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#46 PAPER 66 - THE STRUCTURE OF MATERNAL-FETAL ATTACHMENT SCALE IN ROMANIA

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Abstract
Despite the importance of prenatal attachment for adopting healthy practices throughout the pregnancy, for the intrauterine development of the foetus, and for the postnatal attachment between mother and new-born, there are no instruments in Romania to measure prenatal attachment. The purpose of this article is to present information regarding the structure of the Romanian version of MFAS (Cranley 1981) and its psychometric features as a result of it being adapted and validated. Based on investigation of behavioural responses of our participants (N = 190) , items 10 and 13 have been merged into one, and the item 24 excluded from the Romanian MFAS version. Therefore, Romanian MFAS version has 22 items. Our results support the fidelity of MFAS, given a Cronbach alpha of 0.73, as compared to that of the original instrument (α = 0.85). As far as the validity of construction is concerned, the values of the correlations for the Kendall correlation matrix for the Romanian version with 22 items are smaller as compared to those recorded by M. Cranley (1981).This study has the merit of opening, supporting, and stimulating the interest of the specialists in the field to explore and evaluate maternal-foetal attachment, for the purpose of research, but also, crucially, for clinical intervention.
Cuvinte cheie: *prenatal, atașament, sarcină, matern, fetus, relație.*

Keywords: *prenatal, attachment, pregnancy, maternal, foetus, relationship*

1.INTRODUCTION

BRIEF DESCRIPTION OF MATERNAL PRENATAL ATTACHMENT

The frame of reference for conceptualizing prenatal attachment is attachment theory and attachment research, which for a long time took into consideration only the mother-infant attachment.

Conceptualizing prenatal attachment means taking into account its multiple dimensions – cognition, affection, and behavior. Thus, prenatal attachment was initially defined through the lens of the ability to fulfil four responsibilities: securing a safe place for the pregnant woman and her child, ensuring the baby will be accepted by the significant members of the family, the attachment of the mother to the child, and her learning to give herself to the child (Rubin 1967a). For Lumeley (1972, 1980, 1982), prenatal attachment is based on the ability of the pregnant women to imagine their foetuses more and more as human as the pregnancy advances, and to differentiate themselves from them. From her perspective, M. Cranley (1981) focuses the prenatal maternal attachment on the behaviours that indicate affiliation and interaction of pregnant women with their foetus.

The most recent approaches of prenatal attachment take into consideration the uniqueness of and the affection of the maternal-foetal relationship (Muller 1993), as well as the love for the foetus that materializes in various dispositions, such as the disposition to get acquainted with, the disposition

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to be with and to interact with, the disposition to avoid separation or loss, the disposition to protect, and the disposition to respond to the needs of the baby (Condon J.T. 1993).

In our opinion, all these different approaches highlight that the prenatal attachment is a very complex concept that requires a lot of attention in its assessment and psychological intervention

BRIEF PRESENTATION OF ASSESSMENT TOOLS OF PRENATAL ATTACHMENT

At the same time with the preoccupation of the researchers to define prenatal attachment, their attention has focused on developing psychological instruments meant to concretely measure it. Starting from the specific manner in which they had defined the concept, Cranley M. (1981), Muller M. (1993), Condon J.T (1993), etc. have developed scales, inventories, and questionnaires for evaluating maternal attachment to the foetus as manifested throughout the pregnancy.

Cranley's Maternal-Foetal Attachment Scale (MFAS) elaborated in 1981 is not just the first, but also one of the most widely used instruments in measuring prenatal attachment in the world. Even if MFAS has been criticized because it focuses exclusively on the evaluation of behaviour, while ignoring the thoughts and the fantasies of the pregnant women (Muller M. 1993), on the evaluation of the pregnant women's attitudes towards pregnancy and maternal roles, rather than on the maternal-foetal attachment (Condon J.T. 1993), or because of the lack of normative data that would allow cross-study comparisons, it remains a reference tool in assessing prenatal attachment/

It has been adapted by many researchers to the cultural traits of the various populations, like the MFAS's version for the Tamil population (Lingeswaran Anand and Bindu Hima, 2012) or the one for Italians (Bursonera, Cataudella, Lampsis, Tommasi and Zavattini, 2016). In each of these methodological processes of adaptation and validation, the researchers have ended up suggesting a different version of MFAS as compared to the original.

