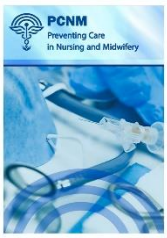
Prev Care Nurs Midwifery J (PCNM)
http://dx.doi.org/10.61882/pcnm.15.3.71

PCNM. 2025;15(3):71-79
Peer-Reviewed | Open Access

Preventive Care in Nursing and Midwifery Journal



Original Article

The Effect of Group Counselling with Positive Psychological Approach on Psychological Capital of Pregnant Women: A Randomized Clinical Trial

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Received: 18 May 2025 **Accepted:** 23 Jun. 2025 **Published:** 20 Aug 2025

Article Info

Keywords:
Group Counseling
Positive Psychology
Psychological Capital
Pregnant Women

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How to Cite This Article:
Mostafaei M, Mokhtari Zanjani M, Emamghooli Khooshehchin T. The Effect of Group Counseling with Positive Psychological Approach on Psychological Capital of Pregnant Women: A Randomized Clinical Trial. Prev Care Nurs Midwifery J. 2025;15(3):71-79.

Abstract

Background: In addition to physical changes, pregnancy is associated with many psychological and social changes, which can have adverse effects on the consequences of pregnancy and even the future of the infant.

Objectives: This study aimed to determine the effect of group counseling using a positive psychological approach on pregnant women's psychological capital.

Methods: This randomized clinical trial was performed on 56 pregnant mothers visiting Zanjan health centers. Positive psychological interventions were performed twice a week for 8 sessions of 60 minutes. Data collection was performed using McGee's Psychological Capital Questionnaire in three stages: before, after, and six weeks after the intervention. and the data were analyzed using chi-square, independent t-test, Mann-Whitney, Friedman, and variance analysis with repeated measurements.

Results: The mean scores of psychological capital and its subscales (self-efficacy, resilience, hope, and optimism) at post-test in the intervention group were significantly higher than the control group (P <0.05). The mean difference in scores six weeks after the intervention was significant in the Psychological Capital variable (P =0.049). However, no significant difference was observed in any of its subscales (P >0.05).

Conclusion: Positive group counseling can improve psychological capital in pregnant women. Therefore, it is recommended that such interventions to promote mental health during pregnancy be considered by health policymakers.

Implications for Nursing and Midwifery Preventive Care

- Group counseling grounded in positive psychology significantly enhances pregnant women's psychological capital, including resilience, hope, optimism, and self-efficacy.
- Strengthening these components can reduce anxiety and depression while promoting healthier behaviors and improving preparedness for childbirth and parenting.

Introduction

Maternal physical health is closely linked to mental well-being, which is considered by some as a key determinant of family health and the well-being of the soon-to-be-born child [1]. Poor maternal mental health is associated with adverse outcomes such as preterm birth, low birth weight, early developmental disorders, neurodevelopmental problems in adolescence, as well as psychosocial problems in adulthood [2].

Evidently, the physiological, psychological, and social challenges of pregnancy can affect women's psychological capital [3]. Psychological capital (PsyCap) is a positive psychological resource comprising self-efficacy, hope, resilience, and optimism [4-6]. This method improves stress coping strategies and overall functioning while also positively impacting health outcomes [7-9]. PsyCap has been found to predict postpartum anxiety and depression [10]. First introduced by Seligman and colleagues in 1998, positive psychology focuses on strengths, psychological assets, and human potential rather than on deficits and illness, aiming to enhance positive perceptions, behaviors, and emotions, thereby improving life quality and coping with life events [11].

Individual components, such as self-efficacy, are directly linked to self-care behaviors in pregnant women [12], resilience mitigates pregnancy-related stress and facilitates confidence during labor [13], and optimism correlates positively with psychological well-being and reduced stress perception [14]. Interventions based on hope have shown improvements in mental health and reduced labor pain [15]. All dimensions of psychological capital are learnable and developable, with positive psychology being one prominent intervention strategy [16,17]. It has been recommended that psychological capital be incorporated into maternal mental health promotion programs [18,19].

