

e-ISSN: 2345-0592 Online issue Indexed in <i>Index Copernicus</i>	Medical Sciences Official website: www.medicisciences.com	
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Associations between coping strategies employed by expectant mothers and prenatal distress

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Summary

Background. Pregnancy brings numerous anatomical, physiological, physical, psychological and social changes that can influence distress symptoms in expectant mothers. Increased maternal distress during pregnancy may be linked to coping strategies, partner and family support.

The aim of this study was to assess the associations between coping strategies employed by expectant mothers and their distress experienced during pregnancy.

Methods. The sample consisted of female participants who voluntarily responded to the survey. The selection criteria included were female gender, pregnancy, full age and Lithuanian mother tongue. A quantitative research strategy was chosen. The survey included socio-demographic questions, the Prenatal Coping Inventory (NuPCI) and the Tilburg Pregnancy Distress Scale.

Results. The planning-preparation coping strategy was the most frequently used coping strategy ($p < 0.001$), compared with the avoidance and spiritual-positive coping strategies (planning-preparation subscale, 2.05 ± 0.58 points; spiritual-positive coping, 1.27 ± 0.79 points; and avoidance subscale, 1.32 ± 0.55 points). Overall, 42.6% of the participants experienced distress, with the least distress felt when their partner was involved (82.2%).

Conclusions. 1. Statistically significant differences in the Prenatal Coping Inventory (NuPCI) between trimester, singleton, and repeated pregnancies, and having or not having children were revealed. 2. Almost half of the participants (42.6%) experienced elevated levels of distress. 3. No significant correlations were found between the type of spiritual-positive coping used by expectant mothers and levels of distress, partner involvement and negative affect.

Keywords: distress; coping; pregnancy; prenatal distress.

1. Introduction

Pregnancy is a time of numerous anatomical and physiological changes. Expectant women must not only nurture and accommodate the foetus but also adapt to new bodily changes [1]. Pregnant women experience both physical and psychological, as well as social changes in their lives, and these changes can influence the emergence of distress symptoms [2]. In a study conducted by Yilmaz and other researchers (2021), factors influencing distress during the prenatal period were described, including low social and economic status, low educational attainment, feelings of loneliness, and employment status (unemployment had a greater impact on higher distress levels) [3]. It is emphasized that increased maternal distress symptoms during pregnancy may be related to coping strategies employed, partner and family support, as well as economic and social circumstances [4].

Therefore, expectant mothers face various challenges that may be associated with heightened anxiety, stress, and depression symptoms. Hence, it is crucial to understand how expectant women cope with these difficulties, what coping strategies they employ, and how the strategies used relate to experienced distress [5, 6].

This topic is relevant and significant because expectant women are prone to experiencing high levels of stress, anxiety, and symptoms related to depression due to hormonal changes, bodily changes, and emotional difficulties associated with pregnancy [7, 8]. Additionally, the well-being of expectant mothers is important to society, as healthy and happy mothers are essential factors in ensuring the health and happiness of future generations [9]. Therefore, it can be argued that understanding distress experienced by expectant mothers and their coping methods can be valuable while improving the psychological well-being of mothers giving birth and those who have recently given birth, reducing

stress levels, anxiety, and enhancing infant development [10, 11]. Consequently, the results of this research can help better understand the psychological health of expectant mothers, assist their loved ones and medical personnel in better responding to the needs of expectant mothers, and provide them with tools to cope with stress and overcome challenges, thereby contributing to a positive pregnancy experience.

Objective of this Study: to assess the associations between coping strategies employed by expectant mothers and distress experienced during pregnancy.

Research Objectives:

1. Analyse the coping strategies employed by expectant mothers.
2. Determine the level of distress experienced during pregnancy.
3. Evaluate the associations between coping strategies employed during pregnancy and experienced distress.

2. Research methods

2.1. Procedure and Sample

In February 2023, the research topic, objective, and tasks were formulated, research design decisions were made, and data collection tools were identified. After obtaining the necessary permissions, the Prenatal Coping Inventory (NuPCI) one other scale were translated from English to Lithuanian through a double translation process. Later on, approval to conduct the study was obtained from the Bioethics Centre of the Lithuanian University of Health Sciences, with the permit number BEC-SP(B)-83. A copy of the bioethics approval is provided in the appendix of the study (see Appendix 1).

