

Psychosocial Factors Related to Dietary Habits in Women Undergoing Preconception Care

Abstract

Background: Correct health behaviors such as dietary habits before pregnancy ensure desired pregnancy outcomes. The aim of this study was to determine the relationship between psychosocial factors and dietary habits using social cognitive theory (SCT) in women undergoing preconception care (PCC). **Materials and Methods:** This cross-sectional study was conducted among 120 women from October to December 2015 in health centres in Isfahan, Iran. Using a researcher-made questionnaire, the researcher conducted stratified random sampling and convenience sampling for selecting health centres and participants, respectively. For data analysis, the researcher applied the Pearson, Spearman's, and linear regression test in SPSS software. **Results:** The results showed that perceived support from healthcare personnel and outcome expectations are not associated with any of the components of dietary habits. Access to healthy food was inversely correlated with incorrect dietary habits ($\beta = -0.19, p = 0.039$) and had a direct correlation with daily consumption of fruits ($\beta = 0.27, p = 0.006$). Perceived support from the spouse had a direct correlation with desired dietary habits ($\beta = 0.27, p = 0.006$). Self-efficacy was inversely correlated with incorrect dietary habits ($\beta = -0.22, p = 0.011$) and had a direct relationship with desired dietary habits ($\beta = 0.25, p = 0.004$). **Conclusions:** To improve the nutritional status of women prior to pregnancy, interventions must be focused on increasing women's access to healthy food and their self-efficacy in maintaining a healthy diet.

Keywords: Food habits, Iran, preconception care, psychosocial factors

Introduction

Although correct health behaviors and a healthy lifestyle before pregnancy ensure appropriate pregnancy outcomes,^[1,2] there is a high prevalence of unhealthy behaviors among women during the preconception period.^[3,4] An important and amendable factor of lifestyle that can be targeted in preconception interventions is suitable dietary habits and nutrition.^[5] Appropriate preconception nutrition with weight adjustment and suitable metabolic conditions reduces the chances of adverse gestational and fetal complications including diabetes^[6] and gestational hypertension,^[7,8] fetal neural tube defects, macrosomia,^[9] and adult obesity.^[10] On the other hand, to establish a significant influence on gestational outcomes, the modification and management of nutritional risk factors before pregnancy have been suggested.^[8,11] This is because most vital organs of a fetus are formed in the first few weeks after conception, and the fetus is influenced by

environmental, biological, and nutritional factors. Hence, preconception care (PCC) is one of the most important visits for women preparing for pregnancy.^[12,13] For more effective consultation and improvement of the nutritional status of women before pregnancy, similar to other health-related behaviors, it is essential to identify the dietary habits and nutritional behavior of women before pregnancy.^[14] There have been a few studies on the nutritional behaviors of women before pregnancy and their relationship with other factors including body mass index (BMI),^[15] women's lack of knowledge about suitable nutrition,^[16] and the role of the spouse.^[17] The aforementioned studies, however, considered individual factors. This is despite the fact that, according to studies, women's preconception nutrition does not have appropriate quality and quantity.^[18,19] It has been shown that the consumption of foods such as milk and dairy products by women of reproductive

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age was acceptable, but their intake of fruits and vegetables was less than the recommended intake.^[18] On the other hand, studies that are implemented based on important behavioral theories provide a more logical and appropriate framework for identifying the root of behaviors and the factors influencing them, and more accurate strategies for interventions.^[20,21] One of the strongest behavioral theories is the social cognitive theory (SCT). This theory considers triple causality including individual, environmental, and behavioral factors which interact with each other.^[22]

According to previous studies and experiences, it seems that environment, behavior outcome expectations, and self-efficacy are the most important and effective structures of this theory in preconception. The environment is defined as the social or physical situation or condition of the individual.^[23] In the present study, access to healthy food and perceived support by the spouse and health care experts involved in PCC, which are physical and social conditions, respectively, were investigated. Outcome expectation is also a prediction of the possible consequences of conflicts in correct dietary habits.^[23] Self-efficacy refers to the person's trust in her/his ability to follow correct nutritional behaviors to achieve the desired result.^[24] Due to scarcity of studies on effective factors on dietary habits of women before pregnancy, the aim of the present study was to investigate the relationships between psychosocial factors and dietary habits in women undergoing PCC using SCT.

