

The Efficacy of 3 Months Self Care Intervention on Modifiable Risk Factors among Women Who Planning Pregnancy: A Quasi- Experimental Study

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Abstract

Context: Preconception care includes a set of preventive or therapeutic interventions and it aims to identify and relieve the biomedical, behavioral and social risks that threaten the mother's health or pregnancy outcome. Women can participate in the preconception counseling to minimize the risks. **Aims:** This study aimed to determine the effect of preconception counseling based on self-care interventions on the modifiable risk factors of women who planning pregnancy. **Settings and Design:** A quasi-experimental one group pre-test and post-test design was used to assess the effectiveness of preconception counseling on 40 women who planning pregnancy. The tools used in this study included demographic questionnaire and questionnaire of modifiable risk factors in women who planning pregnancy based on March of Dimes preconception health indicators. The ethical approval was achieved from the Research Ethics Committee of Alborz University of Medical Sciences (ABZUMS.REC.1395.15). **Results:** Friedman's results showed the significant change in average score of modifiable risk factors before and after counseling based on self-care interventions in domains areas of general health, lifestyle, nutrition and physical activity ($p < 0.0001$). Also, repeated measures results showed the effectiveness of consulting on body mass index indicator after 3 months. **Conclusions:** Performance of women in the area of preconception indicators was not enough. As a result, health care providers, especially midwives and midwifery consultants, should consider the proper and full implementation of required consultations before pregnancy based on the necessities of women.

Keywords: Self-care; Preconception care; Counseling; Risk factors

Introduction

Active readiness to get pregnant provides successful parents in the future who decide consciously for health, lifestyle and pregnancy.^[1] A female's wellbeing in the preconception period is related, not only to pregnancy consequences, but also to lifetime health outcomes for herself and her children.^[2,3-4]

Proof is supporting the need to complement prenatal care with preconception care (PCC) for the reason that starting interventions to address risk factors during pregnancy is often too late. Assumed the preconception time period presents a critical opening of chance to improve pregnancy consequences.^[5] Increasing PCC provision, predominantly to women in high risk groups, is an important public health main concern and a focus of the CDC, the Maternal and Child Health Bureau, and Healthy People 2020 objectives.^[6]

PCC is a package of protective services (screening, counseling, and controlling of risk factors) planned to decrease modifiable risk factors before pregnancy in order to improve pregnancy consequences as well as maternal and child health.^[7] The American College of Obstetricians and Gynecologists, the

Institute of Medicine, and the Centers for Disease Control and Prevention (CDC) mention repetitive screening and risk-appropriate PCC as part of preventive care for all women of reproductive age.^[8] PCC is part of a larger health-care model that results in healthier women, infants, and families.

PCC consists of a set of interventions that are conducted through the prevention and treatment in which their goal is identification and modification of biomedical behavioral and social risks, which threaten the mother's health or pregnancy outcome. Assured manner should be engaged before conception or early in pregnancy to have a best result on health outcomes. Preconception care is more than a single visit to a health-care provider and less than all well-woman care, as defined by

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including the full scope of preventive and primary care services for women before a first pregnancy or between pregnancies. Risk factors for adverse outcomes among women and infants occur during the preconception period and are characterized by the need to start, and sometimes finish, intervention(s) before conception occurs.^[9]

The health indicators (overweight, nonuse of a folic acid, smoking, and alcohol drinking in pregnancy) have a possibly harmful impact on mother and neonate health during pregnancy, labor, and away from.^[10] Women are not optimum with high occurrence of health difficulties such as obesity, high-risk behaviors and low rates of preventive activities.^[11] Maternal obesity raises the risk of obstetric diabetes; hypertension; preeclampsia; and problems such as macrosomia, malformations, diabetes, and obesity among children.^[12] Smoking in pregnancy increases the risk of premature rupture of membranes and placenta previa. Alcohol drinking increases the risk of durable complications with overall brain, inhibitory control, remembrance, language, motor task, attention, movement, educational performance, developmental delays, besides deformities including orofacial fissures, neural duct defects, cardiac abnormalities, renal difficulties, and atopic dermatitis.^[13]

