



The impact of a theory of planned behavior-based training on the behavioral intention of childless couples in Shahrekord

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Abstract

Background and aims: Childbearing is known to be the most critical change factor in population construction. So, the present study was conducted to investigate the impact of childbearing education based on the theory of planned behavior (TPB) on the behavioral intention of childless couples.

Methods: The present field trial was conducted on 70 childless referred to holistic health centers in Shahrekord in 2022. The study setting was selected by cluster sampling, and the participants were selected by convenience sampling. The instruments used were a checklist of demographic characteristics/childbearing and a questionnaire of childbearing intention. Both groups completed the questionnaire before, immediately, and one month after the intervention. Data were analyzed using SPSS 26. A P value < 0.05 was considered a significance level.

Results: At baseline, there was no significant difference in the mean scores of TPB constructs, i.e., attitude, social norm, perceived behavioral control, and behavioral intention, between the two groups ($P > 0.05$). However, the mean scores obtained for the constructs in the intervention group immediately and one month after the intervention were significantly different from those in the control group ($P < 0.05$). Also, the mean scores on the constructs in the intervention group increased immediately and one month after the intervention, indicating education's impact on the childbearing intention ($P < 0.05$).

Conclusion: Training based on TPB increases the childbearing intention in childless couples; it is therefore recommended to create a social support system and design interventions with a further focus on using this model in educational programs related to population growth policies and encouraging couples to have children.

Keywords: Education, Intention, Reproductive behavior, Theory of planned behavior, Childless

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Received: September 11, 2023

Accepted: September 21, 2023

ePublished: September 29, 2023

Introduction

The family is one of the most important social institutions, and childbearing is one of its essential functions. Childbearing is known as the most important factor for change in population structure, and studies on childbearing and its related factors are given special attention in demographic studies (1,2). The global fertility rate 2020 was reported as 2.3%, revealing a more pronounced decrease than in the preceding years (3). Iran is not an exception to this rule, so the fertility rate has reached below the replacement level during the last decade, representing the country's biggest and fastest fall in fertility rate recorded so far (4,5). Surveys conducted in Iran have demonstrated a decline in the total fertility rate from about seven children per woman in 1984 to 1.71 in 2020 (6,7).

According to the Research Center of the Islamic Council

report, the fertility rate of Chaharmahal and Bakhtiari province in 2020 was 1.7 (8).

The results of a study in Iran showed that around 2.1% of newly married couples tended to be childless (9). In today's Iranian society, compared to other societies, the frequency of voluntary childlessness is relatively low, and the decrease in fertility rate mainly entails having only one child. However, because the decline in fertility has reached below the replacement level, increased childlessness is one of the current concerns of population officials (10). Furthermore, childlessness has a decisive impact on the rate of population growth and population decline and will also affect the composition and structure of the population (11).

Although the tendency to be fertile and bear a child is natural in humans, it is influenced by several factors (12). One reason for the change in fertility at the micro level

is the change in the first important factor for forming childbearing intention, i.e., the individual's attitude. A positive attitude towards childbearing is a prerequisite for having a positive childbearing intention. A person's attitude is generally the outcome of his/her cognition and evaluation of the emotional and financial costs of childbearing compared to the various benefits he/she will attain through having a child (13). A positive attitude towards children and childbearing not only results in early childbearing but also leads to further childbearing (14).

Based on scientific findings, educational interventions and providing information to married women with one child can affect their childbearing intention (13). Therefore, educational interventions, including behavioral change models, seem necessary to help families without children (15). One of these models is the theory of planned behavior (TPB), one of the most effective health education theories regarding fertility goals. According to this theory, the intention to perform a behavior is predicted by three factors (attitude toward the behavior, subjective norms, and perceived behavioral control). According to this theory, the most critical factor determining a person's behavior is "behavioral intention." Then, a combination of attitude toward "behavior," "subjective norms," and "perceived behavioral control" can lead to a behavior. This theory predicts the occurrence of a particular behavior, provided that the person intends to do it (13).