Materials and Methods

The present cross-sectional study was conducted on 120 women selected among women undergoing PCC in Isfahan, Iran. The inclusion criteria included absence of any known psychological illness and a specific diet due to medical advice, and the exclusion criteria included incomplete questionnaires as well as unwillingness to cooperate. Data collection was conducted between October and December 2015. The participants were selected through stratified random sampling; 2 health networks (1 and 2) from Isfahan were selected as stratification, 5 health centres were randomly selected from within each network, and 12 available participants were selected from each health centre. Considering $Z_1 = 1.96$, $Z_2 = 0.84$, and $r = 0.25$ (according to the pilot study), the researcher selected 120 participants. A 4-part researcher-made questionnaire was designated as the data collection tool. After registering personal characteristics such as age, education level, occupation, gravidity, and economic status, the researcher calculated BMI [weight (kg)/height (m²)] by applying an adult weighting scale and wall meter. The questionnaire also contained questions related to SCT and dietary habit variables. These sections were completed as a self-administered questionnaire.

SCT variables included environment, outcome expectations, and self-efficacy. The environment variable included physical and social aspects (personnel and spouse). The

purpose of the physical environment was access to healthy food (3 items; for example, *enough fruits are available for me*), and the purpose of the social environment was the perceived support provided by health care personnel (5 items; for example, *health care personnel encourage me to eat healthy food*) and the spouse (6 items; for example, *my spouse does not care about my food*). In total, 14 items were related to this variable, 5 to outcome expectations (for example, *I help the health of fetus by considering a healthy diet before pregnancy*), and 5 to self-efficacy (for example, *I can avoid fatty food even in parties*). The next part of the questionnaire regarding dietary habits consisted of 4 parts. Part I was related to incorrect dietary habits with 7 items (for example, *when I get angry I overeat*). Part II was related to desired dietary habits with 15 items (for instance, *eating whole bread instead of white bread*). Part III dealt with dietary habits related to consumption of unhealthy food in the past month with 6 questions (for example, *how often did you eat pizza and fast food in the past month?*). Part IV consisted of 4 questions about units of daily consumption of meat, vegetables, fruits, and dairy products. The items were based on a review of scientific literature and were scored on a 5-point Likert scale ranging from 1 to 5 (disagree to completely agree).

To validate the tools, content validity was determined through the use of the judgment of experts and to evaluate their reliability, an internal reliability test was conducted in a pilot study with 20 eligible patients. Cronbach's alpha of higher than 0.70 was confirmed for all variables (for total SCT variables $\alpha = 0.88$, for outcome expectations $\alpha = 0.75$, for self-efficacy $\alpha = 0.70$, for health care support $\alpha = 0.80$, for spouse support $\alpha = 0.90$, for accessibility $\alpha = 0.70$, and for dietary habits $\alpha = 0.75$). Applying SPSS software (version 18, SPSS Inc., Chicago, IL, USA), the researcher analyzed the data using descriptive tests (mean and frequency) and analytic tests (Pearson correlation and multivariate linear regression by entering all related predictor variables based on the Pearson test). All p values of less than 0.050 were considered significant.

Ethical consideration

All participants in this study provided written informed consent forms. They were assured that their identities would be kept confidential, and they were given freedom to leave the study whenever they desired. This study was performed under the financial support of the Vice Chancellor of Research and Technology of Isfahan University of Medical Sciences, Iran, and with the approval code of IR.mui.rec.1394.3.474 (2015.8.9).

Results

All 120 participants in this study fully responded to the questionnaire. The results showed that the majority of women had high school educational level (58.30%, intermediate economic status (80.80%), and were

homemakers (85.80%). Other demographic characteristics of the participants, average score of SCT structures, and women's dietary habits are listed in Table 1. The results of the Pearson test showed that among the structures of SCT examined in this study, the structure of access to healthy food and self-efficacy were the most relevant to the components of dietary habits [Table 2]. The results of the multivariate linear regression tests showed that perceived support from healthcare personnel and outcome expectations were not associated with any of the components of dietary habits. The variable of access to healthy food was inversely correlated with incorrect dietary habits ($\beta = -0.19, p = 0.039$) and had a direct correlation with daily consumption of fruits ($\beta = 0.27, p = 0.006$) and dairy products ($\beta = 0.24, p = 0.011$). Perceived support from the spouse had a direct correlation with desired dietary habits ($\beta = 0.27, p = 0.006$) and daily consumption of dairy products ($\beta = 0.25, p = 0.011$). However, self-efficacy was inversely correlated with incorrect dietary habits ($\beta = -0.22, p = 0.011$) and unhealthy food consumption ($\beta = -0.22,$

$p = 0.012$) and had a direct relationship with desired dietary habits ($\beta = 0.25, p = 0.004$) and daily consumption of meat ($\beta = 0.18, p = 0.042$) [Table 3].

