08	–0.03	–
Exclusive breastfeeding	–0.11	0.36**	0.13	–0.12	0.008	0.33**

* $p \leq 0.05$ ** $p \leq 0.01$.

Table 4: Linear multiple regression analysis of the impact of maternal personality traits on exclusive breastfeeding.

Traits	Standard coefficients	t	P	CI		VIF	R	R ²
				High threshold	Low threshold			
Extraversion	0.43	4.78	0.001	2.57	1.06	1.14	0.46	0.21
Conscientiousness	0.18	2	0.04	2.13	0.01	1.12		
Neuroticism	–0.07	–0.87	0.38	0.43	–1.08	1.05		
Agreeableness	–0.16	–1.85	0.06	0.065	–1.88	1.08		
Openness to experience	–0.13	–1.44	0.15	0.26	–1.66	1.22		

traits, the extraversion component had a significantly more positive relationship with exclusive breastfeeding ($r = 0.36$, $p < 0.01$). Next, we conducted a linear multiple regression analysis.

Prediction of exclusive breast feeding by personality traits

The predictor variables were extraversion ($P < 0.01$, $\beta = 0.43$) and conscientiousness ($P < 0.05$, $\beta = 0.18$). The R^2 for this model was 0.21 (Table 4). All other variables were not significant. These results indicate that mothers who are extroverts joiner, sociable, passionate, with positive inclinations and those who are conscientious, trustworthy, and well-organised were positively associated with exclusive breastfeeding.

Discussion

This study investigated exclusive breastfeeding among Iranian women based on their personality traits. The results of the present study showed that the extraversion component had a positive relationship with exclusive breastfeeding. Additionally, the regression analysis of this component yielded a positive exclusive breastfeeding prediction. This means that the more extroverted a person, the more likely they are to exclusively breastfeed. In line with the results of the present study,

the results of the studies by Brown et al. and Wagner et al. showed that people with an extroverted nature start early and continue breastfeeding for a longer period of time.^{4,19} Furthermore, some studies that investigated the association of personality traits with breastfeeding initiation in the United States and with breastfeeding duration in the United Kingdom found positive associations between breastfeeding and high conscientiousness, high extraversion, low neuroticism, and high openness.²⁷ However, in contrast to the present study, Imširagić et al. did not find a positive significant relationship between exclusive breastfeeding and extroverted personality traits, conscientiousness, and openness to experience.²⁸ Costa & McCrae believe extraversion is associated with interpersonal behaviours and social development, and regard it as having six facets.¹⁶ The first is intimacy. People who have this trait are warm and affectionate and are able to form close attachments with others easily. Therefore, it is expected that this personality trait is positively related to exclusive breastfeeding, which requires attachment and building the mother-child bond. The second facet of extraversion is collectivism. The mother-child relationship is a collective bond that leads to mutual interest and satisfaction.^{16,29,30} The third and fourth facets are decisiveness and activity, which are also among the characteristics that Costa & McCrae discuss in terms of extraversion. Decisiveness shows courage and boldness, and activity implies that these people spend more power and

energy in their efforts and show more potential in continuing a task. They also have a more active life; Hence, mothers with these characteristics spend more energy and time in breastfeeding and actively take action towards feeding the baby. The fifth and sixth facets of extraversion are excitement and positive emotions. People with these characteristics are excited and motivated. These people like to experience positive emotions, such as joy, happiness, and love,¹⁶ and as a result, show excitement towards breastfeeding.

Our findings showed that the personality trait of conscientiousness is also a positive predictor of exclusive breastfeeding. In line with our results, the results of the study by Brown et al. showed that conscientious mothers started breastfeeding immediately after delivery, but did not continue it for long. However, in the present study, conscientious mothers started breastfeeding after delivery and continued until the baby reached 6 months of age.⁴ In contrast to the present study, Maliszewska et al. did not find a positive and significant relationship between any of the five personality traits and exclusive breastfeeding.³¹ Also, Sutin et al. found no association between breastfeeding and adult conscientiousness. Conscientiousness tends to be associated with positive healthy behaviors such as breast feeding.³² Costa & McCrae put orderliness, industriousness, impulse control, and caution in decision making at the heart of conscientiousness.¹⁶ Mothers with a high score on this factor have a sense of adequacy, capability, and effectiveness.¹⁶ Jager et al. also stated that exclusive breastfeeding requires a sense of adequacy, competency, and discipline.¹² That is, it must be done at a certain time, and the mother must feel the moral obligation to do so. Therefore, discipline and conscientiousness are the guarantors of exclusive breastfeeding. Other conscientious characteristics, such as industriousness and impulse control, provide the desire and inclination to successfully perform exclusive breastfeeding. Taking the necessary precautions, such as personal hygiene to prevent the mother and child from contracting certain diseases, requires caution while breastfeeding, and caution in decision making provides the necessary motivation to do so. These associations explain the relationship between conscientiousness and exclusive breastfeeding.

Limitation and Strengths of the study

Due to the limited time available for collecting the data, one of the limitations of the present study was inadequate access to eligible mothers who could participate in this study. The impact of reducing desire on exclusive breastfeeding is important that could be related with personality traits. The second limitation was that other factors affecting exclusive breastfeeding were not examined. This study is significant as it is one of the few studies in Iran that investigates the relationship between maternal personality traits and the initiation and continuation of exclusive breastfeeding. By making these findings available to policymakers and health professionals, the study emphasises appropriate education and

counselling to breastfeeding mothers according to their personality traits. Emphasising on exclusive breast feeding with considering maternal personality could be useful in improvement maternal and child health.

Conclusion

The positive prediction of exclusive breastfeeding using the characteristics of extraversion and conscientiousness can help us draw several conclusions. Given that personality traits are relatively stable, the relationship between extraversion and conscientiousness and exclusive breastfeeding has beneficial outcomes for maternal and child health. The existence of positive emotions in extrovert people and competency in conscientious people are important factors influencing exclusive breastfeeding. Breastfeeding quality can be improved by creating situations for mothers to experience positive excitement or feel more adequate and competent. The positive association has also been confirmed by positive psychology. It is hoped that the results of this study will be useful to health care providers and lead to more encouragement and support for women practising exclusive breastfeeding and provisions for breastfeeding counselling in health centres

Recommendations

Future research should include the structural equation model to estimate the role of mediator variables in the relationship between maternal personality traits and exclusive breastfeeding and the effect of socio-cultural and economic factors on exclusive breastfeeding.

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Conflict of interest

The authors have no conflict of interest to declare.

Ethical approval

The protocol of the current study was approved by the ethics committee of Shiraz University of Medical Sciences (No: IR.SUMS. REC. 21-10-09-18639) and informed consent was obtained from each participant.

Authors' contributions

FP conceived and designed the study, conducted research, provided research materials, and collected and organised data. MD analysed and interpreted data. PY and ZM wrote initial and final drafts of the article, and provided logistical support. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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