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Effect of Motivational Interviewing on Childbearing Intention among Women with One Child

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Abstract

Aims: This study aimed to evaluate the effect of motivational interviewing, based on the theory of planned behavior, on childbearing intention among women with one child.

Instrument & Methods: This randomized controlled trial was conducted in 2025 among 90 women with one child attending comprehensive health service centers in Bijar, Iran. Participants were randomly assigned to either an intervention group or a control group (n=45 per group). Data were collected using a demographic questionnaire and a theory of planned behavior-based childbearing intention questionnaire. The intervention group participated in six motivational interviewing sessions (45–60 minutes each), while the control group received routine care. Outcomes were assessed at baseline, immediately following the intervention, and at a three-month follow-up. Data were analyzed using independent t-tests and repeated-measures analysis of variance by SPSS 27.

Findings: The mean age in the intervention and control groups was 35.62±6.43 vs. 35.86±5.49 years, respectively. At baseline, no significant differences were observed between the groups regarding demographic characteristics or theory of planned behavior construct scores ($p>0.05$). The intervention group demonstrated significant group-by-time effects for perceived behavioral control and childbearing intention ($p<0.001$), with improvements observed immediately after the intervention and maintained at the three-month follow-up. Although attitude and subjective norms changed significantly over time, the group-by-time interactions for these constructs were not statistically significant ($p=0.070$ and $p=0.168$, respectively).

Conclusion: Theory-based motivational interviewing effectively enhances childbearing intention among women with one child.

Keywords

Theory of Planned Behavior [https://www.ncbi.nlm.nih.gov/mesh/2103216];
Motivational Interviewing [https://www.ncbi.nlm.nih.gov/mesh/68062405];
Child [https://www.ncbi.nlm.nih.gov/mesh/68002648];
Quasi-experimental Study [https://www.ncbi.nlm.nih.gov/mesh/68065228]

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Introduction

Over the past few decades, Iran has experienced a marked decline in fertility, with the total fertility rate decreasing from 6.5 births per woman in 1986 to 1.6 in 2020, well below the replacement level. This trend has become a major demographic challenge, contributing to population aging, a shrinking workforce, and increasing dependency ratios. In response, national fertility-promotion policies have sought to increase fertility above the replacement level (>2.1 children per woman) [1].

Alongside this demographic transition, attitudes toward childbearing have changed considerably, with an increasing preference among Iranian families for having only one child [2]. Declining fertility and changes in childbearing patterns have important demographic, social, and economic consequences, including disruption of generational replacement, accelerated population aging, weakening of family support networks, and potential psychosocial consequences for children [3, 4]. Childbearing behavior is influenced by a complex interplay of cultural, social, economic, religious, psychological, and policy-related factors [5]. However, growing evidence suggests that individual attitudes and fertility motivation are among the strongest determinants of childbearing intention [6, 7].

Educational and counseling interventions have been recommended to promote informed decision-making regarding fertility [8]. Among these approaches, motivational interviewing has been recognized as an effective, client-centered counseling method for increasing intrinsic motivation by exploring and resolving ambivalence [9]. Motivational interviewing facilitates sustainable behavior change by fostering empathy, supporting self-efficacy, and helping individuals align their behaviors with their personal values and goals [9, 10]. It is effective in improving a variety of reproductive health behaviors and attitudes. Specifically, motivational interviewing can improve behaviors and attitudes related to reproductive health, increase self-efficacy, and strengthen motivation to adopt healthy behaviors [11]. Therefore, this approach can be considered a promising strategy for promoting childbearing intention.

The theory of planned behavior (TPB) is one of the most widely used frameworks for predicting fertility intention [12, 13]. According to the TPB, behavioral intention is determined by three key constructs: attitude toward the behavior, subjective norms, and perceived behavioral control [14]. Integrating motivational interviewing with the TPB may strengthen these determinants by addressing both the motivational and cognitive processes underlying reproductive decision-making.

