

INTIMATE PARTNER ATTACHMENT STYLE AND ANTENATAL DEPRESSION SYMPTOMS IN NULLIPARAS: RESULTS FROM THE ZRNO STUDY

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SUMMARY

Background: The purpose of this study was to examine the relationship between the important indicators that define mental health functioning during the first pregnancy: the level of depression, anxiety and fear of childbirth in the context of nulliparas' intimate partner attachment style type and older generation's emotional support.

Subjects and methods: A group of 325 nulliparas in the third trimester of pregnancy were enrolled at the Childbirth preparation program of the University Medical Centre Ljubljana's Division of Gynaecology and Obstetrics. The following instruments were applied: Experiences in Close Relationships-Revised, The Edinburgh Depression Scale, two aspects of anxiety - Zung Anxiety Scale and a questionnaire regarding fear of childbirth. Attachment anxiety and avoidance scales were recoded into four categories of a prototypical attachment style: secure, fearful, preoccupied and dismissive. Two-way ANOVA and the chi-square test were used for the statistical analysis.

Results: All indicators of mental health functioning of our sample of nulliparas differed significantly regarding their partner attachment style. Nulliparas with a fearful, but also with a preoccupied type of attachment, showed less optimal mental health indicators compared to those with a secure/dismissive type of attachment. A significant interactive effect of partner attachment and emotional support from the older generation was found on the level of depression. Partner attachment styles and emotional support from the older generation were found to be statistically dependent.

Conclusions: In our sample a secure attachment seems to represent a protective buffer for the level of depression, even when a lower emotional support of the older generation was included. Screening and intervening on intimate attachment style as a protective factor for antenatal depression and different forms of anxiety is proposed.

Key words: anxiety - depression - partner-attachment style - older generation support - nulliparas

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INTRODUCTION

A need for social support and interpersonal connections is one of the basic human needs. According to Bowlby's attachment theory, people organize their emotion regulation and primary relational models in a relatively stable way over the life span due to the development of "internal working models" of relationships (Bowlby 1988). As the theory explains, the attachment system evolved to increase the survival of infants and children (Bowlby 1988). When a child experiences a secure attachment to a parent/caregiver; the expectations to the environment and eventually the outcome will be more expressed, open and positive relational experiences in adulthood. Throughout the course of life, more mature attachment interactions are formed which allow the grown up to predict supportive relationships later in life. Internal working models influence adult behavior in interpersonal romantic and other types of relationships and these mental representations also play a major role in parenthood. Though heavily influenced by early life caregiving experiences, attachment orientation is continually shaped throughout life (Bowlby 1988, Roisman & Fraley 2008).

There also tends to be a positive correlation between attachment style in a caregiver and the child, especially

where the caregiver's attachment style is secure (Warfa 2014). Thus, individuals who grow up with supportive and responsive parents usually develop secure attachments and positive working models of relationships in adult life (Simard et al. 2011). In the romantic relationship, they will expect that support is available when needed. The attachment system activates when an individual experiences fear, anxiety, or other forms of stress (Pasco & Roisman 2017, Bifulco 2004). Transition to parenthood is emotionally challenging and can represent such stress (Austin et al. 2010), especially for women whose own attachment experiences in childhood were less secure (Pepping & Halford 2012, Verhage et al. 2016).

In the latest years, attachment theory and the quality of attachment has assumed a particular importance in the study of psychological risk factors that contribute the development of affective disorders (Ainsworth 1978). Many studies reported that pregnant women with insecure attachment styles are at a greater risk of postpartum depression (Warfa et al. 2014, Robakis et al. 2016, Norhayati et al. 2015). A recent longitudinal study (Bifulco et al. 2004) found that preoccupied and fearful adult attachment types significantly predicted the onset of postpartum depression. Less research attention has been paid to the role of attachment during pregnancy.

Nevertheless, creating a family and evolving a parental role can represent stress that activates the attachment system. For the first time pregnant women with insecure attachment schemas such stress can predispose symptoms of depression and anxiety (Bifulco et al. 2004).

Strong social support during pregnancy can promote the first-time mothers' experience of security about childbirth and parenting (Bäckström et al. 2017). On the other hand, not only can the quality of attachment, but also a woman's relationship with her parents represent an important risk factor for depression and anxiety during pregnancy (Biaggi et al. 2016).