Discussion

The aim of this study was to evaluate the psychosocial factors related to the dietary habits of women undergoing PCC based on SCT structures. The results showed that, among the variables evaluated in this study, the strongest correlations were those of the variables of access to healthy food with daily consumption of fruits, perceived social support from the spouse with desired dietary habits, and self-efficacy with desired dietary habits. This implies that women who had more access to healthy food, greater self-efficacy, suitable dietary habits, and had perceived more support from their spouse had better dietary habits. In a qualitative study, participants considered the factor of access to appropriate and high-fibre food as the factor affecting the consumption of high-fibre food.^[25] The results of the present study were also consistent with the results of another study which showed that access to healthy food is a facilitating factor in healthy dietary habits among adolescents.^[26] Nevertheless, another study by Chang *et al.* on low-income pregnant women showed that access to healthy food was not correlated with healthy nutrition behaviors including low-fat and low-calorie foods consumption for weight control.^[27] The inconsistency between the results of the present study and this study could be due to differences between the demographic characteristics of the participants of the two studies. In the present study, the economic status of the participants was generally reported to be moderate, however, in the study by Chang *et al.*^[27] participants were selected from low-income population. The better economic condition of the women, as revealed in the present study, is probably the facilitator of healthy food purchases, which usually cost higher.^[28] Access is an important factor as it affects the food choices of individuals, and hence, general policies should aim to increase women's access to healthy food.

This study also showed a direct correlation between the levels of perceived support from the spouse and desired dietary habits and daily consumption of dairy. In line with

Table 1: The results of descriptive data analysis

Characteristics (n=120)	Mean (SD)
Age (years)	
Woman	30.12 (4.64)
Spouse	33.67 (4.95)
Body mass index (kg/m ²)	24.45 (2.36)
Gravidity	1.17 (0.87)
Dietary habits	
Incorrect dietary habits (7 items)	17.5 (4.17)
Desirable dietary habits (15 items)	49.47 (7.26)
Unhealthy food consumption (6 items)	12.73 (3.63)
Vegetables consumption (daily serving)	2.06 (0.87)
Dairy consumption (daily serving)	2.48 (1.00)
Fruits consumption (daily serving)	2.93 (1.00)
Meat consumption (daily serving)	1.58 (0.49)
Social cognitive theory (SCT) constructs	
Accessibility (3 items)	12.26 (2.04)
Health care support (6 items)	18.31 (4.40)
Spouse support (5 items)	23.48 (4.19)
Outcome Expectations	18.34 (1.89)
Self-efficacy	19.09 (3.09)

Table 2: Pearson Correlation between social cognitive theory constructs and dietary habits (n=120)

Social cognitive theory (SCT) construct dietary habits	Accessibility	Health care support	Spouse support	Outcome expectations	Self-efficacy
	r (p)	r (p)	r (p)	r (p)	r (p)
Incorrect dietary habits	-0.25 (0.005) ^a	0.03 (0.706)	-0.16 (0.072)	-0.17 (0.060)	-0.25 (0.005)
Desirable dietary habits	0.14 (0.114)	0.12 (0.171)	0.29 (0.001)	0.18 (0.045)	0.25 (0.005)
Unhealthy food consumption	-0.00 (0.966)	-0.02 (0.768)	0.02 (0.770)	-0.07 (0.420)	-0.22 (0.014)
Vegetables consumption	-0.01 (0.846)	0.10 (0.256)	0.07 (0.389)	0.10 (0.254)	0.14 (0.116)
Dairy consumption	0.20 (0.024)	0.01 (0.915)	0.21 (0.021)	0.15 (0.096)	0.10 (0.277)
Fruits consumption	0.20 (0.026)	0.05 (0.529)	0.14 (0.126)	0.08 (0.376)	0.15 (0.088)
Meat consumption	0.21 (0.018)	0.00 (0.920)	0.02 (0.787)	0.09 (0.325)	0.21 (0.020)