Several studies have used the TPB to promote childbearing intention and have demonstrated the theory's effectiveness in improving attitudes, subjective norms, perceived behavioral control, and, ultimately, childbearing intention. However, a review of the scientific literature shows that few studies have combined the theoretical approach of the TPB with the counseling method of motivational interviewing to increase childbearing intention. This study aimed to evaluate the effectiveness of a combined approach—an educational intervention based on the TPB and motivational interviewing counseling techniques—on childbearing intention among women with one child.

Instrument and Methods

Design and Participants

This randomized controlled study used a pretest–posttest control group design and was conducted between July 2025 and February 2026 at two urban comprehensive health service centers in Bijar, Kurdistan Province, Iran.

The sample comprised married women aged 15–49 years who had one child. Eligible participants had at least one child aged 18 months or older, provided written informed consent, and had no history of infertility, hysterectomy, or hereditary congenital disorders. Participants who missed more than one intervention session, became pregnant, experienced divorce or the death of their spouse during the study, or attended similar educational programs were excluded from the final analysis.

The sample size was estimated using G*Power software based on a repeated-measures design (effect size=0.25, power=90%, α=0.05, three measurements, and a correlation among repeated measures of 0.5). A minimum of 36 participants per group was required. To account for an anticipated attrition rate of 25%, 45 women were recruited for each group (90 participants in total).

After obtaining an official letter of introduction, the researcher visited the selected urban comprehensive health service centers in Bijar and compiled a list of eligible women with one child. A total of 90 eligible participants were selected using simple random sampling. Before data collection, the study objectives, the confidentiality of information, and participants' right to withdraw from the study at any time without penalty were explained, and informed consent was obtained. Participants then completed the baseline (pretest) questionnaires.

Following baseline data collection, participants were randomly allocated to the intervention and control groups in a 1:1 ratio. An independent midwife working at a comprehensive health service center performed the group allocation. A random number was generated for each participant, and whether the number was even or odd determined the participant's assigned study group. The researcher was responsible for identifying eligible participants, recruitment, enrollment, and data collection,

whereas the midwife was responsible for allocating participants to the intervention and control groups.

Instrument

Data were collected using a demographic questionnaire and the Theory of Planned Behavior (TPB)-Based Childbearing Intention Questionnaire developed and validated by Nakhaee & Khajeh [15].

The demographic questionnaire collected information on age, educational level, the spouse's educational level, occupation, the spouse's occupation, monthly income, housing status, the first child's sex, history of difficult pregnancy or childbirth, physician-diagnosed physical or mental illness, life satisfaction, and marital satisfaction.

The Theory of Planned Behavior questionnaire comprised 18 items assessing attitude (8 items), subjective norms (4 items), and perceived behavioral control (6 items). Responses were scored on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Childbearing intention was assessed using a single item: "How likely are you to try to conceive and have a second child within the next six months?" Responses ranged from 1 (very unlikely) to 5 (very likely). This single-item measure was used to directly assess participants' intention to have a second child within a specified time frame. Cronbach's alpha coefficients indicated acceptable internal consistency for the attitude (α=0.74), subjective norms (α=0.83), and perceived behavioral control (α=0.78) subscales. Cronbach's alpha was not calculated for childbearing intention because it was assessed using a single item.

Procedure

After obtaining ethical approval and institutional permission, eligible participants received information about the study objectives, confidentiality, voluntary participation, and their right to withdraw at any time before providing written informed consent. Baseline data were collected before random allocation.

Participants assigned to the intervention group attended six weekly, face-to-face group motivational interviewing sessions, each lasting 45–60 minutes (Table 1).

The intervention was designed according to the principles of motivational interviewing and the constructs of the TPB. Sessions focused on enhancing positive attitudes toward childbearing, strengthening subjective norms and perceived behavioral control, resolving ambivalence, increasing intrinsic motivation, and reinforcing behavioral intention. Educational content was tailored to participants' baseline responses and educational levels. Sessions were delivered in groups of 10–15 participants using interactive discussions, problem-solving activities, reflective exercises, and facilitator feedback.