Amending preconception health and pregnancy outcomes will need more than effective clinical attention for women. Changes in the knowledge, attitudes and behaviors related to reproductive health requisite to be prepared to improve preconception health.^[9] Women who are planning to become pregnant, have very little information about the risk factors and preventive methods of adverse outcomes. Therefore, to minimize the risks, women can participate in pre-pregnancy counseling which provides them some information in terms of individual and general risk factors, and preventive methods.^[14] Growing women's knowledge about risk factors related to adverse pregnancy outcomes has been a focus of many programs and studies have shown that women's knowledge of risk factors is strong in the preconception period despite this knowledge, the majority of preconception women report at least one risk factor for an adverse pregnancy outcome. In addition to filling knowledge gaps, preconception care must go beyond education to address self-care interventions to changing lifestyle behaviors and to identifying relevant motivators.^[12] According to person-oriented model of health promotion presented by Ramder, in case of dealing with a health problem and to maintain and improve health, 5 main sources are accessible for people which include person, other ordinary people, professionals, available information and the environment. Self-Care means the action in which a person uses the knowledge, skills and their power as a source and takes care of their health independently of the others. The independence is self-decision making by relying on individual abilities which including technical or non-technical advice and assistance of others (whether non-specialist or specialist).^[15] Change the lifestyle can be made by a combination of efforts to increase awareness, changes in behavior and creation of an environment which is supportive of healthy behavior.^[16]

In addition to improving health and medical care, empowering the individual to maintain their health through the provision of training and consultation is important in preconception care.

This study aimed to determine the effect of preconception counseling based on self-care interventions on the modifiable risk factors of women who planning pregnancy.

Subjects and Methods

A quasi-experimental one group pre-test and post-test design was used to assess the effectiveness of preconception counseling. Inclusion criteria for participants in the study were as follows: being of childbearing age, having the intention of pregnancy in next year, lack of known physical and mental illness, no history of infertility, Lack of drug addiction, having Iranian nationality, and ability to read and write and being fluent in Persian. Sampling was convenient that it was performed on eligible women referred to female park of Jahanshahr in Karaj in Iran. Sampling was performed from April to December 2016. Based on the results of the studies conducted and using the sample size estimate formula comparing two ratios in various fields before pregnancy, $n=36$ and including data falling to about 10%, the final sample size was determined 40 people.^[17] After obtaining the ethics codes (Abzums.Rec.1395.15) the researcher informed the public at the women Park by flyer and other advertising tools. For eligible participants, after obtaining their conscious consent, and completing the questionnaires, counselling times were determined for each person.

The tools used in this study included demographic and modifiable risk factors questionnaires in women who planning pregnancy based on March of Dimes preconception health indicators.^[18] Demographic section which included 31 questions as: age, number of pregnancies, number of children, date of last delivery, educational level, income, employment status, client occupation, spouse occupation, ethnicity, insurance status, height, weight, living place. Modifiable risk factors questionnaire consisted of 45 questions including preconception health indicators in 4 domains of general health, life style, nutrition and physical activity, and body mass index. Cross-sectional study for standardization of tools has been designed to determine the validity and reliability of Persian version of the standard checklist.^[18] Its reliability was also assessed and confirmed using Test - Re - Test. Spearman coefficient of questions was above 0.8. For the measurement of body mass index (BMI), (Weight divided by height squared), digital Scale (brand of Glass scale) was used with a tape measure.

Content and the number of preconception counseling sessions were performed based on self-care management. Consultation for each person was carried out by researcher in five stages: (1) Investigating the self-care level: At this stage, according to the questionnaire of modifiable risk factors, the person's self-care status was assessed accurately. (2) Guidance of client about health risks and benefits of behavior change: At this stage, health risks of the subjects were reminded for them and the benefits of behavior change were emphasized. (3) Agreement with client in realistic setting of objectives: according to identified problems in each person, appropriate behavioral goals were determined and practical program was designed for each of the goals. (4) Assistance in development of practical program. (5) Follow-up: the performance of research samples was followed-up for 1 to 3 months after counselling sessions.

In fact, in order to ensure implementation of practical programs by subjects, researcher contacted with them by phone call, Short Message Service (SMS), and formation telegram channel so that practical implementation of the program to be reminded for them. From the second session of the counselling, educational packages were provided for participants. One and 3 months after counselling sessions, questionnaire of self-care was completed by the participants. Collected data was analyzed Using software SPSS22 after gathering the information. The mean, standard deviation and absolute frequency was used for descriptive tests while for analytic test in parametric domains, repeated measures was implemented and Friedman and Wilcoxon tests were used within non-parametric fields.

