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Prenatal Attachment Behaviour Counselling in Women With High-Risk Pregnancy After Infertility: Evidence-Based Nursing Practice

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ABSTRACT

The prevalence of anxiety in pregnant women increases along with high-risk pregnancy conditions. Severe anxiety hurts the mother, fetus, and spouse, including difficulty in achieving prenatal attachment. This study aims to implement evidence-based nursing to reduce anxiety and enhance prenatal attachment in women with high-risk pregnancies after infertility. To achieve these aims, a pilot study was conducted using the Joanna Briggs Institute (JBI) Evidence-based Audit and Feedback as well as Getting Research into Practice (GRiP) approach, consisting of 7 phases, namely identifying areas, involving agents of change, assessing context and readiness, reviewing practices with audit criteria based on scientific evidence, implementing with the GRiP, reassessing with follow-up audits, and considering project sustainability. The study involved 5 women with high-risk pregnancies after infertility. The clients received attachment behaviour counselling, followed by evaluations related to anxiety and prenatal attachment after 7 days of interventions. The result of the study was that all five (100%) women with high-risk pregnancies after infertility experienced a decrease in anxiety and achieved high scores in prenatal attachment. Attachment behaviour counselling effectively decreases prenatal anxiety and enhances prenatal attachment.

Keyword: Anxiety, Counselling, High-Risk Pregnancy, Infertility, Prenatal Attachment

1. Introduction

Pregnant women who have experienced infertility are at an increased risk of experiencing anxiety (Crespo & Bestard, 2016). Furthermore, pregnancy complications may exacerbate anxiety in pregnant women with a history of infertility (Covington, 2015). Antenatal anxiety can elevate the likelihood of postpartum depression, premature birth, low birth weight, and disturbed prenatal attachment (Anjarwati & Suryaningsih, 2021). Anxiety has also been observed to reduce sexual activity during pregnancy (Miranda et al., 2019).

The World Health Organisation (WHO) (2020) estimated that 48 couples of reproductive age were experiencing infertility on a global scale. In Indonesia, the incidence of infertility was estimated to be between 10-15% (Harzif et al., 2019). The Ministry of Health of the Republic of Indonesia (2020) has determined that bleeding, hypertension, and infections are the pregnancy-related issues that contribute the most to maternal mortality in Indonesia. Women who have not received antenatal care and have a history of pregnancies lasting more than 12 months are at 1.38 times increased risk of premature birth because the factors that cause infertility can also affect pregnancy (Messerlian et al., 2013).

Maternal anxiety encompasses concerns regarding the childbirth process, physical appearance during pregnancy, and the potential for foetal abnormalities (Hestianti et al., 2017, citing Huizink et al., 2004). Nevertheless, the majority of pregnant women experience more anxiety regarding the health of the baby than their health (Deklava et al., 2015). Women with high-risk pregnancies and anxiety who can adjust well to changes during pregnancy may experience a higher level of prenatal attachment and satisfaction with their parental role, as per Çelik & Güneri (2020).

Consequently, nursing interventions are necessary to alleviate anxiety in pregnant women. Prenatal attachment can be improved through prenatal counselling and education on foetal movement counting, maternal touch, and voice, as per Abasi et al. (2021). Additionally, maternal anxiety may be mitigated through foetal movement counting, as indicated by specific literature sources. Belly touching, foetal movement counting, positive imagination of foetus appearance, and speaking to the foetus are all components of attachment behaviour counselling. According to Mangesi et al. (2015), the mother can evaluate the foetus's condition through foetal movement counting, enabling healthcare professionals to make timely interventions and early detection of pregnancy complications. In addition, maternal anxiety has been observed to be alleviated by foetal movement counting. Given this context, maternity nurses must comprehend the impact of attachment behaviour counselling on prenatal anxiety and attachment in women with high-risk pregnancies following infertility. Consequently, the clinical inquiry is as follows: How is the implementation of attachment behaviour counselling in reducing antenatal anxiety and the enhancement of prenatal attachment in women with high-risk pregnancies after infertility?

2. Methods

The Joanna Briggs Institute (JBI) Evidence-based Audit and Feedback and Getting Research into Practice (GRiP) approaches were employed to conduct this pilot study. The approach comprised seven phases: 1) the identification of areas; 2) the involvement of agents of change; 3) the assessment of context and readiness; 4) the review of practices with audit criteria based on scientific evidence; 5) the implementation of GRiP; 6) the reassessment of the following audits, and 7) the consideration of the project. The GRiP method entailed evaluating assessment results, identifying factors, and developing and implementing change strategies (Porritt et al., 2020).