Table 1. Content of the theory of planned behavior (TPB)-based motivational interviewing intervention

Session	TPB construct	Objectives and main content	Motivational interviewing strategies	Educational methods
1	Introduction	Introduction to the study, establishment of rapport, assessment of participants' reproductive history, childbearing intentions, values, and concerns; Discussion of fertility trends and demographic changes in Iran.	Building rapport, expressing empathy, open-ended questioning, reflective listening	Interactive lecture, question-and-answer, group discussion
2	Attitude	Exploring participants' beliefs about childbearing, perceived advantages and disadvantages of having another child, consequences of delayed childbearing and single-child families, and clarification of personal life goals.	Developing discrepancy, eliciting change talk, decisional balance, reflective listening	Group discussion, guided reflection, facilitator feedback
3	Subjective norms	Exploring the influence of spouses, parents, relatives, peers, and society on childbearing decisions; Discussing cultural expectations, family support, and successful role models with more than one child.	Exploring social influences, values clarification, reinforcing supportive norms	Interactive lecture, problem-solving, group discussion
4	Perceived behavioral control	Identifying perceived barriers to childbearing, strengthening confidence in managing pregnancy and parenting, introducing available health and social support resources, and setting realistic reproductive goals.	Supporting self-efficacy, collaborative problem-solving, strengthening autonomy	Interactive lecture, question-and-answer, group discussion
5	Behavioral intention	Strengthening commitment to childbearing by reviewing intrinsic and extrinsic motivations, resolving remaining ambivalence, discussing parenting benefits and available support services, and developing an individualized action plan.	Eliciting commitment language, reinforcing change talk, action planning	Brainstorming, problem-solving, group discussion
6	Consolidation	Review of key concepts, discussion of participants' experiences, reinforcement of confidence and motivation, summary of behavior change strategies, and planning for maintenance of positive intentions. Weekly reminder text messages were sent after the intervention to reinforce the educational content.	Summarizing, affirming progress, relapse prevention, maintenance planning	Group discussion, facilitator feedback, experience sharing

The intervention was delivered by the researcher, who received training and guidance from a subject matter expert. A standardized guide was used to support adherence to the intervention protocol and ensure consistency across the six weekly sessions. A midwife and a psychologist from the Comprehensive Health Service Center attended the educational sessions and provided general education and recommendations. When individual counseling was considered necessary, participants were referred to

the center's psychologist for an individual consultation. Educational resources included brochures, guidebooks, and reliable websites provided by the Ministry of Health, which offered scientific and practical information on childbearing and strategies for coping with potential challenges. Participants also received an educational booklet summarizing the session content, and weekly reminder text messages were sent after the intervention was completed.

The control group received only the routine reproductive health services provided by the health centers during the study period. After follow-up was completed, educational materials about fertility and childbearing were provided to the control group.

Questionnaires were completed at baseline, immediately after the intervention, and three months after the intervention. All 90 participants completed the baseline, immediate postintervention, and three-month follow-up assessments, and no missing data were reported.

Data analysis

Data were analyzed using SPSS 27. Data normality was assessed using the Kolmogorov-Smirnov and Shapiro-Wilk tests. Baseline differences between groups were assessed using independent t-tests. Changes over time and between-group differences were analyzed using repeated-measures analysis of variance (ANOVA).

Findings

A total of 90 women who had one child participated in this study and were randomly assigned to the intervention or control group. No participants in either group were lost to follow-up during the study. The intervention group had a mean age of 35.62±6.43 years, compared with 35.86±5.49 years in the control group (p=0.547). The mean monthly income was 22.55±9.13 Iranian toman/month in the intervention group and 24.46±9.97 Iranian toman/month in the control group (p=0.458).