The predictive power of the TPB has been reported in various studies of health behaviors. In this model, it is stated that performing a behavior is related to two factors: motivation (behavioral intention) and ability (behavioral control) (16).

Based on Iran's population policy and research findings, implementing such interventions can contribute favorably to families' making informed decisions about childbearing. Applying theoretical models and frameworks to design educational interventions can also increase effectiveness. Given the above arguments and findings, the present study investigated the effect of TPB-based childbearing training on the behavioral intention of childless couples in the city of Shahrekord, southwest Iran.

Materials and Methods

This interventional field trial was conducted on 70 childless couples referred to holistic health centers across Shahrekord in 2022. To this end, two holistic health centers were selected from among all holistic health centers in the city using the cluster sampling method. More clearly, 14 holistic health centers in the city of Shahrekord were determined as 14 separate clusters, and one of them was selected by a convenience random sampling. This study selected Holistic Health Center no. 5 as the intervention group and Holistic Health Center no. 1 as the control group using simple convenience random sampling. In this way, the two groups were not in contact with each other and could be easily controlled; the two centers were also geographically and culturally similar.

Inclusion criteria were being married, being childless and having been married for at least one year, being Iranian and Muslim, being illiterate and having access to virtual training, lack of pregnancy at the beginning of the study based on menstrual history, lack of infertility and contraindications for pregnancy (cancer, chronic diseases and diagnosed mental illnesses [according to the participant's statement and the Integrated Electronic Health System [Sib]), volunteering and being physically and mentally able to participate in the study, providing a virtual written informed consent to participate in the study and couples' lack of tending to have children. Getting pregnant, withdrawing from the study, failing to participate in more than a quarter of training sessions, and returning an incomplete questionnaire were also considered exclusion criteria.

Sample size, based on the study of Vatanparast et al (17), was calculated at 35 for each group (total no.: 70) given the mean, the standard deviation of the studied variable in two groups, the confidence interval of 95%, and the test power of 80% of the formula for comparing the mean values in the two groups.

Participants were enrolled in the study through convenience sampling. For this purpose, after approval of the study protocol by the Ethics Committee of Shahrekord University of Medical Sciences (IR.SKUMS.REC.1401.138), the researcher referred to the centers with a letter of introduction. After the researcher explained the study's objectives to the healthcare provider, he/she introduced eligible women to participate. He/she provided their phone numbers to the researcher. Then, the researcher contacted the introduced couples by phone, explained the study's objectives, and invited them to participate. Then, if they agreed to participate in the study, their names were recorded. This procedure continued until 70 couples were enrolled. The couples were randomly divided into two groups of intervention (n: 35) and control (n: 35) using random sampling in Excel. Then, two separate groups were formed on WhatsApp messenger to represent the two groups, and the researcher made every effort to gain the participants' trust by providing sufficient explanations about the confidentiality of their information and names—those who could refer in person provided written informed consent to participate in the study. Otherwise, virtually signed informed consent was deemed sufficient. The routes of sending, completing, and receiving the questionnaires were explained to the participants, and then the questionnaires were filled out online before the educational intervention. The intervention group was divided into four subgroups, and then TPB-based training was fulfilled in four 90-minute sessions for each subgroup. The protocol and outline of the sessions were also explained to the participants. The sessions were held every week (one session per week) online and offline. In the WhatsApp group, the participants were encouraged to listen to the offline sessions, write down, and then raise their questions.

As already mentioned, the educational protocol was based on the constructs of the TPB. More clearly, the sessions discussed common beliefs about childbearing and childbearing intention using video playing and question and answer. At the same time, the trainer directed the exchange of comments so that participants could record their beliefs and attitudes about childbearing and send them to the researcher. This indirectly influenced people's motivation to have children and laid the grounds for a change in attitudes. Participants were asked to discuss the session's content with their peers to reinforce subjective norms to influence perceived behavioral control; a group discussion was held about the facilitators of childbearing. Strategies to reinforce the tendency to have children were taught in each session. In addition, to reinforce the behavioral intention of childbearing among the couples, a task was considered for them so that they were allowed to independently write down their reasons for stopping childbearing and its solutions, discuss them together, and report the outcome confidentially to the researcher. Also, during each session, several common scenarios about the reasons for delay in childbearing and having only one child were discussed, and then their solutions were explained. The materials were followed up through phone calls or WhatsApp. At the beginning of the next session, a 15-minute discussion was held regarding the educational materials of the previous sessions to ensure the reading of the materials of the offline sessions by the couples during