Objectives

This study aimed to determine the effect of group counseling with a positive psychological approach on the psychological capital of pregnant women.

Methods

Study Design

This single-blind clinical trial was conducted in 2019 in Zanjan, with participants unaware of their assignment to either the intervention or control group.

Participants

The study population consisted of pregnant women referring to health centers in Zanjan. Eligible participants who met the inclusion criteria and were willing to participate were selected. After providing detailed explanations regarding the study objectives, procedures, and ensuring confidentiality of information, written informed consent was obtained from all participants.

The inclusion criteria were: gestational age between 14 and 28 weeks, completion of the informed consent form, no history of pregnancy-related complications, absence of medical or surgical conditions, absence of psychiatric disorders or cognitive impairments, no use of psychotropic medications or illicit substances, no clinical depression or mild-to-moderate scores on anxiety, stress, and depression scales, at least a junior high school education, and no prior participation in similar educational or counseling sessions. Exclusion criteria included withdrawal from the study, absence from more than two counseling sessions, pregnancy complications or termination, medical or surgical events, and major stressful life events during the study.

Sample Size Calculation

The sample size was calculated based on data from a previous study by Dehghan Nejad et al. [20], with the following parameters: a mean (μ) of 67.48 and standard deviation (s) of 8.89 for the control group, and a mean of 75.5 with a standard deviation of 9.61 for the intervention group.

Using a significance level (α) of 0.05 and a power (1−β) of 80% (corresponding to $Z_{1-\beta} = 0.84$), and accounting for an estimated 20% dropout rate, the required sample size was determined.

Sampling and Randomization

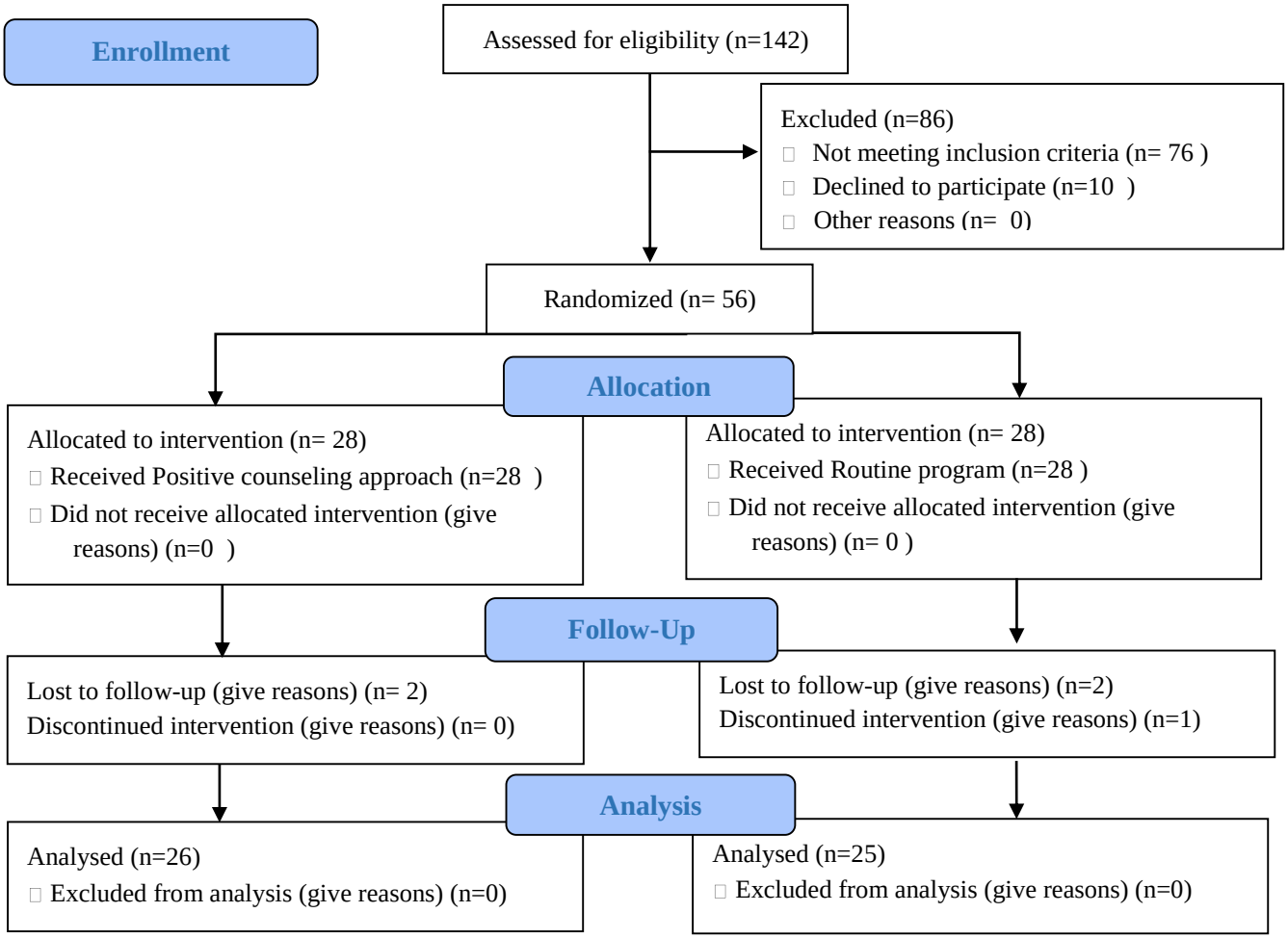
Sampling was conducted among 142 eligible pregnant women referring to health centers in Zanjan city, and 56 women meeting the eligibility criteria were selected (Flowchart 1). To control confounding factors, block randomization was used: in each block of four, two participants were allocated to the intervention group and two to the control group, resulting in six blocks in various arrangements, each numbered. Blocks were randomly selected until the sample size reached 56. Finally, 28 participants were assigned to each group.