Table 2. Comparison of frequency of baseline demographic characteristics of participants in the intervention and control groups

Parameter	Category	Intervention (n=45)	Control (n=45)	p-Value
Education	Primary	6 (13.3)	8 (17.8)	0.709
	Middle school	19 (42.2)	21 (46.7)	
	High school diploma	10 (22.2)	10 (22.2)	
	University	10 (22.2)	6 (13.3)	
Occupation	Housewife	32 (71.1)	31 (68.9)	1.000
	Employed	13 (28.9)	14 (31.1)	
Spouse's occupation	Employee	12 (26.7)	13 (28.9)	0.556
	Self-employed	18 (40.0)	15 (33.3)	
	Worker	15 (33.3)	17 (37.8)	
Spouse's education	Primary	9 (20.0)	6 (13.3)	0.843
	Middle school	18 (40.0)	19 (42.2)	
	High school diploma	9 (20.0)	11 (24.4)	
	University	9 (20.0)	9 (20.0)	
Housing status	Own house	20 (44.4)	17 (37.8)	0.668
	Rental	25 (55.6)	28 (62.2)	
Sex of first child	Female	28 (62.2)	27 (60.0)	1.000
	Male	17 (37.8)	18 (40.0)	
History of disease	Yes	12 (26.7)	14 (31.1)	0.491
	No	33 (73.3)	31 (68.9)	
Life satisfaction	Low	3 (6.7)	3 (6.7)	0.938
	Moderate	30 (66.7)	31 (68.9)	
	High	9 (20.0)	7 (15.6)	
	Very high	3 (6.7)	4 (8.9)	
Marital satisfaction	Low	6 (13.3)	5 (11.1)	0.960
	Moderate	24 (53.3)	25 (55.6)	
	High	12 (26.7)	11 (24.4)	
	Very high	3 (6.7)	4 (8.9)	
History of difficult pregnancy	Yes	18 (40.0)	23 (51.1)	0.397
	No	27 (60.0)	22 (48.9)	

Table 3. Mean scores of the theory of planned behavior constructs at three assessment time points

Construct	Time	Intervention	Control	Between-group p-value
Attitude	Baseline	25.08±5.07	24.06±3.74	0.280
	Immediately after	27.68±4.59	24.44±3.79	<0.001
	3-month follow-up	27.86±4.03	24.75±2.76	<0.001
Subjective norms	Baseline	12.68±3.43	13.02±3.25	0.638
	Immediately after	14.66±3.47	14.04±3.04	0.368
	3-month follow-up	15.66±2.59	14.88±2.99	0.191
Perceived behavioral control	Baseline	16.51±4.04	17.26±5.07	0.437
	Immediately after	21.17±3.49	17.91±4.74	<0.001
	3-month follow-up	19.71±3.60	15.65±3.95	<0.001
Childbearing intention	Baseline	1.31±0.63	1.53±0.53	0.069
	Immediately after	2.64±1.04	1.48±0.54	<0.001
	3-month follow-up	2.40±0.91	1.48±0.54	<0.001

There were no statistically significant differences between the intervention and control groups in age, monthly income, educational level, occupation, spouse's occupation, spouse's education, housing status, the sex of the first child, history of disease, life satisfaction, marital satisfaction, or history of a difficult pregnancy (all p>0.05), indicating that the groups were comparable at baseline (Table 2).

There were no statistically significant differences between the intervention and control groups in the baseline mean scores for attitude, subjective norms, perceived behavioral control, or childbearing intention (p>0.05), confirming that the groups were homogeneous before the intervention (Table 3).

Significant group×time interactions were observed for perceived behavioral control and childbearing intention, indicating different patterns of change between the intervention and control groups. However, the group×time interactions were not statistically significant for attitude or subjective norms (Table 4).

The intervention group demonstrated greater improvements in attitude, perceived behavioral control, and childbearing intention than the control group, with the effects persisting at the three-month follow-up (Figure 1).