the week (The protocol details are shown in Table 1). Immediately and one month after the intervention, both groups filled out the questionnaire again. The participants were free to accept or withdraw from the study at any stage, and written or online consent was obtained from the participants. Also, this research did not impose any cost on the studied community. Finally, after the completion of the intervention, the control group was given the e-learning package to comply with the research ethics principles.

Data collection instruments

The instruments used included a checklist of individual demographics/childbearing and a standard questionnaire of childbearing intention, which were completed by the participants using *Poroline*.

Specifications and collection of instruments

The checklist of individual demographics/childbearing consisted of 12 items on age, occupation, education level of respondent, age of the spouse, occupation of the spouse, education level of respondent's spouse, income status of the family, history of miscarriage, history of stillbirth, et cetera.

The questionnaire for evaluating childbearing intention consisted of 27 items whose answers were rated on a 5-point Likert scale (from 1: *Disagree* to 5: *Agree*). This questionnaire, which was developed by Alami et al, is

Table 1. The protocol and outline of childbearing training sessions based on the theory of planned behavior

Online/offline	Purpose	Content	Assignment/task
First session Online	Emphasis on improving the awareness and attitude of couples regarding the consequences of the country's population decline and social accountability. Emphasis on improving the awareness and attitude of couples about the value of children	An introduction was presented regarding the state of the country's population, single childhood, the value of children, reproductive health, and attitudes toward childbearing and children, and a discussion about population decline on society and individuals and the impact of single childhood on children, the family, and society, etc. The salience of population growth and the need to have children was discussed in the group. Volunteering couples discussed their opinions and beliefs.	After the session, the couples were asked to write down their beliefs and opinions about childbearing independently, then discuss it together and send the outcome privately to the researcher.
Second session Offline	Economic and social factors of population decline and how to negotiate and overcome norms	Norms and economic and social factors of population decline were explained offline using <i>PowerPoint</i> . Consequences of delayed childbearing, single child, and population decline were pointed out. The role of subjective and social norms was discussed so that couples were trained to negotiate this subject.	Couples should read offline materials with key family members and discuss and negotiate childbearing and the status of the country's population.
Third session Online	Controlling the child's behavior and value	Materials on the importance of children to the health of women, families, and society were presented. Obstacles to childbearing and its facilitators were discussed by presenting common scenarios and solving the problems of the scenarios step by step with the help of couples. Materials were presented on the reinforcement of intention and encouragement to act on inner childbearing intention.	Each couple should discuss and negotiate their obstacles to and facilitators of childbearing and provide them to the researcher.
Fourth session Offline	Reinforcement of behavioral intention	Methods to help couples increase childbearing and prevent having only one child were explained. The usual problems were raised, and the necessary guidance was provided as much as possible. Necessary care and preparations before pregnancy were explained.	Each couple was required to draw their problems and needs concerning childbearing so that the researcher could design possible solutions with the assistance of the research team and confidentially provide them to the couple.

divided into the domains of attitude toward childbearing (items 1-8), subjective norms (items 9-16), perceived behavioral control (items 17-23), and behavioral intention (items 24-27). The score on each domain was calculated by summing the scores of items related to that domain, and the total score on the questionnaire was obtained by summing the scores on all domains. Alami et al confirmed the scale's reliability with an alpha coefficient of 0.94 (13).