^a: p-value

Table 3: Multivariate linear regressions with adjusted result for woman's age, spouse's age, education level, gravidity, occupation, economic status, and body mass index

Independent variables	Dependent variables (dietary habits)											
	$R^2_{adj}=0.14$		$R^2_{adj}=0.03$		$R^2_{adj}=0.04$		$R^2_{adj}=0.02$		$R^2_{adj}=0.03$		$R^2_{adj}=0.02$	
	$F^b=3.42$		$F^b=1.59$		$F^b=1.70$		$F^b=1.31$		$F^b=1.46$		$F^b=1.33$	
	$p^c=0.001$		$p^c=0.134$		$p^c=0.106$		$p^c=0.242$		$p^c=0.177$		$p^c=0.236$	
	Incorrect dietary habits		Desirable dietary habits		Unhealthy food consumption		Dairy consumption		Fruits consumption		Meat consumption	
constructs	β	p	β	p	β	p	β	p	β	p	β	p
Accessibility	-0.19	0.039	0.11	0.231	0.00	0.980	0.24	0.011	0.27	0.006	0.18	0.070
Health care support	0.15	0.122	0.02	0.831	0.00	0.971	-0.08	0.420	-0.00	0.971	-0.01	0.860
Spouse support	-0.18	0.051	0.27	0.006	-0.02	0.822	0.25	0.011	0.16	0.120	-0.01	0.921
Outcome expectations	-0.15	0.091	0.14	0.110	-0.03	0.682	0.17	0.062	0.08	0.343	0.09	0.301
Self-efficacy	0.22	0.011	0.25	0.004	-0.22	0.012	0.11	0.241	0.17	0.060	0.18	0.042

a: Adjusted R^2 ; b: F-test; c: Significant

these results, a study among women of childbearing age in Iran showed a significant positive correlation between familial support and women's nutrition behaviors to promote health.^[29] A qualitative study on the population of women seeking pregnancy at the reproductive age reported that for women spousal support was an important factor for implementing preconception nutritional recommendations.^[30] Contrary to these results, the study by Fowles *et al.* among pregnant women in the United States showed that women's diet quality was not associated with spousal support.^[31] These inconsistent results may be due to differences in the personal characteristics of the two populations. The women in the present study were all married, but in the study by Fowles *et al.*, a greater number of the participants were unmarried, which is probably why spousal support was not evaluated. In this study, most women were homemakers, and this factor may be the cause of women's greater financial dependence upon their husbands, and consequently, the direct relationship of spousal support with better nutrition behaviors.

Nevertheless, regarding the relationship between self-efficacy and dietary habits, the results showed that self-efficacy had a significant inverse relationship with incorrect dietary habits and unhealthy food consumption, whereas it had a positive correlation with desired dietary habits and daily consumption of meat. In other words, self-efficient women had fewer incorrect dietary habits including the consumption of unhealthy foods, but more desired dietary habits and daily meat consumption according to the food guide pyramid. Another study showed that self-efficacy in healthy nutrition had a direct correlation with the consumption of fruits and vegetables.^[20] The results of yet another study also showed that self-efficacy in healthy nutrition had a significant inverse relationship with the consumption of high-fat and high-calorie foods.^[23] The results of the present study were consistent with that of the above mentioned studies. Consequently, it can be noted

that self-efficacy is an important factor for healthy nutrition and could help women acquire the ability to overcome unhealthy nutritional behaviours.

One of the limitations of this study was its cross-sectional nature that cannot show the causal relationship between variables feature. Furthermore, awareness as a confounding variable was not investigated in this study and should be evaluated in future studies.

Conclusion

The results showed that, to improve the nutritional status of women before pregnancy, interventional policies should be aimed at increasing women's access to healthy food and their self-efficacy to maintain healthy dietary habits. On the other hand, in PCC, the presence of husbands and their encouragement to support their wives in maintaining healthy nutritional behaviors can be an effective step toward having a safe pregnancy and a healthy future generation.

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Conflicts of interest

Nothing to declare.

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