Table 4. Repeated-measures ANOVA results for attitude, subjective norms, perceived behavioral control, and childbearing intention

Parameter	Effect	F(df1, df2)	p-Value	Partial η^2	95% CI for group estimated
Attitude	Group	F(1, 88)=14.653	<0.001	0.143	25.97-27.78
	Time	F(1.159, 102.012)=7.296	0.006	0.077	
	Group×Time	F(1.159, 102.012)=3.219	0.070	0.035	
Subjective norms	Group	F(1, 88)=0.408	0.525	0.005	13.55-15.12
	Time	F(1.613, 141.967)=30.613	<0.001	0.258	
	Group×Time	F(1.613, 141.967)=1.854	0.168	0.021	
Perceived behavioral control	Group	F(1, 88)=7.267	0.008	0.076	17.99-20.27
	Time	F(1.185, 104.238)=40.286	<0.001	0.314	
	Group×Time	F(1.185, 104.238)=35.987	<0.001	0.290	
Childbearing intention	Group	F(1, 88)=24.624	<0.001	0.219	1.94-2.29
	Time	F(1.405, 123.679)=37.675	<0.001	0.300	
	Group×Time	F(1.405, 123.679)=43.444	<0.001	0.331	

Sphericity was assessed using Mauchly's test, and Greenhouse-Geisser corrections were applied when required. Effect sizes are reported as partial eta squared (η^2p), and 95% confidence intervals (CIs) are provided where applicable. Both study centers included participants from the intervention and control groups; However, center was not included in the initial model, and potential center-related differences were not accounted.

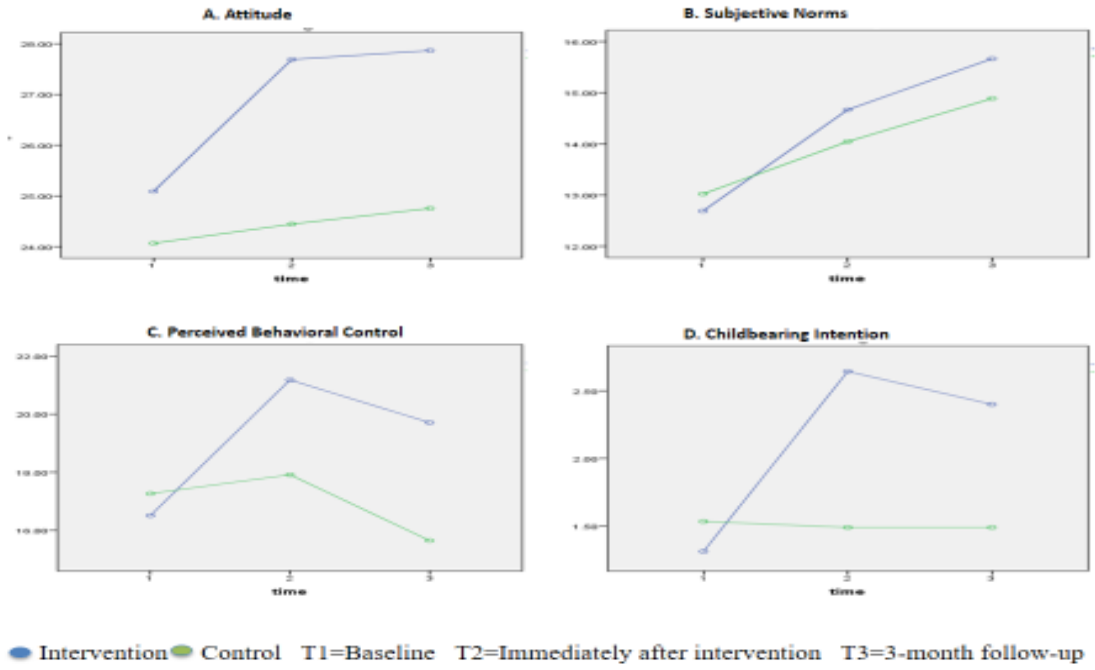

Figure 1. Changes in theory of planned behavior (TPB) constructs over time.

Discussion

This study evaluated the effect of motivational interviewing based on the TPB on childbearing intention among women with one child in Bijar, Iran. Significant group-by-time interactions were observed for perceived behavioral control and childbearing intention, but not for attitude or subjective norms. These findings indicate that the intervention group showed more favorable patterns of change in perceived behavioral control and childbearing intention over the three-month study period.