Peripartum depression has gained awareness during the last decades. Postpartum depression often starts during pregnancy, commonly in the last trimester. In fact, anxiety and depressive disorders in pregnancy represent the most important risk factors for postpartum depression (Goodman 2009). Antepartum depression even showed a higher prevalence than postpartum depression in some studies (Hübner-Liebermann et al. 2012) and many women with peripartum depression suffer from comorbid anxiety (Ross et al. 2003). Some researchers have also found anxiety disorders during pregnancy to be a stronger predictor of PPD than depression (Della Vedova et al. 2011).

Stress, anxiety, and depression during pregnancy are associated with many less optimal outcomes for the mother and baby: alterations in foetal and infant neuro-behavioral development (Field et al. 2004, 2010, Talge et al. 2007) and parenting stress (Huizink et al. 2017), to name some (Glover 2014, Dunkel Schetter & Tanner 2012). Pregnancy-related anxiety can also show potent effects on mothers and their offspring (Guardino & Dunkel Schetter 2014). The presence of anxiety and depression in pregnancy also increases the prevalence of fear of childbirth. It is assumed that 5–20% of all pregnant women fear giving birth (Storksen et al. 2012). Not many studies, however, have analysed fear of childbirth in light of perinatal depression and anxiety. Räisänen found fear of childbirth to have a predictive value for postpartum depression (2013). Nevertheless, a recent study found the majority of women with fear of childbirth had neither anxiety nor depression (Storksen et al. 2012).

The aim of our study was to analyse the interactions of the most important indicators of nulliparas' mental health functioning in the last trimester of pregnancy: level of depression, level of anxiety and fear of childbirth in the context of their important interpersonal relations, especially regarding intimate partner attachment style, but also with regard to emotional support from the older generation.

We hypothesized that the chosen indicators of nulliparas' mental health functioning differ significantly ($p=0.05$) regarding different categories of partner attachment, regarding different levels of perceived emotional

support from the older generation, and regarding their interactional effect. We also hypothesized that partner attachment style and emotional support from the older generation are statistically dependent.

SUBJECTS AND METHODS

Study sample

The ZRNO study was conducted as a collaboration between obstetricians of the University Medical Centre (UMC) Ljubljana's Division of Gynaecology and Obstetrics and psychiatrists of the University Psychiatric Hospital Ljubljana. It was approved by the Republic of Slovenia National Medical Ethics Committee – NMEC (protocol No. 92/12/13). All the study participants were given oral and written explanations of the study and their informed consent was obtained prior to study participation. The study was based on a convenience sample.

The participants of the present study consisted of a sample of 325 pregnant women in the third trimester recruited sequentially from the Childbirth preparation (educational) program of the UMC Ljubljana's Division of Gynaecology and Obstetrics from March to September 2014. The inclusion criteria were: first pregnancy, third trimester of pregnancy, at least 18 years old. We used no other exclusion criteria. The demographic characteristics of the sample are listed in Table 1.

Table 1. Demographic characteristics of the participants (n=325)

| | mean | SD |
|--------------------|-------|------|
| Age (years) | 30.83 | 4.34 |
| Education (years) | 16.15 | 2.43 |
| Weeks of pregnancy | 30.81 | 3.45 |
| | n | % |
| Marital status | | |
| married | 316 | 97.2 |
| divorced | 1 | 0.3 |
| single | 4 | 1.2 |
| Employment status | | |
| employed | 250 | 76.9 |
| unemployed | 30 | 9.2 |
| student | 28 | 8.6 |

Study procedure

The questionnaires were applied during Parenting classes held by the UMC Ljubljana's Division of Gynaecology and Obstetrics. The classes are run by midwives and include lectures by a paediatrician, an anaesthesiologist, a dentist, psychologists, and other specialists. The classes invite pregnant women in their third trimester and are mostly attended by women in their first pregnancy; their partners are welcome to attend. The topics are preparation for labor, birth, and postnatal care of the baby. The participants completed

a structured questionnaire in their third trimester of pregnancy. Each participant was given an anonymous questionnaire with a code, which was saved together with their personal information for the possibility of further research. During the recruitment period, the midwives and participant doctors invited 696 Slovenian speaking Caucasian pregnant women to participate. Written informed consent was signed by 387 (55.6%) of women. We excluded 38 women who were in their second or subsequent pregnancies (non-nulliparae), another 24 were excluded due to missing data.

Assessment tools

Experiences in Close Relationships-Revised (ECR-R) (Fraley 2000): the ECR-R is a 36-item self-report measure used to assess adult romantic attachment on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). The scale consists of two 18-item subscales: anxiety (fear of rejection and abandonment) and avoidance (discomfort with closeness and discomfort with depending on others). For our sample, internal consistency was $\alpha=0.84$ both for the Avoidance and Anxiety scale.