The content validity method was used, and for this purpose, the questionnaires were given to 10 experts on reproductive health, health education, and health promotion to investigate their validity. Their comments and corrective recommendations were recorded and then addressed if possible. The values of the content validity ratio (CVR) and the items of the theory's constructs ranged between 0.77 and 0.90, and the content validity index (CVI) of the items did between 0.87 and 1; therefore, the validity of the tool was confirmed according to the cutoff point of the Lawshe's table. The reliability of the questionnaire was also investigated by conducting a pilot study and using the internal consistency method. Cronbach's alpha values for attitude, subjective norms, perceived behavioral control, and behavioral intention were calculated at 0.83, 0.66, 0.74, and 0.89, respectively.

Data analysis

Data analysis was done using SPSS version 26. Regarding the distribution of quantitative data, the Kolmogorov-Smirnov test was used to compare the background quantitative variables of the two groups; if the distribution was normal, an independent *t* test was used, and if the distribution was not normal, the Mann-Whitney U test was used. The Wilcoxon test was also used to conduct intra-group comparisons. The chi-square and Fisher's exact tests were used to compare qualitative data in the two groups. A *P* value < 0.05 was considered a significance level.

Results

Table 2 shows the demographic characteristics of our participants. The mean age of the participants in the control group was 27.49 ± 5.77 , and in the intervention group, 27.17 ± 5.07 , with no statistically significant difference ($P=0.8$). The majority of people in the intervention group (74.3%) and the control group (71.2%) had academic education, with no statistically significant difference ($P=0.92$). Regarding employment, most of the participants in the intervention (65.7%) and control (60%) groups were housewives, with no statistically significant difference ($p=0.42$). The mean age of the participants' spouses was 30.09 ± 5.67 years in the control group and 30.80 ± 5.70 years in the intervention group, with no statistically significant difference ($P=0.6$). Also, the intervention and control groups were matched for history of miscarriage and stillbirth ($P>0.05$). Other demographic characteristics of the participants are shown in Table 2.

Table 3 shows the standard deviation scores on the constructs of the TPB (attitude, social norm, perceived

Table 2. Demographic characteristics of participants in intervention and control groups (total no.:70)

Variable	Control group	Intervention group	<i>P</i> value
Age (y), Mean \pm SD	27.49 \pm 5.77	27.17 \pm 5.07	0.8 ^a
Duration of marriage, Mean \pm SD	78.1 \pm 22.4 4.22 \pm 1.78	77.1 \pm 48.3 3.48 \pm 1.77	0.08 ^a
Education level, No. (%)			
Under high school diploma	1 (2.9)	1 (2.9)	0.92 ^b
High school diploma	9 (25.7)	8 (22.9)	
Associate degree	10 (28.6)	8 (22.9)	
Bachelor's degree	11 (31.4)	11 (31.4)	
Master's degree	3 (8.6)	4 (11.4)	
Ph.D.	1 (2.9)	3 (8.6)	
Employment, No. (%)			
Housewife	21 (60)	23 (65.7)	0.42 ^b
Self-employed	8 (22.9)	4 (11.4)	
Clerk	6 (17.1)	8 (22.9)	
Spouse's age (y), Mean \pm SD	30.09 \pm 5.67	30.80 \pm 5.70	0.6 ^a
Spouse's education level, No. (%)			
Under high school diploma	0 (0)	1 (2.9)	0.1 ^b
High school diploma	4 (11.4)	5 (14.3)	
Associate degree	5 (14.3)	6 (17.1)	
Bachelor's degree	13 (37.1)	13 (37.1)	
Master's degree	11 (31.4)	9 (25.7)	
Ph.D.	2 (5.7)	1 (2.9)	
Employment, No. (%)			
Self-employed	15 (42.9)	14 (40)	0.5 ^c
Clerk	20 (57.1)	21 (60)	
Economic status, No. (%)			
Good	26 (74.3)	22 (62.9)	0.56 ^b
Poor	9 (25.7)	13 (37.1)	
History of miscarriage, No. (%)			
No	28 (80)	29 (82.9)	0.5 ^c
Yes	7 (20)	6 (17.1)	
Stillbirth, No. (%)			
No	34 (97.1)	35 (100)	0.5 ^c
Yes	1 (2.9)	-	