On March 25, an online survey was created using the "Forms office" platform. Starting from March 26, the prepared electronic survey was shared on social media platforms, specifically "Facebook" and "Instagram." Personal messages were sent via

Instagram to several profiles related to parenthood and pregnancy. On April 19 and 20, a few additional permissions were obtained to share the research survey, but since the required sample size had already been reached, the data collection was discontinued considering the scope of the study and the participants' resources. The online survey allowed participants to respond only once from one device. In the survey, ethical information was provided, and participants were informed about the confidentiality of the study. The online survey did not collect personally identifiable information such as name/surname and other personal details, ensuring anonymity. The collected research data is stored on the researcher's computer in a password-protected folder. In total, 129 women's responses were collected through the online survey.

The research sample consisted of 129 pregnant women. The following selection criteria were applied when collecting the research data: adult pregnant women; native speakers of the Lithuanian language.

2.2. Research Instruments

A quantitative research strategy was chosen for this study. The survey included socio-demographic questions and utilized two scales: the Prenatal Coping Inventory (NuPCI) and the Tilburg Pregnancy Distress Scale.

Socio-demographic questions: Participants were asked to provide their age, pregnancy trimester, whether it was their first pregnancy, whether they had previous children, place of residence (choosing from 3 options: city centre, urban area, small town or village), and educational level. All questions had predefined response options (see Appendix 2).

The Tilburg Pregnancy Distress Scale was used in this study to assess the expression of distress symptoms among pregnant women. The scale was developed by Pop et al. (2011). Prior to this study, the scale had not been translated into the Lithuanian language. Therefore, on February 27, a double translation was conducted independently by the project supervisor, Milda Kukulskienė, PhD. and the researcher, Kamilė Andruškaitė, who later discussed the translation discrepancies. This scale consists of 16 items (e.g., "I feel that my partner and I are enjoying the pregnancy together," "I worry about giving birth," "I worry about our financial situation after the baby is born," etc.). The items are rated on a 4-point Likert scale. The ratings reflect how the pregnant women felt over the past seven days. Participants could choose from four options ("very often," "quite often," "sometimes," "rarely or never"). The questions in this scale are related to how the participants perceive their pregnancy. There was no need to obtain permission to use the scale in this study since the authors encourage its free use in research and translation into different foreign languages (see Appendix 2).

The internal reliability of the entire Tilburg Pregnancy Distress Scale, consisting of 16 statements, was assessed using Cronbach's alpha and yielded a value of 0.80. The negative affect subscale had a Cronbach's alpha of 0.80, and the partner involvement subscale had a Cronbach's alpha of 0.82. The internal consistency of this questionnaire, as measured by Cronbach's alpha coefficient, is high.

SCALE	CRONBACH'S ALPHA	NUMBER OF STATEMENTS
Distress total score	0.80	16
Negative affect	0.80	11
Partner engagement	0.82	5

Table 1. Internal consistency of the Tilburg Pregnancy Distress Scale and its subscales ($N = 129$).

The Prenatal Coping Inventory (NuPCI) is a scale designed to assess how often pregnant women have used various coping strategies in the past month to manage the stress and challenges associated with pregnancy. The authors of this scale are Hamilton and Lobel (2008). Similarly to the previous scale, the instrument has not been translated into the Lithuanian language. Therefore, in February 2023, a double translation was performed in collaboration with the project supervisor, Milda Kukulskienė, PhD. This scale consists of 42 items (e.g., "Did you imagine what your childbirth would be like?" "Did

you spend time together or talk with someone who recently gave birth?" "Did you wish the childbirth was already over?") and five response options: "never", "almost never", "sometimes", "fairly often", "very often". Additionally, there were several open-ended questions in this questionnaire that did not require a mandatory response. Permission to use this instrument was obtained via email on February 23, 2023 (see Appendix 2).

The means of all the scales and subscales subscales are equal to or greater than 0.70).

Table 2. Prenatal Coping Inventory (NuPCI) and Subscale Cronbach's Alpha Coefficients (N = 129).

SCALE	CRONBACH'S ALPHA	NUMBER OF STATEMENTS
NuPCI Avoidance	0.70	11
NuPCI Planning-Preparation	0.79	14
NuPCI Spiritual-Positive Coping	0.76	6

2.3. Study Material and Participants

The study employed convenience sampling, and voluntarily participating respondents were included in the research. Evaluation standards for the participants were as follows: adult pregnant women whose native language is Lithuanian. The participants had the opportunity to withdraw from the study at any time. An anonymous online survey was shared in a "Facebook" group and on another social media platform, "Instagram." The survey was

completed by 129 pregnant women, and all responses were included in the analysis. The majority of the women who participated in the study resided in urban areas (77 %), and most of them had obtained a higher education degree (81 %). Nearly half of the participants were between 26 and 30 years old (47 %), and 52 % of them were in the third trimester of pregnancy. Social and demographic characteristics of the sample are presented in Table 1.