Results

In this study, 40 women who planning pregnancy referring to Women's park of Jahanshahr in Karaj were studied. The average age of participants in this study was 31.65 ± 5.21 years. The minimum and maximum age of participants was 21 and 42 years respectively. The average duration of marriage in this research was 5.07 ± 4.81 years. Education level of 97.5 percent participant were at university-level or had diploma. Among samples, 62.5 percent were housewives. In terms of income level, 92.5 percent of them had desirable situation. Of the samples studied, 62.5 percent of had not ever experienced pregnancy, 26.7 percent also had experienced unwanted pregnancy, 7.5 percent was not covered by any insurance and 52.5 percent of them have not been under general checkup by a doctor or midwife during the past year. Also, 75% of participants have not ever undergone preconception counseling, 52.5% have not done Pap smear test over the past three years and 15 percent of them dabble in smoking cigarette or using tobacco products. Frequency distribution of research units were examined in the domain of physical activity. In this study 16.8 percent of them did exercise less than 150 minutes per week. Average body mass index of participants in this study was 24.58 ± 3.38 .

Table 1 shows the mean and Standard deviation of self-care score which is divided to the domains of general health, life

style, nutrition and physical activity in three times including before intervention, one month and three months after it. These results are also accompanied with results of Friedman two-way ANOVA as inferential statistics to examine the differences in self-care average rating in each domain. Comparing the results of self-care average rating of this test specifies that the highest rate of self-care in the mentioned domains is related to three months after preconception counseling.

Wilcoxon test findings [Table 2] for pairwise comparison of mean score of self-care in each domains in three times including before the consultation, one and 3 months after consultation showed that there is a significant difference between the self-care before the consultation in one and three months after the consultation and also between the self-care during one month and three months after consultation in the area of general health, nutrition and physical activity. Effectiveness of consultation after three months increased significantly in the lifestyle domain. Also, the average body mass index of participants significantly reduced three months after intervention. According to the results of this study based on ANOVA test, there was not any significant correlation among the mean of increase in self-care score, the income level ($p=0.63$), job ($p=0.73$) and educational level ($p=0.94$) of participants.

Discussion

The results showed that the level of self-care in general health domain of women who planning pregnancy has changed significantly after consulting. ($p=0.0001$). By comparing the results of average rating score of self-care in the domain of general health indicates that the highest rate of self-care in this mentioned area is related to three months after the consultation. According to WHO report in 2013, four women of every ten women express that they have had an unwanted pregnancy and they have not received necessary care which shows lack of timely referral for receiving consultation and preconception care. The finding is consistent with this study which demonstrates that 75 percent of participants in research have not undergone counseling before pregnancy.^[19] Karimi et

Table 1: Mean and standard deviation for three time-measurements of preconception indicators with Friedman test result.

Indicator	Pre-test (Prior consultation)		Post test (one month after the consultation)		Post-test (three month after the consultation)		Friedman test results		
	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Significance level	Error degrees of freedom	Chi square
General Health	49.74	24.22	68.20	22.81	71.79	22.34	0.0001	2	73.658
lifestyle	87.72	13.74	88.86	11.36	90.68	10.59	0.001	2	13.351
Nutrition and physical activity	77.91	17.04	85.00	14.02	91.66	11.32	0.0001	2	25.130

Table 2: Wilcoxon test results for pairwise comparison of preconception indicators in different domains.

Variable (indicator)	Significance level	Time
General Health	Pre-test (Prior consultation)	Post-test (one month after the consultation)
		Post-test (three month after the consultation)
	Post-test (one month after the consultation)	Post-test (three month after the consultation)
life Style	Pre-test (Prior consultation)	Post-test (one month after the consultation)
		Post-test (three month after the consultation)
	Post-test (one month after the consultation)	Post-test (three month after the consultation)
Nutrition and Physical Activity	Pre-test (Prior consultation)	Post-test (one month after the consultation)
		Post-test (three month after the consultation)
	Post-test (one month after the consultation)	Post-test (three month after the consultation)

al showed that health education programs need to use models of behavior change in order to encourage people to participate in screening programs. Their results indicated that doing the pap smear test in the experimental group increased from 30 percent (before training) to 53.9 percent (after training) ($p < 0.01$), in which the finding is consistent with present study.^[20]