The Edinburgh Postpartum Depression Scale (EPDS) (Cox et al. 2014): The EPDS is a widely used screening tool designed for postnatal, but useful for antenatal depression as well. The self-report questionnaire consists of 10 items with four ordered response categories scored from 0 to 3. When used as a screening instrument, the cut-off scores of 12/13 usually designate major depression, whereas scores from 9 to 11 indicate mild depression levels in need of further assessment. Cronbach $\alpha=0.83$. For this study, we used a cut-off score=10, considering that this cut-off proved reasonable in a previous study on a Slovene sample (Koprivnik & Plemenitaš 2009).

Zung Anxiety Scale (Zung 1971) consists of 20 items which test the participant's autonomic, motor, cognitive and other anxiety symptoms. For each item the participants choose one of following answers: a little of the time, some of the time, good part of the time, most of the time; Cronbach $\alpha=0.76$.

Fear of childbirth (FOC): a 6-item scale was constructed, three items describing different aspects of fear regarding childbirth connected with mother's fear for herself. The items were rated on a 5-point scale from 1 (not at all) to 5 (very much). Exploratory factor analysis showed all six items loaded substantially (0.37-0.79) on a single factor. The validity of the questionnaire was assessed further by investigating correlations between a general question on fear of childbirth (also measured on 5 – point scale) and questions describing specific fear associated with childbirth. Correlation coefficients varied between 0.24 and 0.64 and were all highly statistically significant ($p<0.001$). The strongest correlation existed between fear of pain during child

delivery and general assessment of fear of childbirth. Single score as an average of six items was calculated. There was a moderate and statistically significant correlation between the calculated score and a single item measuring general fear of childbirth ($r=0.65$; $p<0.001$). Furthermore, there was a statistically significant difference in the mean score value between the women that declared they had fear of childbirth and others ($p<0.001$). The mean (SD) score for those that stated they were afraid of childbirth was 2.7 (0.8) and 2.1 (0.8) for others. The scale exhibited high measurement reliability (Cronbach $\alpha = 0.82$).

Sociodemographic and pregnancy information: A question battery designed by the research team included age, parity (nulliparous vs. multiparous), education level (years of education – according to primary/high school/university level), employment status in pregnancy (employed/unemployed/student) and partnership status. The perception of how much emotional support from the older generation they were receiving was estimated on a 5-point scale 1 = very low, 2 = low, 3 = medium, 4 = high, 5 = very high. Answers from 1 to 3 were recoded to the same group (low to medium support). A number of other variables were included in the ZRNO study, but were not part of the current research investigation.

Statistical methods

Statistical analyses were performed using SPSS Statistics version 22 for Windows. Statistical significance level was set a priori to $p<0.05$.

Attachment anxiety and avoidance scales were recoded into four categories of a prototypical attachment style. Such classifying can reduce the precision of measurement, however we found the categorization useful as a screening information regarding intimate attachment in pregnancy. Scores equal median were assigned to a less expressed subgroup. Four categories were formed as follows: secure (anxiety and avoidance score is $<$ median), dismissing (avoidance score is \geq median, anxiety score $<$ median), fearful (anxiety and avoidance score is \geq median) and preoccupied (anxiety score is \geq median, avoidance score $<$ median). To verify the alternative hypotheses two-way ANOVA and the chi-square independence test were used.

The question "How much support are you receiving from the older generation/parents?" was answered on 5-point scale: 1 = almost none or weak, 2 = weak, 3 = moderate, 4 = strong, 5 = very strong. Because a smaller number of respondents reported almost none or weak support (answer 1: $n=9$, 2: $n=15$), we recoded the answers from groups 1 to 3 in one group with $n=75$ (group with weak support from the older generation); other two groups reported strong support ($n=98$) and very strong support ($n=150$).

RESULTS

Sample characteristics are shown in Table 1. Most of the nulliparas in our sample were married (97%) and employed and had a university level of education.

A two-way ANOVA was used to examine the effect of partner attachment style and level of emotional support from the older generation on indicators of mental health functioning of nulliparas. Descriptive statistics of indicators as dependent variables (fear of

childbirth, level of depression, anxiety) are presented in Table 2, the main and interaction effects in Table 3.

The main effect of attachment style was found to be significant for all indicators of mental health functioning of participants: fear of childbirth, level of depression, level of anxiety. The differences in all the indicators of mental health for different categories of attachment style are shown in Table 4. Significant differences accounted mainly on the differences between a secure/dismissive vs. fearful/preoccupied type of attachment.

