

The Effect of Training Male Smokers About the Effects of Secondhand Smoke in Pregnant Wives on Their Self-Efficacy

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Abstract

Objective: Contact with second-hand cigarette smoke includes inhalation of cigarette smoke caused by the burning of the cigarette itself and inhalation of smoke exhaled by the smoker. Wife's pregnancy can be a motivating factor to change the behavior of men who smoke. Therefore, this study was conducted in order to determine the effect of training male smokers on the effects of secondhand smoke during pregnancy on their self-efficacy.

Materials and methods: The present study is an interventional type of pre-test and post-test. In this phase, random sampling was done from health centers in Isfahan, the participants were 140 smoking spouses of pregnant women, who referred to health centers to receive pregnancy care, and were divided into two intervention and control groups. The data collection tool was a researcher-made questionnaire on men's self-efficacy regarding second-hand cigarette smoke. The validity of the questionnaire was confirmed based on the opinion of the expert panel with content validity ratio (CVR)=0.87 and content validity index (CVI)=0.88, and its reliability was confirmed with Cronbach's alpha=0.97. All data were analyzed with SPSS18 software and Chi-score, Fisher, t-test.

Results: There was no significant difference between the comparison of demographic variables in the intervention and control groups ($p>0.05$). The results of the paired t-test to compare before and after the training showed that the average score of self-efficacy ($p<0.001$) in the intervention group had increased significantly after the training, and according to the independent t-test, the average score of self-efficacy After training, it was more in the intervention group than the control group ($p<0.05$).

Conclusion: Men's self-efficacy regarding second-hand smoke increased after training, so the current training package is effective in training and can be suggested for future studies.

Keywords: Male Smokers; Pregnancy; Secondhand Smoke; Self-Efficacy

Introduction

The high prevalence of smoking is considered as a

health problem and the threats caused by cigarette smoke for people who are exposed to it is a double problem that can be pondered. Contact with cigarette smoke includes the inhalation of cigarette smoke caused by the burning of the cigarette itself and the

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inhalation of smoke exhaled by the smoker (1, 2). The highest exposure to secondhand smoke was in Eastern Europe, Western Pacific and Southeast Asia with more than 50% of the population exposed (3). Although the prevalence of smoking for women is low in Iran, the high prevalence of smoking for men exposes women to complications caused by contact with cigarette smoke (4). In a study in Isfahan, 23.1% of pregnant women were exposed to secondhand cigarette smoke from their husbands at home (5). Its complications are significant especially in pregnant women, risks including premature birth (6-10), water sac rupture (11), possibility of cesarean birth (7), decreased fetal growth and intrauterine growth delay (6, 10, 12), low fetal weight (8, 9), fetal distress (6), smallness for gestational age (7), sudden infant death syndrome (6, 10) and increased cotinine level in the follicular fluid of exposed women with cigarette smoke (13). Spouse smoking is a source of exposure to tobacco smoke (14). The World Health Organization recommends that health care providers should have a minimum recommendation for all pregnant women to avoid exposure to secondhand smoke of any type of tobacco and to encourage family members to quit smoking (15). Educational interventions regarding smoking have been able to reduce the smoking rate of men during their wife's pregnancy, so the wife's pregnancy can be a motivating factor for changing the behavior of male smokers (16). Sahebi et al.'s study showed that educating smoking husbands about second-hand smoke during pregnancy is effective in improving their health beliefs and reducing the exposure of pregnant women (17). Men are on the sidelines of mothers' services and do not have access to information that helps them make informed decisions and protect and improve the health of their spouses. They have a special role in improving the health of mothers, and if they were considered an obstacle in the past, Today, they are part of the solution (18). Designing intervention programs regarding second-hand smoke plays a role in preventing exposure of pregnant women to cigarette smoke and reducing smoking in men (19). Pregnancy provides the best opportunity for health care providers to help the smoking spouses of pregnant women with the necessary training to understand the complications and threats caused by second-hand smoke and to correct their behavior and by motivating men's participation in care. and the reproductive health of their wives to help reduce smoking around pregnant

women, therefore, the present study was conducted to determine the effect of educating male smokers on the effects of secondhand smoke in pregnancy on their self-efficacy.