In a research carried out by Tahmasebi et al it was demonstrated that training based on health belief model enhanced the performance of women about taking pap smear test in addition to raising their awareness and reducing the perceived barriers. The results of this research demonstrated that statistically significant difference was observed in the pap smear test of the two groups of training and control ($p < 0.001$).^[21] In another study carried out by Seven et al, the results showed that group training has had a positive effect on awareness of women ($p < 0.001$) while it has had no significant effect on performance statistically ($p > 0.05$).^[22] These findings were inconsistent with current research. Also, the outcomes of Tabeshian et al study indicated that health education had a positive impact in enhancing of awareness ($p < 0.001$) and attitude ($p < 0.001$) but no significant statistical difference was observed in performance of people before and after training ($p > 0.05$) that didn't match the current study.^[23]

The findings showed that the level of the self-care in the lifestyle domain of participants has changed significantly after consulting ($p = 0.001$). By comparing results of average rating score of self-care in this domain, it is indicated that the highest rate of the self-care within the lifestyle is related to three months after consultation about health behavior change. In a study conducted by. According to statistical data in Alesinga et al research, it can be concluded that awareness of women who underwent preconception counseling was beyond the women who had not received counseling before pregnancy ($p < 0.01$). Their findings also indicated that consulting has caused alteration in women's behavior to quit smoking and decrease in the consumption of alcohol in the first trimester of pregnancy but this difference was not statistically significant ($p > 0.05$).^[24] Another research was carried out by Hamiche et al. in 2011 based on the ASE model which has been affected by the attitudes, self-efficacy and social influences of people. Target in this model is moving toward healthy diet and lifestyle to improve reproductive health. The statistical results of this research represented that PDR Total score (Scoring system of nutrition risks before pregnancy) was significantly decreased in 3 months after Taylor consulting ($p < 0.05$). The physical activity in women based on the scoring system of Rotterdam was significantly augmented ($p < 0.001$).^[25]

This research is in line with the current study. The findings of Shabani et al demonstrated that average score of physical activity was higher in the intervention group compared with the control group after the necessary preconception training. In this case, a statistically significant difference was observed in intervention group ($p < 0.001$).^[17] This study is consistent with the present research. Vahedian Shahroudi et al results showed that significant increase was observed in levels of physical activity and the change stages after a five-step counseling in the intervention group ($p < 0.001$).^[26]

Makean et al carried out a study on the body mass index in women with overweight and obesity. The results of the data analysis have shown that at the end of the study diet therapy alone had no significant effect in reducing body mass ($p > 0.05$) but in the group both narrative therapy and a treatment regimen were applied, there was a significant decrease in body mass ($p > 0.001$).^[27] Also, based on Noori Tajer et al outcomes, there was a decrease in number of women who suffered from overweight and obesity from more than 51.4% before the intervention to 48.5 percent after the educational intervention. Eventually, education in 72 percent of women caused improvement in nutrition style. Score of women's nutritional practices amplified to the amount of 3.6. The statistical significant relation was revealed with body mass index before training ($p < 0.05$) and after training ($p < 0.07$).^[28] The outcomes of this research are consistent with the current study.

Limitations of the study

The participants of research were only women who planning pregnancy that referred to the Women's Park in Karaj. Therefore, the results cannot be generalized firmly to whole community of women who are about to be pregnant. This research has been done in a Semi-experimental way. It is suggested that intervention to preconception care should also be performed in an experimental way and using the control group.

Conclusion

The above results exhibit the importance of counseling for health behavior change, preconception care and its impact on pregnancy outcomes, delivery and the performance of women in the field of self-care. According to the outcomes, women did not receive necessary preconception care before consultations. Therefore, consultations and implementation of preconception care cause improvement of their performance in the indexes prior to Pregnancy. This study also indicated that women performances are not enough in the field of self-care. As a result, health care providers, especially midwives and midwifery consultants, should consider the proper and full implementation of required consultations before pregnancy based on the needs of women.

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Conflict of Interest

All authors disclose that there was no conflict of interest.

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