Women with high-risk pregnancies following infertility comprised the study's sample. Consecutive sampling was implemented to identify the samples. The inclusion criteria for this study were pregnant literate women with a history of infertility and high-risk pregnancy who received conservative pregnancy care and were willing to participate in the research procedure. Pregnant women who experienced pregnancy termination during the study period were excluded. Five respondents from various health centres, including a regional hospital in Purwokerto, a community health centre in Depok, and a central general hospital in Jakarta, participated in this study from January to April 2022.

This study consisted of 7 phases. These phases included in:

1. Phase 1
   The researchers conducted a field assessment by assessing the implementation of nursing care to address anxiety and improve prenatal attachment in the practice area.
2. Phase 2
   The researchers involved agents of change as the heads of the ward, the primary care nurses in the inpatient unit, and the midwives in charge of the mother and child health unit.
3. Phase 3
   The researchers conducted a pre-test by assessing the context and readiness for the need for nursing care and by conducting interviews with the nurses and midwives related to nursing care to reduce antenatal anxiety. In addition, the researchers assessed the pregnant respondents related to achieving maternal roles based on Mercer's Becoming A Mother theory and asked them to fill out the Pregnancy-Related Anxiety Questionnaire-Revised Two or PRAQ-R2 questionnaire.
4. Phase 4
   According to scientific evidence, the researchers reviewed practices using audit criteria. In this study, the author combed two journal databases, the Cochrane Library and PubMed, for scientific evidence on reducing anxiety and enhancing prenatal attachment. Based on a systematic review by Abasi et al. in 2021 and Mangesi et al. in 2015, evidence-based practice nursing (EBPN) in the form of attachment behavior counseling includes exercises such as belly touching, fetal movement counting, positive imagination of fetus appearance, and speaking to the fetus.

5. Phase 5
   The researchers employed scientific evidence through The study processes included explaining the activities, obtaining consent, conducting a pretest and distributing the PRAQ-R2 questionnaire, providing attachment behavior counseling, and setting up a telephone helpline. The researchers conducted attachment behavior counseling by providing information about physical and hormonal changes during pregnancy, pregnancy nutrition, signs of pregnancy danger, and behaviors that can enhance prenatal attachment (belly touching, belly mapping, fetal movement counting, positive imagination of fetus appearance, and speaking to the fetus). The researchers implemented these interventions using the GRiP method. In the first phase, the researchers analyzed the assessment results and discovered that four respondents were most anxious about fetal conditions, while the remaining respondent was anxious about childbirth. The second phase involved identifying some inhibiting and supporting factors for the implementation of scientific interventions. The findings revealed that some respondents' treatment in a shared third-class hospital room hampered the effectiveness of counseling sessions, while their husbands' presence during the sessions provided support. The third phase involved developing and implementing change strategies through attachment behavior counseling.
6. Phase 6
   The researchers reassessed the procedure by conducting a post-test. On the 7th day after counseling, the study respondents underwent a posttest by completing the PRAQ-R2 and Prenatal Attachment Inventory (PAI) questionnaires.
7. Phase 7
   The researchers determined the project's sustainability by discussing it with nurses and midwives responsible for the interventions.

Huizink et al. (2004) developed the PRAQ-R2 questionnaire, which Hestianti et al. (2017) translated and validated. The PRAQ-R2 questionnaire comprised 10 questions on a 5-point Likert scale, with a total score ranging from 10 to 50. The PRAQ-R2 consisted of three subscales, namely fear of childbirth, concerns about congenital abnormalities (either physical or mental), and personal appearance during pregnancy. The researchers translated and validated the questionnaire using a Pearson Product Moment validity test, which yielded an R value (0.396–0.814) > R table (0.361) and a Cronbach's alpha (0.874). Srinivasan et al., 2020, categorized anxiety levels as follows: no anxiety for a score of 10, mild anxiety for a score of 11–20, moderate anxiety for a score of 21–30, severe anxiety for a score of 31–40, and very severe anxiety for a score of 41–50. The PAI questionnaire, developed by Muller in 1993 and translated and validated by Wahyusari in 2015, comprised 21 questions with a 4-point Likert scale, allowing a total score ranging from 21 to 84. In the meantime, the researchers created the book and video media. The researchers tested the PAI questionnaire for validity and reliability, finding a validity value ranging from 0.489 to 0.733 and a reliability value of 0.924. Attachment was defined as high if the score was ≥59. The researchers conducted the data analysis using the frequency distribution.

3. Results

The study involved five respondents who met the inclusion criteria. The respondent criteria is presented in Table 1.