Intervention

The intervention was implemented by a researcher in the field of midwifery counseling who had completed a workshop on positive psychotherapy. The content of the sessions was designed based on the positive psychotherapy protocols of Tayeb Rashid and Martin Seligman, under the supervision of the research team. This intervention consisted of eight one-hour sessions, held twice a week in two groups of 10 people and one group of 8 people by the first author (MM). The control group received only routine prenatal care.

Session Structure

Each session began with a welcome and acknowledgment of the participants, followed by a review of the previous session's topics and assignments. Participants' questions, concerns, and needs were addressed. The content of the current session was then presented, and mothers were encouraged to share their opinions and experiences in a group discussion. At the end of each session, homework assignments were provided according to the study protocol.



Flowchart 1. How participants enter the study

Outcome Assessment

Upon completion of the intervention, participants were asked to complete the psychological capital and quality of life questionnaires immediately after the final session and again six weeks later, returning the completed forms to the researcher. The description of the sessions is given in Table 1. Psychological capital was assessed at three time points: pre-intervention, post-intervention, and six weeks after the intervention.

Table 1. Content of the Intervention Sessions

Session	Topic
Session 1	Introduction to Positive Psychology
Session 2	Capabilities
Session 3	Positive Emotions and Pleasure
Session 4	Positive Relationships
Session 5	Gratitude and Forgiveness
Session 6	Optimism and Hope and Debating Pessimistic Thoughts
Session 7	Meaning in Life and Altruism
Session 8	Summary of the Sessions

Data Collection Instrument

Data were collected using the Psychological Capital Questionnaire (PCQ) developed by McGee in 2011 [21], which includes 26 items across four subscales: self-efficacy, hope, resilience, and optimism. Responses are recorded on a six-point Likert scale (1 = strongly disagree to 6 = strongly agree). Total scores range from 26 to 156, with higher scores indicating higher psychological capital. Subscale scores are calculated individually and summed to obtain the total psychological capital score.