^a Independent two-sample *t*-test; ^b Chi-square test; ^c Fisher's exact test.

behavioral control, and behavioral intention) before and immediately after the intervention in the intervention and control groups. The Mann-Whitney U test showed no significant difference between the two groups regarding attitude, social norm, perceived behavioral control, and behavioral intention at baseline ($P>0.05$). Nevertheless, the mean scores of childbearing intentions in the intervention group significantly increased (from 7.88 ± 3.28 at baseline to 13.05 ± 2.67 immediately after the intervention, $P>0.001$), indicating the educational intervention's impact on this variable. Also, the mean score of childbearing intention in the control group significantly changed (from 8.45 ± 3.03 to 9.94 ± 2.64 , $P>0.001$). The mean scores on other domains, including attitude, social

norm, and perceived behavior control, also significantly increased immediately after the educational intervention ($P > 0.05$). In addition, the mean scores on the constructs of the TPB (attitude, perceived behavioral control, and behavioral intention) immediately after the educational intervention in the intervention and control groups were significantly different ($P > 0.05$); however, such difference was not observed for the social norm construct ($P = 0.11$). (Table 3).

Based on the results from the Mann-Whitney U test, the mean and standard deviation of the scores obtained for the constructs of the TPB, i.e., attitude, social norm, perceived behavioral control, and behavioral intention, in the intervention group one month after the intervention exhibited a statistically significant difference with the control group ($P < 0.05$) so that the participants in the intervention group tended to have children more pronouncedly than those in the control group. In addition, based on the results of the Wilcoxon test, the mean

scores on the constructs of the TPB in the intervention group before and one month after the intervention showed a statistically significant difference ($P > 0.05$). In other words, childbearing intention increased in the intervention group over time (Table 4).

Discussion

The present study investigated the effect of an educational intervention based on the TPB on childbearing intention in childless couples. The study results showed that after the implementation of the educational intervention, the mean score of the planned behavior constructs (attitude, perceived behavioral control, subjective norm, and behavioral intention) was significantly higher in the intervention group than in the control group.

The application of the TPB and its impact on various behavioral spectra, including behavior display, behavioral change, and behavioral intention, have been empirically confirmed in some studies (18,19), so studies have reported

Table 3. The results from intra-group and inter-group comparisons of scores on the constructs of the theory of planned behavior before and immediately after educational intervention

Variable	Intervals	Intervention group	Control group	P value ^a
Attitude	Baseline	22.97 ± 4.17	22.15 ± 4.53	0.68 $P < 0.001$
	Immediately after intervention	29.28 ± 3.01	23.60 ± 4.48	
	P value ^b	$P < 0.001$	$P < 0.001$	
Social norm	Baseline	28.05 ± 3.18	28.65 ± 3.28	0.44 0.11
	Immediately after intervention	30.34 ± 3.21	29.14 ± 3.13	
	P value ^b	$P < 0.001$.009	
Perceived behavioral control	Baseline	13.85 ± 4.33	14.97 ± 23.4	0.28 $P < 0.001$
	Immediately after intervention	24.20 ± 3.81	17.74 ± 4.06	
	P value ^b	$P < 0.001$	$P < 0.001$	
Behavioral intention	Baseline	7.88 ± 3.28	8.45 ± 3.03	0.45 $P < 0.001$
	Immediately after intervention	13.05 ± 2.67	9.94 ± 2.64	
	P value ^b	$P < 0.001$	$P < 0.001$	

^a Independent-samples Mann-Whitney U test.

^b Wilcoxon signed-rank test.