Table 2. Descriptive statistics of the indicators of mental health functioning regarding the attachment style and emotional support from the older generation

| Attachment style | Older generation support | Fear of childbirth | | | Level of depression | | | Level of anxiety | | |
|------------------|--------------------------|--------------------|------|----|---------------------|------|----|------------------|------|----|
| | | M | SD | n | M | SD | n | M | SD | n |
| Secure | low to medium | 11.46 | 5.20 | 13 | 3.35 | 2.13 | 14 | 30.85 | 5.61 | 14 |
| | high | 13.15 | 4.41 | 19 | 4.66 | 3.10 | 15 | 32.61 | 4.61 | 18 |
| | very high | 13.89 | 5.49 | 57 | 4.87 | 3.57 | 58 | 31.75 | 5.20 | 57 |
| Dismissive | low to medium | 14.45 | 3.75 | 11 | 5.50 | 3.23 | 12 | 33.41 | 3.98 | 12 |
| | high | 12.94 | 4.93 | 17 | 4.94 | 2.48 | 17 | 31.12 | 5.16 | 16 |
| | very high | 14.56 | 5.18 | 16 | 5.64 | 4.18 | 14 | 31.83 | 3.66 | 12 |
| Fearful | low to medium | 16.43 | 5.17 | 23 | 8.72 | 4.58 | 22 | 35.00 | 8.20 | 18 |
| | high | 15.84 | 5.01 | 33 | 6.93 | 5.39 | 33 | 36.57 | 5.15 | 28 |
| | very high | 16.72 | 5.50 | 40 | 6.15 | 2.84 | 39 | 35.41 | 6.67 | 39 |
| Preoccupied | low to medium | 19.14 | 6.30 | 7 | 11.28 | 8.42 | 7 | 39.28 | 9.19 | 7 |
| | high | 13.45 | 3.83 | 11 | 6.72 | 5.08 | 11 | 34.27 | 6.16 | 11 |
| | very high | 15.90 | 6.05 | 11 | 5.20 | 2.74 | 10 | 33.60 | 6.76 | 10 |

Table 3. Main and interactive effects of an attachment style, emotional support from the older generation, and interactive effect

| | Intimate attachment style | | | Emotional support older generation | | | Interactive effect | | |
|---------------------|---------------------------|--------|-------|------------------------------------|--------|-------|--------------------|--------|-------|
| | F | df | p | F | df | p | F | df | p |
| Fear of childbirth | 6.528 | 3, 246 | 0.000 | 1.763 | 2, 246 | 0.174 | 1.016 | 6, 246 | 0.415 |
| Level of depression | 8.523 | 3, 240 | 0.000 | 2.915 | 2, 240 | 0.056 | 2.361 | 6, 240 | 0.031 |
| Level of anxiety | 7.208 | 3, 230 | 0.000 | 0.900 | 2, 230 | 0.408 | 1.102 | 6, 230 | 0.362 |

Table 4. Multiple comparisons of indicators of mental functioning in pregnancy for different categories of an attachment style (Tukey)

| Indicators of mental health functioning | Attachment | Mean difference | p |
|---|---------------------------|-----------------|-------|
| Fear of childbirth | secure vs dismissive | -0.52 | 0.946 |
| | secure vs fearful | -2.97 | 0.001 |
| | secure vs preoccupied | -2.37 | 0.143 |
| | dismissive vs fearful | -2.44 | 0.050 |
| | dismissive vs preoccupied | -1.84 | 0.446 |
| | preoccupied vs fearful | 0.59 | 0.949 |
| Level of depression | secure vs dismissive | -0.72 | 0.760 |
| | secure vs fearful | -2.43 | 0.000 |
| | secure vs preoccupied | -2.72 | 0.010 |
| | dismissive vs fearful | -1.70 | 0.094 |
| | dismissive vs preoccupied | -1.99 | 0.167 |
| | preoccupied vs fearful | -0.28 | 0.987 |
| Level of anxiety | secure vs dismissive | -0.23 | 0.997 |
| | secure vs fearful | -3.91 | 0.000 |
| | secure vs preoccupied | -3.49 | 0.031 |
| | dismissive vs fearful | -3.68 | 0.007 |
| | dismissive vs preoccupied | -3.26 | 0.110 |
| | preoccupied vs fearful | 0.42 | 0.988 |

The main effect of emotional support from the older generation on indicators of mental health was not found significant, but regarding the level of depression there was a difference found on 5.6 % of risk. However, there was an interactive effect of both factors (partner attachment and emotional support from the older generation) found on the level of depression. In the fearful and preoccupied groups, the level of depression was the highest in participants with low emotional support from the older generation, but in the safely attached group, it was the lowest in the group with low emotional support from the older generation.