2.OBJECTIVE AND HYPOTHESES

2.1.OBJECTIVE

Despite the importance of prenatal attachment for adopting healthy practices throughout the pregnancy, for the intrauterine development of the foetus, and for the postnatal attachment between mother and newborn, there are no instruments in Romania to measure prenatal attachment. So, the lack of research on MFA in Romania prompted us to adapt and validate Cranley's instrument among Romanian pregnant women.

The purpose of this paper is to present information regarding the structure of the Romanian version of MFAS (Cranley 1981) and its psychometric features as a result of it being adapted and validated for Romanian population.

3.METHOD

3.1.PARTICIPANTS

190 women have participated in the process of adapting MFAS for the population of pregnant women in Romania. The pregnant women were recruited from a private obstetric clinic, when they came in for one of the routine medical check-ups throughout the pregnancy, and also from a private prenatal services centre in Bucharest, when they were participating in infant care courses for expectant parents or prenatal gym classes. In this context, the participants were informed about the purpose of adapting the instrument, about the various stages of this process, and also about the confidentiality of their data throughout the process. Once they received this information, the pregnant women signed agreements to participate voluntarily and without financial compensation in this process.

Out of the 190 participants, 49 of the pregnant women were in the second trimester of the pregnancy and 141 in the third trimester. Given the fact that some of the items of the MFAS measure aspects of maternal-foetal attachment based on the intrauterine movement of the foetus, the pregnancy trimester was one of the criteria for the selection of the participants. The overall mean age in years was

31.63 *(SD* = 3.69) and ranged from 21 to 45 years. The age groups and the number of pregnant women corresponding to each group are presented in detail in Table no. 1.

Age	Number of participants	Minimum	Maximum	Mean	Std. Deviation
21-28	27	21	28	26,04	1,76
29-26	147	29	36	31,86	2,19
37-45	16	37	45	38,94	2,35
Valid N	190	21	45	31,63	3,69

Other demographic aspects of the sample of pregnant women taken into account were: marital status, parity, single or multiple pregnancy, any conditions associated with the pregnancy, and religion. These features have been taken from their case histories and are presented in Table 2.

. **Table 2.** Demographic features of the sample

	Total (n = 190)
Marital status	
Married	178
Unmarried	12
Parity	
Primiparous	163
Multiparous	27
Single or multiple character	
Single pregnancy	187
Multiple pregnancy	3
Religion	
Orthodox	187
Muslim	1
Baptist	1
Atheist	1

3.2. INSTRUMENTS

The Maternal-Fetal Attachment Scale is based on the concept of prenatal attachment defined by Cranley (1981) as "the extent to which women engage in behaviours that represent affiliation and interaction with their unborn child" (p.282). MFAS is composed of 24 items conceived as sets of affirmations. In order to have a relevant content and an adequate, non-intrusive form, they have been elaborated by a group of clinical experts in the field of maternal-fetal health, by Lamaze prenatal educators, and by pregnant women. Each item measures a dimension of the prenatal attachment identified by Cranley, that is Differentiation of Self from Foetus, Interaction with the Foetus, Attributing Characteristics and Intentions to the Foetus, Giving of the Self, and Role Taking. In the structure of MFAS, each of these dimensions corresponds to a separate subscale. The items are measured on a five level Likert scale, with positions ordered from "Absolutely no" to "Absolutely

yes" and scored from 1 to 5 as follows: 1 – "Absolutely no", 2 – "No", 3 – "Neither yes nor no", 4 – "Yes", 5 – "Absolutely yes". As far as the scores are concerned, MFAS operates with a global score at the level of the scale, as well as with scores at the level of each subscale. The global score can have values of between 24 and 120, where small scores indicate weak prenatal attachment, and high scores indicate strong prenatal attachment. The procedures specific to building MFAS by Cranley have been undertaken on a sample of 71 pregnant women in the third trimester of pregnancy, more specifically between weeks 35 and 40 in their pregnancy.