Table 1 Respondent Characteristic

Respondent	Age (Years)	Obstetrical Status	Gestational Age (weeks)	Pregnancy complication	Infertility History (Years)
1	33	G1P0A0	25	Abruptio Placenta	4
2	26	G1P0A0	33	Preeclampsia. Intrauterine Growth Retardation	3
3	41	G1P0A0	27	Anemia	14
4	28	G1P0A0	23	Pre Eclampsia and Obesity	2
5	35	G1P0A0	30	Pre Eclampsia, Epilepsy, Diabetic Mellitus Type II	7

Table 1 presents the majority of the respondents in the second trimester of pregnancy (3 respondents), with the youngest pregnancy weeks of 23 weeks. The longest history of infertility is 14 years, and the oldest mother's age is 41 years.

Table 2 Comparison of Pregnancy related to Anxiety Score between Pre-test and Post-test

Respondent	Pre-test				Post-test			
	Fear of Giving Birth (Max15)	Worrying about Bearing a Handicapped Child (Max 20)	Worrying about Bearing a Handicapped Child (Max 15)	Total	Fear of Giving Birth (Max15)	Worrying about Bearing a Handicapped Child (Max 20)	Worrying about Bearing a Handicapped Child (Max 15)	Total
1	7	13	12	32	8	12	9	29
2	9	18	8	35	8	12	3	23
3	8	11	3	22	5	10	3	18
4	10	6	8	24	7	3	4	14
5	14	18	3	35	11	6	8	25

Table 2 presents that, during the pre-test, most of the respondents (4 women) had the highest anxiety scores related to fetal conditions. This trend continues during the post-test, where four respondents experience moderate anxiety (scores 21–30).

Table 3 Maternal Fetal Attachment Score

Respondent	Affection (Max 24)	Interaction (Max 20)	Maternal–fetus differentiation (Max 16)	Fantasy (Max 12)	Maternal sensitivity to the fetus (Max 12)	Total score
1	100%	85%	100%	92%	83%	93%
2	75%	65%	75%	75%	75%	73%
3	88%	70%	81%	67%	83%	79%
4	92%	100%	100%	92%	100%	96%
5	96%	45%	69%	58%	83%	71%

Table 3 presents that all five respondents had the highest prenatal attachment scores in terms of the emotional or affection dimension. In addition, Table 4 shows that all these respondents experienced a decrease in anxiety and had high prenatal attachment scores (≥59) after 7 days of intervention.

Table 4 Comparison between Pregnancy Related Anxiety Score and Maternal Fetal Attachment Score

Respondent	Pregnancy Related Anxiety's Pre-test Score	Pregnancy Related Anxiety's Post-test Score	Change in Pregnancy Related Anxiety Core	Maternal Fetal Attachment Score
1	32	29	3	78
2	35	23	12	61
3	22	18	4	66
4	24	14	10	81
5	35	25	10	60

4. Discussion

The study's respondents were five women with high-risk pregnancies after infertility. The researchers advised four respondents who fell into the reproductive age category (ages 20–35) to proceed with their pregnancy. According to Londero et al. (2019), women aged >40 years old who get pregnant are at a higher risk of experiencing premature birth, cesarean section, gestational diabetes, abnormal fetus presentation, and periventricular leukomalacia in the fetus. According to Alligood (2014b), mothers aged >30 years are at risk of experiencing maternal or fetus health problems and depressions.

In this study, three of the pregnant respondents were in the second trimester, ranging from 14 to 27 weeks. According to Ge et al. (2021), women aged 22–35 with a bachelor's degree and in the second trimester of pregnancy have a lower risk of anxiety. Pregnant women's relatively stable mental health during the second trimester is the reason for this.

All the respondents in this study were primigravida and had a history of infertility lasting between 2 and

14 years. According to the American Society of Reproductive Medicine (ASRM), if a couple fails to achieve pregnancy after regular unprotected intercourses for 12 months in women under 35 and 6 months in women over 35, it is necessary to evaluate infertility. Infertility can have physical, psychological, and spiritual impacts on clients (Walker & Tobler, 2021). According to Crespo & Bestard (2016), anxiety levels tend to be higher in pregnant women with a history of infertility.

Based on the results of the present study, three of the respondents experienced severe antenatal anxiety. Furthermore, four respondents had high scores of anxiety about the fetus' physical or mental abnormalities. The results support Deklava et al. (2015)'s claim that most mothers worry more about their fetus than themselves. According to Ge et al. (2021), primiparous mothers are at a high risk of experiencing anxiety due to a lack of experience in parenting, a low level of confidence in motherhood, low self-efficacy in neonatal care, and a high level of fear of childbirth. Therefore, pregnant women in the first and third- trimesters need more informational support.