Table 4. The results of intra-group and inter-group comparisons of scores on the constructs of the theory of planned behavior before and one month after educational intervention

Variable	Intervals	Intervention group	Control group	P value ^a
Attitude	Baseline	22.97 ± 4.17	22.15 ± 4.53	0.68 $P < 0.001$
	One-month post-intervention	31.14 ± 2.96	24.42 ± 4.57	
	P value ^b	$P < 0.001$	$P < 0.001$	
Social norm	Baseline	28.05 ± 3.18	28.65 ± 3.28	0.44 0.02
	One-month post-intervention	31.37 ± 2.91	29.65 ± 3.22	
	P value ^b	$P < 0.001$	$P < 0.001$	
Perceived behavioral control	Baseline	13.85 ± 4.33	14.97 ± 23.4	0.28 $P < 0.001$
	One-month post-intervention	27.31 ± 2.93	18.48 ± 3.99	
	P value ^b	$P < 0.001$	$P < 0.001$	
Behavioral intention	Baseline	7.88 ± 3.28	8.45 ± 3.03	0.45 $P < 0.001$
	One-month post-intervention	14.74 ± 2.21	10.31 ± 2.74	
	P value ^b	$P < 0.001$	$P < 0.001$	

^a Independent-samples Mann-Whitney U test.

^b Wilcoxon signed-rank test.

the application of training based on this theory for women's childbearing behaviors (20), childbearing intention in married women with one child (17), choosing the type of delivery (21), predicting intrauterine device use behavior (22), and problem-solving before breastfeeding (23,24). Based on the TPB, the most important determinant of a person's behavior is behavioral intention, which is influenced by attitude, subjective norms, and perceived behavioral control (22).

The first factor influencing the intention to perform or not perform a behavior is attitude. Positive feelings about that behavior create a positive attitude toward a particular behavior. People are more likely to do a behavior when they have positive feelings towards it or evaluate it positively (25). Some studies have shown that TPB-based training can create a positive attitude toward a specific behavior (26,27).

The results of the present study showed a significant increase in the attitude score of couples in the intervention group after completing the training program, which is consistent with studies conducted by Alami et al (13), Hoseini Soorand et al (28) and Ahmadi et al (29). The study of Daniluk and Koert on the effect of online childbearing education on childless couples also showed an increase in the participants' attitudes after the intervention (30), which is also in line with the present study. This finding is also consistent with the study of Caplescu in Romania, which indicated that women with neutral attitudes expressed 3.6 times less desire to have children. It was also found in Caplescu's study that women who had a negative attitude towards childbearing were 53.6 times less likely to tend to have children (31).

Besides this, some studies have investigated the effect of training based on the TPB on people's knowledge and attitudes. For example, Kariman et al reported in their study, at baseline, the subjects in both intervention and control groups had poor childbearing knowledge due to insufficient training provided in premarital counseling centers, and regular planned training provided was effective to a large extent in improving women's knowledge (32). This result is in agreement with the findings obtained in the study conducted by Wang et al on the effect of education on the knowledge, attitude, and behavior of childbearing in Southeast Asian immigrant women in Taiwan (33) and Hosseini and colleagues' study on the effect of reproductive health education on the awareness and attitude of girls about marriage (34). However, the current study did not address the impact of TPB-based training on knowledge.

Besides this, in the present study, a significant difference was observed in the mean score of subjective norm before and after the educational intervention, which is consistent with Shahraki-Sanavi and colleagues' study that showed that the score of the subjective norm in the group given training increased after the educational intervention (35).

In addition, one study showed that the attitude of women's friends and relatives about their soon becoming

pregnant (subjective norm) affected the probability of childbearing (31). However, other studies have reported contradictory results in this regard. For example, it was observed in Kariman and colleagues' study that training had the greatest effect on awareness, attitude, perceived behavioral control, and intention and the least impact on subjective norms (32). The intervention did not affect subjective norms in another study on TPB-based training to change behaviors (36).

Vatanparast et al also reported that the TPB could only be effective to some extent on subjective norm and behavioral intention, and the social, cultural, religious, and especially economic conditions of the society should also be taken into account in improving the attitude towards childbearing along with educational interventions for achieving better outcomes from education (17).