As far as the psychometric features are concerned, Cranley (1981) mentions an alpha Cronbach coefficient of 0.85 at a global level and between 0.52 and 0.73 at the level of the subscales. The values are within the interval considered statistically acceptable to support the fidelity of the instrument, used mainly with the purpose of research. Also, the correlation coefficients between each of the five subscales and the global scores are between r=0.61 and r=0.81 and support the fact that these evaluate different dimensions of the maternal-fetal attachment. On the other hand, positive values that are also small enough between subscales (r=0.29 and r=0.60) also confirm that subscales do not measure the same aspects.

In spite of the fact that Cranley's Maternal-Fetal Attachment Scale was constructed exclusively based on a sample of pregnant women with gestation ages between 35 and 40 weeks, the data obtained through relating the scores to variables such as age, socio-economic status, parity, self-confidence, perceived stress support the idea of hierarchically ordering behaviours specific to the maternal-fetal attachment and the fact that some dominate over others throughout the various stages of pregnancy. Also, the administration of MFAS in the first and second trimesters of pregnancy allows for the measurement of the development stage of each behaviour, which in turn allows for the evaluation of their evolution and for highlighting any risky situations as far as the maternal-fetal relationship is concerned.

3.3.PROCEDURE

In the process of adapting MFAS for Romania we have used a procedure based on the independent translation of the instrument by five English-speaking individuals with different backgrounds: two translators, a linguist, a psychologist, and a physician. The five versions of the translation have been subsequently merged in an accurate, unitary form, without changing the items. Each participant received a folder presenting the objectives of the research and the conditions of participation, the informed consent form, the case study form, and MFAS translated into Romanian. Administrating these privately allowed for the observation of the behaviour during administration and for writing down our observations and the questions of the participants about the items of the instrument.

The most frequent difficulties and questions referred to items 10, 11, 13, and 24 of MFAS.

Item 10 (*I have decided on a girl's name*) and 13 (*I have decided on a boy's name*) have produced the largest number of non-answers. Considering the fact that most had already learned about the sex of the foetus starting the second from the second trimester of pregnancy, most women only answered one of the two items. Thus, the two items have been merged into one, which is *I have decided on a name for the baby*. The answers of our participants on item 11, *I do various things to maintain my health that I wouldn't do had I not been pregnant*, have revealed two important aspects: the need to specify those various things necessary to maintain one's health, such as: nutrition, exercise, rest and relaxation, but also the need to take into account social desirability. However, given the fact that just a small number of respondents (4, that is 2.11%) have asked for more details, and also considering specialists' opinions regarding accepting a certain amount of ambiguity as an essential component of item stability (Lewis Goldberg 1963) we decided that these were important counterarguments for modifying or eliminating this item.

There were also questions about item 24, *I grab the baby's foot through the tummy to reposition it*. Respondents have selected just two of the five answer options, *No* and *Absolutely no*, avoiding

others three options. Investigating the arguments of their answers, we have identified three categories of it: the item is ambiguously formulated, women have difficulty in localizing and identifying the foots of the foetus, and this act of repositioning is perceived as risky and potentially dangerous for the foetus. These aspects have led to item 24 being excluded from the Romanian MFAS version.

Based on the above, the Romanian version of MFAS therefore comprises 22 items.

4.RESULTS

In order to investigate the impact of the third trimester of pregnancy on the maternal-fetal prenatal attachment, we have used unifactorial ANOVA, so as to test the significance of the differences between the total average scores of pregnant women in the second as opposed to the third trimester of pregnancy. The result of the unifactorial variance analysis (F (1.188) = 2.45, p= 0.11) indicates that the maternal-fetal attachment of women in the third trimester of pregnancy (*M* = 94.60, *SD* = 8.89) is greater to a statistically significant level as compared to that of women in the second trimester of pregnancy (*M* = 92.29, *SD* = 8.87).Our results support the fidelity of Cranley's scale (1981), given a Cronbach alpha index of 0.73 (Table 5), as compared to that of the original instrument, that is $\alpha = 0.85$.