Table 3. Distribution of Participants by Sociodemographic Indicators.

Indicator	Response options	Absolute count (n)	Percentage distribution (%)
Pregnancy trimester	I	21	16
	II	41	32
	III	67	52
First pregnancy	Yes	61	47
	No	68	53

Previously had children	Yes	53	41
	No	76	59
Place of residence	Metropolitan (Vilnius; Kaunas; Klaipėda; Šiauliai)	99	77
	City	17	13
	Town or village	13	10
Education	Primary	-	-
	Secondary	9	7
	Higher secondary	15	12
	Higher education	105	81
Age	up to 25 years	14	11
	26-30 years	61	47
	31-35 years	42	33
	over 36 years	12	9

2.4. Data Analysis Methods

Upon completion of data collection, data analysis was initiated. Participants' responses were processed and transferred to Microsoft Excel 2023 for data entry, while the statistical software package IBM SPSS 29.0.0.0 was used for data analysis. Microsoft Excel 2023 was utilized for initial data analysis and table creation. The primary survey data was entered into this program. In the descriptive statistical data analysis phase, absolute counts (N) and percentages were calculated for normally distributed variables, and tables were generated. For interval variables, mean and standard deviation were reported.

Statistical methods were selected after examining the distribution of data according to the normal distribution. Given the relatively large sample size (129 participants), normality was assessed based on skewness and kurtosis coefficients as well as histogram examinations. The distribution of interval variables was assessed using the Shapiro-Wilk test, and if the skewness and kurtosis were within the range of -2 to +2, it was considered to satisfy the assumption of normality [12]. Independent samples t-test was employed for comparing two groups of

interval variables, while one-way ANOVA was used for comparisons involving more than two groups. Paired samples t-test was employed for dependent samples within the same group. Chi-square test was used for comparing the frequencies of categorical variables, and Fisher's exact test was used for small sample sizes. To compare proportions between two groups, z-test was employed. Pearson's correlation coefficient (r) was utilized to assess relationships between different variables. The significance level for statistical hypotheses was set at $p < 0.05$ for statistically significant and $p > 0.05$ for not statistically significant results.

3. Results

3.1. Coping Strategies Used by Expectant Women

The first objective of the study was to investigate the coping strategies used by expectant women. To analyse the application of coping strategies among expectant women, associations with socio-demographic data were evaluated, and questions from the Prenatal Coping Inventory (NuPCI) were examined. These questions aimed to assess how

frequently participants utilized various coping strategies in the past month to manage the stress associated with pregnancy and cope with emerging challenges.

3.1.1. Expression of Coping Strategies Used by Expectant Women

In the overall group of expectant women, there was a statistically significant difference ($p < 0.001$) in the most frequently used coping strategy, which was planning-preparation, compared to avoidance and spiritual positive coping strategies (mean score of planning-preparation subscale: 2.05 ± 0.58 , spiritual positive coping: 1.27 ± 0.79 , avoidance subscale: 1.32 ± 0.55). The indicators are presented in the figure 1.

3.2. Level of Distress Experienced by Women During Pregnancy

The second objective of the study was to determine the level of distress experienced by women during pregnancy. To assess the level of distress, the study

focused on questions regarding self-perceived well-being over the past seven days, using the Tilburg Pregnancy Distress Scale, and evaluated the associations with socio-demographic indicators.

From the study results, the distress level, or its absence among expectant women in each subscale is presented as a percentage. It was considered that if the overall scale score was equal to or higher than 17, distress was present. A score of 12 or higher in the negative affect subscale was considered indicative of unpleasant feelings, while a score higher than 7 in the partner support subscale indicated that the pregnant woman receives partner support [13]. A total of 42.6 % of participating expectant women felt distress, with the least distress experienced by pregnant women when there was partner involvement (82.2%). The distribution of women according to distress level during pregnancy can be seen in Figure 2.