Materials and methods

The present study was an interventional type (pre-test-post-test), the study population was smoking spouses of pregnant women referring to health centers in Isfahan city. According to a similar study (8), the sample size was 63 people and including 10% attrition, the number of 70 people in each group was considered.

The criteria for entering the intervention include women being at least in the second trimester of pregnancy, men who smoke (at least one cigarette per day around a pregnant woman), having at least the third middle school education, not participating in other educational programs about smoking. And the desire of pregnant women to continue receiving pregnancy care until delivery through these health centers, and the criteria for leaving the intervention included the absence of the wife at home for more than a week and termination of pregnancy.

The sampling method was that among the health centers of Isfahan city, 5 centers from the upper city, the lower city and the city center were randomly selected and 140 smoking men whose pregnant wives were among the clients of the health centers were invited to study.

Then they were randomly divided into intervention and control groups. After completing the questionnaire and written informed consent in the pre-test phase, the training package was presented to the people of the intervention group, and two months after the intervention, the post-test was conducted.

The control group, which initially received no educational intervention, received the educational package at the end of the study due to ethical considerations.

The tool used was a researcher-made self-efficacy questionnaire of smoking spouses of pregnant women, which was completed by the participants as a self-report. To determine the validity of the content quantitatively, the questionnaire was given to 10 panelists of health education and health promotion and reproductive health experts, and content validity ratio (CVR)=0.87 and content validity index (CVI)=0.88 were obtained, and its reliability was confirmed by Cronbach's alpha of 0.94.

The researcher-made questionnaire consists of two

parts: the first part demographic information: (age of men and women, education of men and women, occupation of men and women, economic status), the second part: self-efficacy 12 questions (with a Likert scale completely disagree, disagree, theoretical I don't have it, I agree, I totally agree) (for example, I cannot smoke around my pregnant wife, I can smoke outdoors or in the yard, etc.).

The educational program regarding exposure to second hand cigarette smoke was provided to the intervention group and the control group received no intervention-based program.

The educational package included a 30-60 minute educational-explanatory lecture session, an educational pamphlet (made by a researcher), and an animation of the dangers of smoking (taken from the website of the Ministry of Health). Information about pregnancy and childbirth, cigarette smoke and the diagnosis of types of cigarette smoke and its side effects for pregnancy and the fetus, were protective recommendations against cigarette smoke, presented in the form of a lecture. Animation and pictures were used and educational pamphlets were presented (with the content of knowing the effects of secondhand smoke and protective measures and reducing consumption) and simple steps to quit smoking and the experiences of a smoker who had previously quit were used. Also, men's mobile numbers were received for sending SMS reminders (at the end of every week for two months). Considering that the time interval between pre-test and post-test was two months, a reminder SMS was sent to the participants every weekend.

Data analysis was done using SPSS 18 software, considering the normality of the data, paired t-test, independent t-test, and chi-square were used, and the significance level was considered less than 0.05.

This study is the result of the doctoral research thesis of health education and health promotion with ethics code IR.SSU.SPH.REC.1396.133 and clinical trial code IRCT20180722040555N1. All the participants were assured that the obtained

information would remain confidential, and the objectives of the research were explained to them, and written informed consent was obtained.

Results

In this study, 140 male smokers with pregnant wives participated and were randomly assigned to two intervention and control groups. The average age of women was 29-30 years and the age of men was 34 years. The results of comparing the frequency distribution of demographic variables in the two groups before the intervention did not show any significant difference ($p > 0.05$). The demographic information of the intervention and control groups is listed in (Table 1).