Partner attachment styles and emotional support from the older generation were found to be statistically dependent: $Hi2(6) = 15.67, p=0.016$. The greatest proportion of nulliparas with a lot of emotional support from the older generation belonged to the group with a secure partner attachment (64.5%), while fearful (41.8%), dismissing (35.6%) and preoccupied (37.9%) had lower proportions. The smallest proportion of securely attached participants had little support from the older generation (15.1%), vs. fearful (23.5%), dismissing (26.7%) and preoccupied (24.1%).

DISCUSSION

Our results show that the nulliparas' intimate attachment with their partner is significantly associated with level of depression, anxiety and fear of childbirth. Emotional support from the older generation was significantly associated with the level of depression, but not with anxiety or fear of childbirth. Interactive effect of partner attachment and emotional support from the older generation was found on the level of depression.

In the fearful and preoccupied attachment style-groups, the level of depression was the highest in nulliparas with low emotional support from the older generation, but in the safely attached group, it was the lowest in the group with low emotional support from the older generation.

Our results show that we can better understand possible mental vulnerabilities of women in their first pregnancy (level of depression and different aspects of anxiety) when we analyse them in a context of partner attachment. Regarding attachment types, we found that pregnant women with a fearful, but also those with a preoccupied type of attachment are at risk of less optimal mental health indicators. Similarly, a postpartum study by Croce Nanni and Troisi (2017) found that mothers with higher scores on the preoccupied and fearful attachment scales had more severe postpartum anxiety and depression symptoms. Considering that attachment types show the tendency for moderate stability when established (Fraley 2002), we should consider partner attachment as a long-term risk or protective factor. The dismissing type of an intimate attach-

ment does not show significantly less optimal mental health indicators, however, it would be interesting to follow its impact on long-term family dynamics.

Spoozak (2009) found parental support to be an important protective factor regarding depression from the aspect of overall social support of pregnant women. In our study, the relationship with the older generation showed a significant impact through interactivity with intimate attachment. Our results show that specific partner attachment type groups tend to the same types of attachment with the older generation if emotional support is considered as part of secure relations. The finding is not surprising, given that attachment types form in childhood, where parents usually represent the most important attachment figure. We can speculate that the nulliparas who reported strong support from their parents/older generation experienced and formed a secure early life attachment with their own parents and are therefore more likely to form secure partnerships in adult life themselves, especially when creating their own family.

However, for the nulliparas in our study, a secure partner relationship seems to represent a buffer for the level of depression, even with a less optimal relationship with the older generation. Interestingly, strong support from the older generation showed a protective effect on depression level regardless of the intimate attachment style, what would be worth a further analysis in future research on a more diverse sample. Similarly, Monk (2008) indicated in their study that partner attachment makes a unique contribution in accounting for the risk of postpartum depression beyond the contribution of depression during pregnancy.

Based on our data we propose that interventions targeted towards strengthening the mother's most important relationships and attachment security should be most effective in prevention of depressive symptoms antenatally. Considering the motivation of women in their first pregnancy, it would be possible to use partner attachment as a mood modulator in nulliparas. This prediction is consistent with the research supporting interpersonal psychotherapy as an effective method of anti-depression treatment during pregnancy (Spinelli & Endicott 2003). Incorporating appropriate themes that enhance partner attachment into antenatal educational programs that invite both partners may also be considered as a kind of prevention for depression and different forms of anxiety in the perinatal period.

Limitations

This study should be interpreted in light of limitations. Most of the participating women were highly educated first-time pregnant women living in an urban environment, which might not be representative of the Slovenian population and the results should probably not be generalized. One possible reason for these

limitations can be the use of a university hospital for the study. With a cut-off score on EPDS above 10, we searched for PPDS and not the diagnose of major depressive disorder. By using self-report questionnaires there was also a risk of underdiagnosing. Finally, the design of this study was cross-sectional and we limited the assessment to the third trimester of pregnancy.

CONCLUSIONS

Our data provides new insights into the field of risk and protective factors for mental health of women in their first pregnancy. In conclusion, our study supports the inclusion of screening on the intimate attachment style as a significant risk/protective factor for antenatal depression and different forms of anxiety as well as the importance of preventive interventions that promote partner attachment in antepartum assessment and care for pregnant women, especially nulliparas. Further research is planned to conduct a long-term follow up.

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Contribution of individual authors:

Polona Rus Prelog wrote the manuscript;
Maja Rus Makovec designed the study and reviewed the manuscript.

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