Although attitude scores increased over time, the group-by-time interaction was not statistically

significant. According to the TPB, favorable attitudes toward a behavior may support behavioral intention [16, 17]. Previous studies have reported positive effects of TPB-based interventions and motivational interviewing on fertility-related attitudes and intentions [18–21], whereas Shafiei *et al.* and Vatanparast *et al.* report no significant improvement in attitudes [22, 23]. Changes in attitude could not be attributed specifically to the intervention because the group-by-time interaction was not statistically significant.

Subjective norms also changed over time, but the group-by-time interaction was not significant. Subjective norms reflect perceived expectations from significant others, such as spouses and family members, and may influence fertility decisions [24]. Previous findings have been inconsistent, with some studies reporting limited effects of educational interventions [12, 23, 25] and others finding improvements following TPB-based interventions [26, 27]. Cultural context and the influence of family and social expectations may partly explain these differences.

Perceived behavioral control showed a significant group-by-time interaction. In the intervention group, the mean score increased from 16.51 at baseline to 21.18 immediately after the intervention and then declined to 19.71 at the three-month follow-up. Although the immediate improvement was not fully maintained, the follow-up score remained above baseline. The reason for this decline cannot be determined from the available data, although changing personal circumstances or ongoing perceived barriers may have contributed. Moghadam *et al.* report similar improvements following TPB-based education [26], whereas other studies declare no significant changes [23, 27]. Differences in socioeconomic conditions, perceived barriers, and intervention approaches may help explain these contrasting findings [28].

Childbearing intention also showed a significant group-by-time interaction. In the intervention group, the mean score increased from 1.31 at baseline to 2.64 immediately after the intervention and then decreased to 2.40 at follow-up, remaining above baseline. In contrast, scores in the control group changed little. These findings are consistent with studies reporting positive effects of motivational interviewing or TPB-based interventions on childbearing intention [18, 26, 27], although Vatanparast *et al.* report no significant effect [23]. The decline at follow-up indicates that the immediate improvement was not fully maintained; however, without further follow-up and relevant pairwise comparisons, the durability and statistical significance of this decline cannot be established. Because intention was self-reported and follow-up lasted only three months, it remains unclear whether these changes persist or translate into actual pregnancy or childbirth.

Childbearing intention is influenced by psychological, cultural, social, and economic factors [29, 30]. Motivational interviewing can help individuals explore their motivations and resolve ambivalence [31, 32], potentially supporting autonomy and internal motivation [33]. However, reproductive decisions are also influenced by health, family circumstances, cultural values, and social expectations [34, 35], as well as economic concerns, child-rearing costs, and access to supportive services [36, 37]. These factors highlight the complexity of fertility decisions, but the present study does not establish the effects of broader social or economic policies on actual fertility outcomes.

This study had several limitations. First, childbearing intention and TPB constructs were self-reported and may have been affected by social desirability bias; moreover, childbearing intention was measured using a single item. Second, the three-month follow-up was relatively short for assessing long-term effects. Third, exposure to external fertility-related information and potential information sharing between groups may have influenced the findings. Fourth, the study was conducted among women with one child in a single city, limiting generalizability. Although both groups were represented at both study centers, center-related differences were not accounted for in the initial analysis. Finally, allocation procedures should be reported transparently, and actual pregnancy and childbirth outcomes were not assessed; therefore, changes in intention cannot be assumed to translate into actual fertility behavior.

Future studies should use larger, multicenter samples, longer follow-up periods, validated measures of fertility intention, transparent allocation procedures, and actual reproductive outcomes. Strengths of this study included its randomized controlled design, researcher-assisted questionnaire completion, and counseling in participants' native language.

Conclusion

Theory-based motivational interviewing effectively enhances childbearing intention among women with one child.

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Ethical Permissions: This study was approved by Alborz University of Medical Sciences (IR.ABZUMS.REC.1404.095).

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(Third Author), Introduction Writer/Methodologist/ Assistant Researcher/Discussion Writer/Statistical Analyst (40%)

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