The results of the paired t-test to compare before and after the training showed that after the training, the average self-efficacy score in the intervention group increased significantly ($p < 0.001$), but there was no significant change in the control group ($p = 0.184$). Also, the results of the independent t-test to compare the mean score after training showed that the mean self-efficacy score after training in the intervention group was significantly higher than the control group ($p = 0.004$) (Table 2).

Discussion

In developing countries, pregnant women are exposed to secondhand smoke due to their husbands' cigarette smoke, and this is an important health problem for pregnant women and fetuses (20). Men's participation is an important strategy in achieving the development goals of the third millennium, such as empowering women and improving maternal health.

The World Health Organization considers men's participation in maternal health programs to include things such as: facilitating access and use of perinatal care, increasing awareness in perinatal care and participating in childbirth planning, and conducting needs assessment and identifying appropriate strategies for considers their conflict as necessary (21).

Table 1: The frequency distribution of demographic and background variables of participants in two groups before the intervention

Variable	Intervention		Control		
	Number	Percentage	Number	Percentage	
Female education	Diploma \geq	60	86.9	50	75.8
	Diploma $<$	9	13.1	16	24.2
Male education	Diploma \geq	61	88.4	60	85.7
	Diploma $<$	8	11.6	10	14.3
Type of pregnancy	Planned pregnancy	50	75.8	47	70.1
	Unplanned pregnancy	16	24.2	20	29.9

Table 2: Self-efficacy score in two groups

Self-Efficacy	Intervention	Control	P-value
Pre-Test	34.30±5.49	35.85±6.27	0.120
Post-Test	38.87±3.65	36.85±4.23	0.004
P-value (paired t-test)	0.001<	0.184	

Effective interventions to reduce exposure to second-hand smoke in pregnant women are necessary to ensure the health of the mother and fetus, and the content of these interventions should be for both pregnant women and their husbands (22). Therefore, the purpose of this study was to determine the effect of education about second-hand cigarette smoke to male smokers on their self-efficacy.

In this study, men's self-efficacy increased after training in the intervention group, and the average score in the intervention group was higher than the control group. In line with these results, Sahebi et al.'s study showed that educating men about second-hand smoke was associated with an increase in their perceived self-efficacy, although this score increase was not significant (17). Therefore, he emphasized, training male smokers to increase their ability and self-efficacy to refrain from smoking near their wives can be effective (17). In Cosci et al.'s study entitled "Powerful others, awareness and beliefs about smoking in Italian adolescents", it is pointed out that self-efficacy is the main success factor in creating smoke-free homes (23).

In the study of Wakefield et al., it is stated that except for men's lack of knowledge about the effects of their cigarette smoke on the fetus, they believe that their smoking habit is unimportant (24). Also, another study emphasized that men's belief that the fetus is protected in the mother's body and the lack of motivation to quit smoking during the wife's pregnancy due to the perception that the child is not yet real, also, the concern about the occurrence of marital disputes related to smoking cessation is an obstacle to smoking cessation in men with a pregnant wife (24).

In its justification, it can be stated that when men feel that they are a support for their wife and children, they gain the necessary self-confidence to protect them. When a person believes that his behavior is dangerous for the people around him, he tries to either stop that behavior or protect the family from it (25).

Also, the fact that a person knows that others are also facing this problem and sometimes they have taken measures to solve it, creates an incentive for them to take action to empower themselves and perform that behavior, so the present training package

by providing this information was able to increase self-efficacy.

Conclusion

Men's participation in pregnancy care is an important strategy in achieving goals such as empowering women and improving mothers' health. This study tried to fill the gap related to the self-efficacy of male smokers regarding second-hand smoke with education and was successful in this matter. The importance of exposure of pregnant women to second-hand smoke, regardless of serious complications for individuals, lies in its pregnancy and fetal consequences. In this study, men's self-efficacy regarding second-hand smoke increased, so it seems that the current training program can be effective in future studies.

Conflict of Interests

Authors declare no conflict of interests.

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