Attachment behavior counseling can help to enhance prenatal attachment. It has been known that mothers with inadequate knowledge of infant development are at higher risk of mental disorders, so antenatal education can assist mothers in making preparations both mentally and emotionally (Akbarzadeh et al., 2016). This study revealed that four respondents achieved the highest percentage of prenatal attachment in the emotional/affection dimension. According to Suryaningsih et al. (2020), prenatal attachment covers various aspects, including positive emotions, attention to the physical changes in the fetus and mother, establishment of reciprocal interactions between the mother and fetus, positive imagination of the fetus, a desire to protect the fetus from harm, and improved health care.

On the seventh day of attachment behaviour counselling, the study's findings indicated that all five respondents experienced an anxiety reduction and had high prenatal attachment scores. Perwitasari et al.'s (2019) study demonstrated that prenatal attachment education can positively influence pregnant mothers' mental health by enabling them to focus on the foetus through comfort and constructive thoughts, which aligns with these results. The findings align with Güney and Uçar's (2019) research, which suggests that foetal movement counting enhances prenatal attachment. Abasi et al. (2021) also noted that foetal movement counting is more effective in fostering prenatal attachment when used with other interventions, such as belly touching and speaking to the foetus in counselling or training. Additionally, Akbarzadeh et al. (2016) assert that the mother's awareness of the fetus's presence is enhanced by the occurrence of a foetal movement, which in turn motivates her to engage in additional interactions. Counting fetal movements elicits emotions and encourages more significant interaction with the fetus.

As per Abasi et al. (2021), pregnant women require information regarding hormonal and physical changes that occur during pregnancy and indicators of potential hazards. Likewise, Akbarzadeh et al. (2016) have suggested that counselling for pregnant women may encompass the following: the significance of ultrasound examinations, foetal development, foetal movement, sexuality, nutrition, activities, rest, work, and vaccinations. Additionally, counselling may address the adaptation to discomfort. Additionally, pregnant women must acquire behaviours that foster prenatal attachment, such as belly touching, giving a name, encouraging family members to engage in conversation with the foetus, imagining the foetus' face, imagining the breastfeeding process, hugging the baby, belly mapping, foetal movement counting, and imagining the baby's appearance (Akbarzadeh et al., 2016; Abasi et al., 2021).

Compared to those who did not count foetal movements, pregnant women who did reported a substantial decrease in anxiety, according to Mangesi et al. (2015). Mothers can detect fetal movements during the 16th to the 20th week of pregnancy. The presence of abnormal fetal movements may indicate that the fetus is experiencing complications, so it is advisable to deliver the baby earlier. Healthcare professionals can make interventions appropriately by utilising foetal movement counting to identify the fetus's need for assistance. Doctors primarily conduct foetal well-being examinations to determine the baby's health status, whether through foetal movement or heartbeat examinations (Widiasih et al., 2021).

There is a link between maternal mental disorders and a reduction in prenatal attachment. In addition, the provision of education on behaviours that promote prenatal attachment can alleviate maternal anxiety and enhance the mental health of infants (Akbarzadeh et al., 2016). In reality, interactions between the mother and foetus during pregnancy can reduce the quantity of salivary cortisol hormone, a stress marker. Besides cortisol, interactions between a mother and her unborn child can also cause the release of the oxytocin hormone, which is suitable for bonding during pregnancy, caring behaviour, and getting ready to be a parent (Sonoda et al., 2021). The negative correlation between prenatal attachment and prenatal depression symptoms underscores the importance of screening and preventive measures for pregnant women. Interventions implemented during antenatal can influence psychological well-being during pregnancy (Rollè et al., 2020). By assessing prenatal attachment and anxiety, healthcare professionals can identify the risk of depression during pregnancy.

Interventions that improve prenatal attachment are essential for pregnant mothers, regardless of whether they have experienced depression or not (Napoli et al., 2020).

5. Conclusion

It is essential to recognise that women with a history of infertility and high-risk pregnancy are at a higher risk of developing anxiety, which can impact their prenatal attachment. Therefore, the researchers can implement attachment behaviour counselling as additional information in the nursing management of high-risk pregnant women to reduce anxiety and enhance prenatal attachment. The small number of subjects is the study's primary limitation. The other limitation was the absence of control over confounding factors, including educational status and support systems.

Evidence-based nursing practice, including attachment behaviour counselling, is effective in reducing antenatal anxiety and enhancing prenatal attachment in women with high-risk pregnancies following infertility. Therefore, the researchers recommend administering attachment behaviour counselling to high-risk pregnant women during their hospitalisation or antenatal care visits in clinical practice. Attachment behaviour counselling applies to all pregnant women, with a particular emphasis on those who experience numerous anxiety-inducing factors. Additionally, a more comprehensive investigation is required to enhance the description of the efficacy of attachment behaviour counselling in reducing anxiety and enhancing prenatal attachment by regulating a variety of variables, including educational status and support system. Furthermore, additional research may be required to use a larger sample.

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