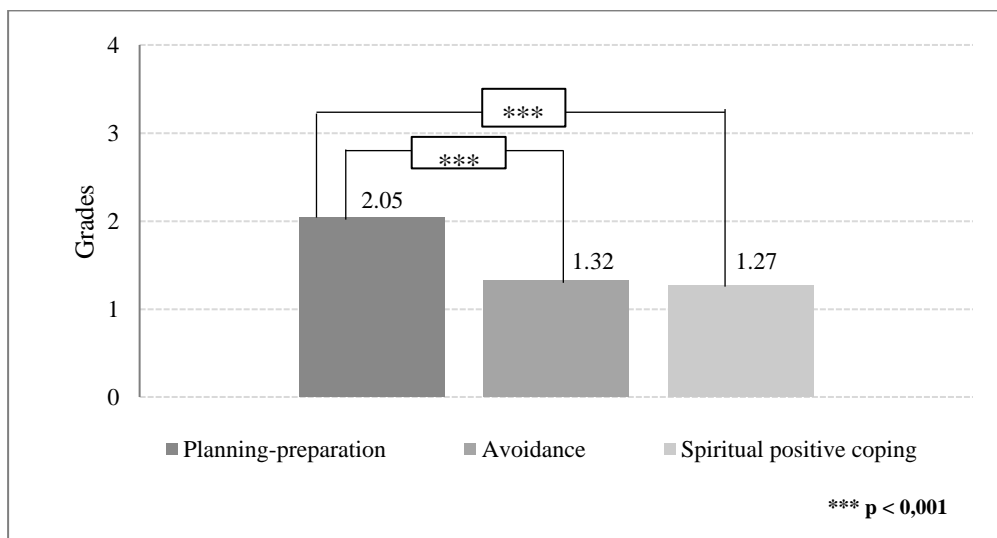


Figure 1. Evaluation of coping strategies in the overall group of expectant women using linear ANOVA criterion.

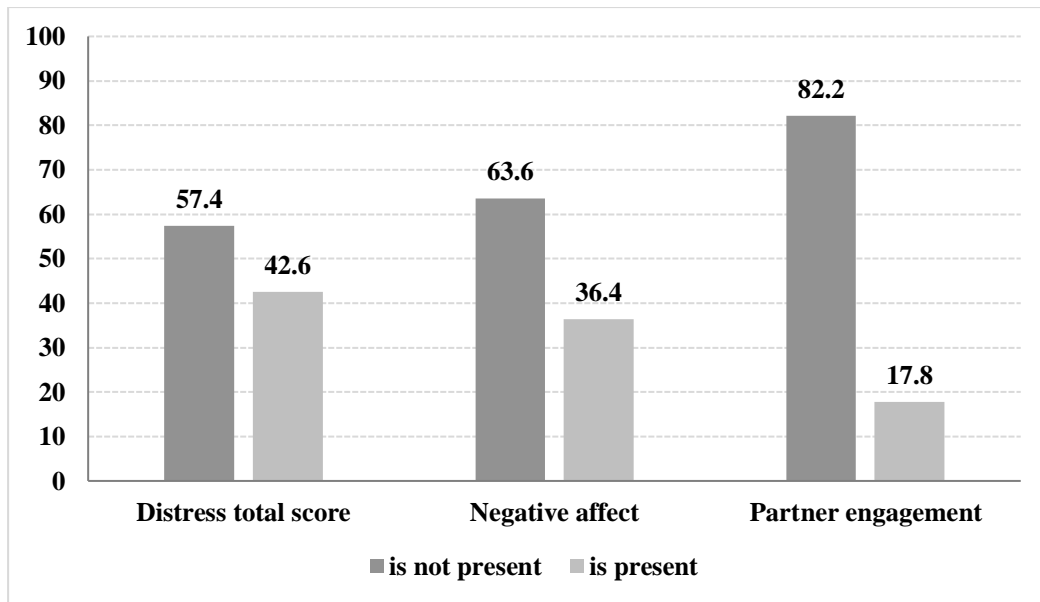


Figure 2. Distribution of Pregnant Women according to the Tilburg Pregnancy Distress Scale, univariate analysis.

3.2.1. Association between Distress Level and Socio-demographic Characteristics

The manifestation of distress related to partner involvement was investigated based on socio-demographic indicators. Statistically significant results were found in both groups of women, including those experiencing their first pregnancy and those who were already pregnant for more than once ($p = 0.007$). The presence of children and partner involvement were also statistically significant. Women who had previously given birth and felt romantic partner involvement experienced no distress (52.8%), while only 21.7% of pregnant women who had previously given birth reported experiencing distress. However, women who had not previously given birth and had an involved partner experienced a lower level of distress (65.1%). Age was also statistically significant ($p = 0.004$). Women aged 26 to 30 years reported no distress in relation to partner involvement (53.8%), while women in the 31-35 age group, whose romantic partners were involved, experienced distress (60.9%). The data are presented in Table 4.