McGee has extensively examined the validity and reliability of this questionnaire, along with the 25- and 12-question psychological capital forms, and has provided solid evidence of its validity and reliability [21]. In Iran, Golparvar et al. (2011) reported Cronbach's alpha coefficients of 0.88, 0.86, 0.83, and 0.83 for self-efficacy, resilience, optimism, and hope, respectively [22].

Similarly, Barghi Irani et al. (2016) found alpha coefficients of 0.84, 0.86, 0.78, and 0.82 for the same subscales in a study on 350 elderly diabetic participants [23].

Statistical Analysis

Data obtained from the remaining subjects in the study were analyzed using SPSS version 16 software. Descriptive statistics (mean, standard deviation, frequency) were calculated. Chi-square tests were used for categorical variables. The Kolmogorov-Smirnov test was applied to examine the normality of variables. Independent-samples t-tests and Mann-Whitney tests were used for between-group comparisons, and repeated-measures ANOVA (with Mauchly's sphericity assumption) and the Friedman test were used for within-group comparisons.

A p-value < 0.05 was considered statistically significant. A per-protocol analysis approach was employed. Among the initial 56 participants, three in the intervention group and two in the control group were lost to follow-up or discontinued the intervention. Therefore, the final analysis included data from the 25 participants who completed the study in the intervention group and the 26 participants who completed the study in the control group.

Results

At baseline, each group included 28 pregnant women. During the study, three participants in the intervention group (due to immigration, unwillingness to participate, and premature birth) and two in the control group were lost to follow-up. Consequently, the final analysis included 25 participants in the intervention group and 26 in the control group.

As shown in Table 2, all demographic and baseline psychological variables were normally distributed. Participants in both groups were homogeneous regarding sociodemographic characteristics and obstetric history, with mild-to-moderate scores on stress, anxiety, and depression scales; no significant differences were observed in these variables between groups ($p > 0.05$ for all comparisons).

Table 2. Comparison of Demographic and Psychological Characteristics

Variable	Intervention Group (n = 25)	Control Group (n = 26)	*p*
Education			
Undergraduate	2 (8.0%)	3 (11.5%)	
Diploma	10 (40.0%)	12 (46.2%)	0.770
University	13 (52.0%)	11 (42.3%)	
Job			
Housewife	22 (88.0%)	22 (84.6%)	
Freelance	2 (8.0%)	2 (7.7%)	0.990
Employee	1 (4.0%)	2 (7.7%)	
Number of Pregnancies			
Nulliparous	11 (44.0%)	9 (34.6%)	
Multiparous	14 (56.0%)	17 (65.4%)	0.490
Maternal Age	30.08 (4.17)	29.23 (4.25)	0.470
Gestational	20.24 (4.41)	21.07 (4.27)	0.490
Anxiety	7.92 (4.22)	7.30 (5.08)	0.670
Stress	12.24 (5.78)	11.92 (7.09)	0.860
Depression	8.00 (5.32)	7.53 (6.20)	0.610

All study variables, except self-efficacy and optimism at follow-up, were normally distributed. There were no significant differences between the groups in total psychological capital and its subscales at baseline ($p > 0.05$) (Tables 3 & 4).

Post-intervention, significant differences were observed between the intervention and control groups in total psychological capital ($p = 0.021$) and in all four subscales: self-efficacy ($p = 0.042$), hope ($p = 0.032$), resilience ($p = 0.023$), and optimism ($p = 0.040$). At the six-week follow-up, a significant difference remained only in total psychological capital ($p= 0.049$), while differences in the individual subscales were no longer statistically significant ($p > 0.05$) Within-group comparisons showed significant improvements across the three time points in the intervention group for total psychological capital and all subscales ($p < 0.001$ for all), while no significant changes were observed in the control group over time ($p > 0.05$) (Tables 3 & 4).