Table 5 – Cronbach alpha for subscales and global scale

Subscales	Cronbach alpha	No items
Giving of Self	,272	5
Attributing characteristics to the fetus	,436	6
Differentiation of Self from fetus	,438	3
Interaction with fetus	,552	4
Roletaking	,666	4
Global Scale	,73	22

Regarding the validity of construction is concerned, the values of the correlations for the Kendall correlation matrix for the Romanian version with 22 items are smaller as compared to those recorded by M. Cranley (1981).

Table 6 – Kendall correlation matrix (Romanian version

Variables	**1**	**2**	**3**	**4**	**5**	**6**
(1) Roletaking	1.00					
(2) Differentiation of Self from fetus	.23	1.00				
(3) Interaction with fetus	.30	.16	1.00			
(4) Attributing characteristics to the fetus	.31	.16	.38	1.00		
(5) Giving of Self	.29	.16	.50	.22	1.00	
(6) Global	.54	.39	.53	.64	.45	1.00

Our reducing the number of items is in agreement with the option of Busonera, Cataudella, Lampsis, Tommasi and Zavattini (2016), who obtained a MFAS format made up of 20 items by excluding from the original list items 3, 22, and 24 and merging items 10 and 13.

The limits of our study concern first and foremost the homogeneity of the sample used for adapting MFAS to the Romanian population, since the sample consisted exclusively of pregnant

women educated (university level), with a high socio-professional status, from the urban areas. Using a more diverse sample would facilitate a more nuanced analysis of correlations and would allow for formulating more specific conclusions.

5.CONCLUSIONS

We believe that our study is a valuable contribution, since it allows for research focusing on the analysis of prenatal attachment in an objective and standardized manner. Given the fact that this scale is so far the first and only instrument for measuring prenatal attachment in Romania, it has the merit of opening, supporting, and stimulating the interest of the specialists in the field to explore and evaluate maternal-fetal attachment, for the purpose of research, but also, crucially, for clinical intervention. Further research should involve a more heterogeneous sample of participants that will include also pregnant women with low education, from lower social classes, multiparous, and with high-risk pregnancy (multiple pregnancies, congenital malformations of foetus, repeated previous prenatal loss). In this way, the process of MFAS validation on Romanian population will gain more scientific and practical consistency.

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REZUMAT

În ciuda importanței atașamentului prenatal pentru adoptarea practicilor sănătoase pe timpul sarcinii, pentru dezvoltarea intrauterine a fetusului și pentru atașamentul postnatal dintre mama și noul născut, nu există instrumente în România care să măsoare atașamentul prenatal. Scopul acestui studiu este de a preenta informații cu privire la structura versiunii românești a MFAS Cranley 1981) și caracteristicile psihometrice ca rezultat al adaptății și validării acestuia. În baza investigațiilor răspunsurilor comportamentale ale participanților noștri (N = 190) itemii 10 și 13 au fost uniți într-unul singur, iar itemul 24 a fost exclus din versiunea românească a MFAS. Astfel, versiunea românească are 22 de itemi. Rezultatele susțin fidelitatea

MFAS, cu un Cronbach alpha de 0.73, comparativ cu cel al instrumentului original (α = 0.85). Cât despre validitate, valorile corelațiilor pentru matricea Kendall în cazul versiunii româneşti cu 22 de itemi sunt mai mici comparativ cu cei înregistrați de M. Cranley (1981). Prezentul studio a re meritul de a deschide, susține și stimula interesul specialiștilor în domeniu de a explora și evalua atașamentul mamă-fetus, cu scopul cercetării dau de asemenea, crucial, pentru intervenția clinică.