3.3. Associations Between Coping Strategies Applied During Pregnancy and the Manifestation of Experienced Distress

The third objective of the research aimed to reveal the associations between coping strategies applied during pregnancy and the manifestation of experienced distress. Pearson's correlation method was chosen to analyse these results. The research findings revealed that a higher level of distress ($r = 0.53$; $p < 0.001$), as well as negative affect ($r = 0.37$; $p < 0.001$) and distress due to partner non-involvement ($r = 0.45$; $p < 0.001$), were associated with more frequent avoidance. The correlation coefficients indicated weak to moderate associations. Furthermore, the study data indicated that higher levels of negative affect were associated with more frequent proactive coping ($r = 0.30$; $p < 0.001$), while a higher level of distress due to partner non-involvement was associated with less frequent proactive coping ($r = -0.24$; $p = 0.006$). The correlation coefficients indicated weak associations. Refer to Table 5.

Table 4. Level of distress related to partner involvement manifested by socio-demographic indicators. Student's t-test and ANOVA were used.

Indicators	Partner engagement		p
	Was not present	Distress was present	
	n=106	n=23	
Pregnancy trimester, n (%):			0.608
I	19 (17.9 %)	2 (8.7 %)	0.280
II	33 (31.1 %)	8 (34.8 %)	0.731
III	54 (50.9 %)	13 (56.5 %)	0.627
Is this your first pregnancy, n (%):			0.007
Yes	56 (52.8 %)	5 (21.7 %)	
No	50 (47.2 %)	18 (78.3 %)	
Do you have any previous children, n (%):			0.002
Yes	37 (34.9 %)	16 (69.6 %)	
No	69 (65.1 %)	7 (30.4 %)	
Age, n (%):			0.004
≤25 years	11 (10.4 %)	3 (13.0 %)	0.718
26-30 years	57 (53.8 %)	4 (17.4 %)	0.002
31-35 years	28 (26.4 %)	14 (60.9 %)	0.001
>35 years	10 (9.4 %)	2 (8.7 %)	0.917
Place of residence, n (%):			0.515
Town or village	9 (8.5 %)	3 (13.0 %)	0.502
City	14 (13.2 %)	4 (17.4 %)	0.600
Metropolitan	83 (78.3 %)	16 (69.6 %)	0.373
Education, n (%):			0.309
Lower than higher	18 (17.0 %)	6 (26.1 %)	
University degree	88 (83.0 %)	17 (73.9 %)	

Table 5. Associations between experienced distress and coping strategies used during pregnancy, Pearson's correlation.

Strategies	Negative Affect		Partner Involvement		Distress	
	r	p	r	p	r	p
	Avoidance	0.37	< 0.001	0.45	< 0.001	0.53
Spiritual positive coping	0.14	0.105	-0.07	0.403	0.06	0.479
Preparation-planning	0.30	< 0.001	-0.24	0.006	0.13	0.159

3.4 Strengths and limitations of the study

Strengths of the study: this study is the first in Lithuania to analyse the relationship between coping strategies and distress in pregnant women. It is also the first study to address a topic that is relevant in today's society and has not been explored much. It should be mentioned that 129 pregnant women volunteered to participate in the study and most of the factors studied were statistically significantly related to both distress levels and coping strategies. This suggests that there is a correlation between coping mechanisms and distress levels. The results of the study provide a basis for further research.

Limitations of the study: Although the study has a high relevance, there are limitations. One of the limitations of this

thesis would be the lack of socio-demographic questions, as the participants were not asked about their marital status and financial situation, which are presumably also important extraneous factors that may be associated with psychological well-being and distress levels. As participation in the survey was voluntary, the sample is not representative, as pregnant women who have had difficult experiences or mental health problems may not have filled in the questionnaire.

4. Conclusions

1. Statistically significant differences in the Prenatal Coping Inventory (NuPCI) were observed between trimester, singleton and repeat pregnancies, and having or not having had a child previously. Among pregnant women), the most frequently used coping strategy was planning-preparation compared with avoidance and spiritual coping strategies.

2. Analysis of the results of the Tilburg Pregnancy Distress Scale shows that the pregnant women in the study showed an increase in distress levels. Almost half of the participants had elevated levels of

distress. Women aged 35 years and over were more likely to experience distress.

3. The use of coping strategies is significantly associated with the experience of distress among pregnant women. No significant associations were found between the use of spiritual-positive coping strategies and the level of distress, partner involvement and negative affect in pregnant women.

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