Table 3. comparison of mean total psychological capital scores between the intervention and control groups across time points

Variable	Intervention Group (n = 25)	Control Group (n = 26)	*p*
Psychological Capital Before Intervention	108.56 (15.19)	109.26 (15.28)	0.860
Psychological Capital After Intervention	118.04 (13.83)	108.61 (14.41)	0.021
Psychological Capital Six Weeks Later	116.16 (13.15)	108.61 (13.53)	0.049
Test Result (Within Group)	$F = 118.89$, $p < 0.001$	$F = 0.22$, $p = 0.800$	

Table 4. Comparison of Mean Scores for Psychological Capital Subscales Between the Intervention and Control Groups Across Time Points

Variable	Time Point	Intervention Group (n=25)	Control Group (n=26)	*p*	Within-Group Test (Intervention)	Within-Group Test (Control)
Self-Efficacy	Before	30.48 (4.85)	30.61 (4.04)	0.914		
	After	32.92 (4.26)	30.26 (4.78)	**0.042**	$\chi^2 = 26.17$, $p< 0.001$	$F = 0.95$, $p = 0.390$
	Six Weeks	32.24 (4.71)	29.96 (4.40)	0.079		
Hope	Before	29.72 (4.57)	29.34 (4.39)	0.760		
	After	32.44 (4.47)	29.79 (4.16)	**0.032**	$F = 31.93$, $p < 0.001$	$F = 0.44$, $p = 0.640$
	Six Weeks	31.88 (4.49)	29.69 (4.24)	0.080		
Resilience	Before	25.80 (3.71)	26.15 (3.56)	0.730		
	After	28.20 (3.39)	25.76 (3.97)	**0.023**	$F = 42.24$, $p < 0.001$	$F = 0.41$, $p = 0.660$
	Six Weeks	27.76 (2.97)	26.00 (3.78)	0.072		
Optimism	Before	22.56 (2.90)	23.15 (3.96)	0.540		
	After	24.48 (2.63)	22.80 (3.03)	**0.040**	$\chi^2 = 27.83$, $p < 0.001$	$F = 0.26$, $p = 0.760$
	Six Weeks	24.28 (2.28)	22.96 (2.89)	0.096		

Discussion

A comparison of mean scores between the intervention and control groups showed that group counseling based on a positive psychology approach had a significant effect on the psychological capital of pregnant women. This effect on the total psychological capital score persisted up to six weeks after the intervention. However, at the six-week follow-up, no significant differences were observed between the groups on any of the individual subscales.

In line with the present study, Daee Jafari et al. (2017) concluded that positive psychotherapy improved psychological capital in adolescent girls by fostering their strengths and abilities [24]. Arshadi et al. (2018) reported similar results among employed women at Ahvaz University, demonstrating the effectiveness of positive psychology training on psychological capital [25]. Namazi et al. (2016) also found that positive psychology interventions led to significant differences in psychological coherence and psychological capital between intervention and control groups [26]. Other research using various psychological approaches confirms that psychological capital is a developable and trainable construct. For instance, acceptance and commitment group therapy improved psychological capital in cardiac patients [27], and Ellis' rational-emotive behavior therapy significantly enhanced psychological capital [28]. Hope-based interventions in diabetic patients also showed sustained improvements across all four psychological capital components up to three months post-intervention [29]. Additionally, Saketi et al. (2022) reported that positive psychotherapy improved both psychological capital and social competence in married, childless women, emphasizing the utility of optimism and hope training in enhancing these capacities [30].

In contrast, a study conducted on 9 mothers of college students rejected the effect of positive psychology on resilience [31], which may be due to the small sample size and differences in the type of questionnaire. Furthermore, the results of a study by Hakimi et al. (2018) on personality strengths showed that positive training does not affect optimism [32]. This discrepancy with the results of the present study could be due to the low age of the participants and the difference in the type of questionnaire. Alipour and colleagues also conducted a study in 2014 entitled "The Effect of Psychological Capital Training Using Luthans' Intervention Model on the Psychological Capital of Experts Working in an Industrial Company" [33]. The results showed that the average scores in the three components of self-efficacy, resilience, and hope increased, but no improvement was observed in the optimism dimension. This discrepancy with the present study may be due to the difference in the approach used.