The results of the studies by Alami et al (13), Sargazi et al (37), and Jalambadani et al (38) showed that after the training program, the subjective norm in the intervention group did not change compared to before the training program, is in contrast to the results of the present study. The reason for this contradiction can be the difference in the studied group; as in the present study, couples without children were investigated, while in most of the studies that have raised the lack of effect of education on the subjective norm, couples with only one child have been investigated. It has also been shown in the study of Draper et al that subjective norms strongly influenced childbearing intention (the first childbearing intention) in childless women. In contrast, for subsequent childbearing, the role of attitude and perceived behavioral control was more pronounced (39). In the study of Caplescu, attitude and subjective norms were drawn as comparably more important predictors of childbearing intention, respectively (31). The next argument is that key people influence the subjective norm more; therefore, the training of women's husbands participating in the study can explain this finding.

In the TPB, perceived behavioral control is considered the third controlling factor of intention. Perceived behavioral control refers to a person's understanding of internal and external limitations, the ease or difficulty of performing a behavior, and his/her understanding of the skills, resources, and opportunities required to perform that behavior (40). According to the results of the present study, the mean score of perceived behavioral control after the educational intervention was higher in the intervention group than in the control group, indicating the intervention's positive impact on this variable. These findings confirm the results obtained by other researchers regarding the effect of TPB-based training on increasing the score of perceived behavioral control. The results of a research conducted by Erfani on 2,267 married women under 36 years of age living in Tehran to investigate factors affecting childbearing intention showed that people who had a greater understanding of the obstacles to and difficulties of childbearing had a greater tendency not to

have children and vice versa (41). In a study by Pooreh and Hosseini Nodeh, the average score of perceived behavioral control increased significantly in the intervention group. However, the corresponding changes were insignificant in the control group (27).

Regarding perceived behavioral control, it is interesting that this construct is directly influenced by the other two constructs of the TPB. Some behaviors are completely under the control of attitude, while others are under the control of subjective norms (42). The scope of each type of control may vary in different communities. For example, a certain behavior may be completely under the control of attitude in one society, while in another, it is completely under the control of attitude (43). Given that childbearing is a complex behavior and entails numerous aspects, many of which are not under personal control (e.g., family influences, social and cultural factors, large-scale population policies, et cetera.), the role of these constructs of the TPB in childbearing intention seems to deserve additional studies.

The findings of some studies of TPB's impact on women's childbearing intention have confirmed the effect of the constructs of the TPB on their behavioral intention and other background factors. For example, certain factors such as nationality, general life values, attitudes towards childlessness, personality traits, religion, and demographic variables such as age, housing conditions, income, and education level have been reported as important in intending to have children. The findings of Lukšik et al also confirmed that sociological variables such as having a suitable job and house, stable marital status, and access to daycare and child care, along with psychological factors of the TPB, play an important role in the decision-making process of couples in the next three years (44).

Among the most important limitations of this study is that some women needed a smartphone or Internet access, which, despite being considered an inclusion criterion, could have confounded our results.

Conclusion

TPB-based training increases the intention to have children in childless couples. Conducting educational interventions based on the TPB and providing the necessary information to childless couples can have an impact on families' informed decision to have children and their fertility intentions. It is therefore recommended to create a social support system and design interventions with a further focus on using this model in educational programs related to population growth policies and aimed to encourage couples to have children.

Acknowledgments

We hereby express our appreciation for the sincere cooperation of all participants for spending time and honestly completing the questionnaires and for the material and spiritual support of this research project from Shahrekord University of Medical Sciences.

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Competing Interests

The authors declare that there is no conflict of interest.

Ethical Approval

Ethical considerations in this study included obtaining permission from the Ethics Committee of Shahrekord University of Medical Sciences (Ethical Code: IR.SKUMS.REC.1401.138) and obtaining written consent to participate.

Funding

Shahrekord University of Medical Sciences supported this work.

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Cite this article as: Raisi Dehkordi Z, Adib Moghaddam E, Babaeifar S, Delgarm Shams-Abadi A, Sourinejad H. The impact of a theory of planned behavior-based training on the behavioral intention of childless couples in Shahrekord. *Journal of Multidisciplinary Care.* 2023;12(3):143–151. doi: [10.34172/jmdc.1226](https://doi.org/10.34172/jmdc.1226).