Psychological capital (PsyCap) is a positive psychological resource comprising self-efficacy, hope, resilience, and optimism [4-6]. This framework emphasizes the development of positive and learnable psychological states. The findings of this study support the theory that these components can be enhanced through structured interventions such as group counseling based on positive psychology, which focuses on cultivating strengths and positive emotions. The overall improvement in psychological capital post-intervention, even without sustained differences in individual subscales at follow-up, may indicate the integrated and holistic impact of the intervention on PsyCap as a unified construct. This aligns with the multidimensional yet cohesive nature of this construct in Luthans' theory [5].

A significant proportion of pregnant women experience depression, anxiety, and stress during pregnancy, which are also highly prevalent in our country [34,35]. These disorders have been associated with decreased self-care during pregnancy, increased incidence of interventions during labor, and a 2.3-fold increase in the incidence of cesarean section [36-38]. Based on these findings, incorporating positive psychology-based group interventions into antenatal care packages offers a preventive, cost-effective, and scalable strategy for increasing the psychological capital of pregnant women. These findings can be used to design comprehensive mental health promotion programs that aim to reduce unnecessary obstetric interventions, increase maternal coping skills, and

improve pregnancy outcomes and infant health. Considering the continuous interaction between midwifery personnel and expectant mothers during pregnancy, this group of healthcare providers may be ideally positioned to integrate psychological and physical care for pregnant women.

This study had several limitations. The use of self-report questionnaires may have introduced response bias; to mitigate this, participants were provided with detailed instructions emphasizing the importance of accurate and careful completion. Moreover, participation in counseling sessions required sustained engagement, and reluctance among some participants may have affected adherence. To encourage consistent participation, participants were fully informed about how their involvement could contribute to improving maternal mental health, pregnancy outcomes, and the well-being of their future children.

Although this study was conducted in a limited statistical population, given the paucity of psychological studies with a positive approach in pregnant women, it is hoped that the results of this study can be used to develop comprehensive health and treatment programs for pregnant mothers and benefit from its effect on promoting mental health and healthy behaviors, along with other routine pregnancy care. Finally, it is suggested that the effect of the positive psychology approach be studied in larger statistical groups and on variables such as common physical problems during pregnancy. It is also suggested that this research be conducted on other groups in the population and the results be compared with each other.

Conclusion

Group counseling based on a positive psychology approach provides a reliable framework for developing psychological capital in pregnant women. Its effects on total psychological capital persist up to six weeks post-intervention.

Considering the continuous interaction between midwifery personnel and expectant mothers during pregnancy, this group of healthcare providers may be ideally positioned to integrate psychological and physical care for pregnant women.

Ethical Consideration

This article is derived from a Master's thesis in Midwifery Counseling with ethics code (IR.ZUMS.REC.1397.308) and is registered in the Clinical Trials Registry with code IRCT20160521027994N6.

Additionally, all methods were carried out according to relevant guidelines and regulations, and participants provided consent to participate in the study.

Acknowledgements

The authors would like to sincerely thank the Deputy of Research and Technology at Zanjan University of Medical Sciences for their financial support of this study. The authors also extend their heartfelt appreciation to all mothers who participated in this study.

Conflict of Interest

The authors have no conflict of interest to declare.

Funding

The present article has been derived from the master's thesis of the first author in Midwifery Counseling (code: A-11-108-8), financially supported by the Research and Technology Vice-Chancellor of Zanjan University of Medical Sciences.

Authors' Contributions

Mostafaei M.: The study conception and design; data collection, analysis, and interpretation; and the manuscript preparation, reading, revision, and approval.

Mokhtari Zanjani M., and Emamghooli Khooshehchin T.: The study design, data analysis, and the manuscript preparation, reading, revision, and approval. All authors read and approved the final manuscript and agreed to be personally accountable for their contributions.

Artificial Intelligence Utilization

During manuscript preparation, minor assistance from artificial intelligence (AI) tools was utilized to enhance English phrasing and improve the clarity of

scientific writing. All analytical decisions and final editing were performed by the authors. The use of AI complied with ethical standards of academic publishing and did not replace the author's responsibility.

Data availability statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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