

## Review Article

**The effect of family counselling based on BASNEF model on the smoker's home of pregnant women**Farzaneh Soltani<sup>1</sup>, Arezoo Shayan<sup>1</sup>, Gita Sangestani<sup>1</sup>, Salimeh Azizi<sup>2</sup>, Ghodratoolah Roshanaii<sup>3</sup>, Fariba Barzegar<sup>4\*</sup><sup>1</sup>Mother and Child Care Research Center, Hamadan University of Medical Sciences, Hamadan, Iran<sup>2</sup>Department of Nursing, School of Nursing, North Khorasan University of Medical Sciences, Bojnurd, Iran<sup>3</sup>Modeling of Non-Communicable Diseases Research Center, Hamadan University of Medical Sciences, Hamadan, Iran<sup>4</sup>Student Research Center, Hamadan University of Medical Sciences, Hamadan, Iran

## ARTICLE INFO

## ABSTRACT

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Accepted 14.03.2018**Key words:**Smoking;  
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**Background& Aim:** Given the high rate of smoking around the world and in our country and prevalence of smoking among people, the family groups and youth at fertility age and from other side due to toxic substances in cigarette smoke and its effect on smokers and their surroundings, one should take substantial action about this hygiene problem. Apart that damaging himself and society, the smoker mars his surrounding environment, and as expert believe, the smoker not only extirpate his own life but also contribute to blot out the families.

**Methods & Materials:** In this review study, firstly the search of registered papers in electronic sites have been examined, and the keywords related to this title has been used and 9 papers are assessed.

**Results:** Findings suggest the positive effect of counselling of family based on BASNEF model on smoking of smokers living with pregnant women.

**Conclusion:** One of the models used for change of people behavior is BASNEF model that is a complete and comprehensive model for behavior study and change. BASNEFF model considers the factors like beliefs, attitudes, social norms and enablers as effective for change behavior.

**Introduction**

Smoking is among current world problems, which may put people's health at stake. Smoking derives from 20<sup>th</sup> century machine life and the is a gift of technology (1). Smoking similarly is considered a problem of men however it is estimated that roughly 250 million people around the world smoke and other millions of women use tobacco products (2). Smoking is one of the risk factors increasing overall load of disease in the world especially regarding chronic and non-contagious diseases like cardiovascular, respiratory, cancer and brain stroke (3). In addition to physical and psychological diseases, smoking also affect the society health in cultural,

social and economic regards (4). At this moment of the time, around the world there are almost one billion smokers that is it estimated up to 2030 another one billion people of younger adults would embark on smoking, meanwhile bent toward smoking is ratcheting up in developing countries (5). World health organization (WHO) report showed that smoking geography has shifted from developed countries to developing countries and the problem is more acute in Asia (6). Although smoking is cutting down in the United States, however in some countries like developing countries and some populations such as women population it is ratcheting up (7). In Iran it is stated for men 20.4% and for women 1% and for overall population 10.8% (8). 12 to 20% of women smoke at pregnancy. New studies showed that cognitive diseases and behavioral control disorders in primary school students derives from exposure before and after birth. There is no risk-free amount of consumption or

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exposure to tobacco smoke (9). Smoking not only damage the smoker individual health but also the individuals exposed to cigarette smoke (7). Some studies have shown that non-smokers living with smoker people would have higher death risk due to various reasons (1). Some of gases that pollute the environment due to smoking is very higher than amount that is inhaled by the smoker individual himself (10). Studies show that both main and subsidiary smoke (the subsidiary or environmental smoke is referred to the smoke of cigarette which is made up of primary and lateral smoke which comes out of cigarette tip and flows in air, it is known as second hand smoke of cigarette (11).

It contains thousands of compounds some of which is detrimental for human health. However, the negative effect of primary and subsidiary flow of cigarette smoke varies in terms of oxygen level and other substances. For example, subsidiary flow of cigarette smoke with regard to main one rather contains carbon monoxide and to less amount dioxide carbon and higher level of compounds made up of nitrogen and ammoniac. Moreover, environmental smoke contains other chemicals like benzene, cadmium, ethyl benzene, formaldehyde, hydrazine methylamine, methyl chloride, nicotine, pyridine, toluene and polonium 2100, which has detrimental effect of fertility (12). People exposed to cigarette smoke have increase of nicotine level in their body liquid like smokers, so that cotinine half-life in urine sample collected from 9 smokers is  $1.2 \pm 16.5$  hour and in nonsmokers exposed to smoke it is  $27.3 \pm 1.9$  hours (13).

Studies shows that environmental smoke inhalation at pregnancy increases the likelihood of premature birth (14). Similarly, weight, height, and head perimeter of infants born from the mother exposed to environmental smoke at the pregnancy were less than the infants of mothers that were not exposed to environmental smoke (15). Today, giving birth low weight infant among smoker women is a proved thing. Low weight infants are exposed to various risks, problems and diseases and their casualty is more than infants with normal weight. These infants require special cares which calls for trained personnel with considerable time and cost. Similarly, these children will suffer in future years physical and mental damages (1). From other side, the nonsmoker women should be noticed about this issue that even if they don't

smoke, cigarette smoke of spouse or people in the home or workplace environment and it puts their health and that of their embryo at risk (15). Mother exposure to cigarette smoke during pregnancy comes with smallness of the infant with regard to pregnancy age and embryo intrauterine growth disease (7). People expose to cigarette environmental smoke in various places like home, workplace or public spaces. Based on WHO report in Iran 41.7 % of people in home and 50.6 % of people outdoor are exposed to cigarette smoke. Similarly, more than half of women during the pregnancy (56.2%) are exposed to imposed smoke of cigarette (11). In many countries like Iran the smoking is forbidden in public places, while in private places like home this prohibition is not obligatory. In the context of applying limitation of smoking at home less care is give comparing with workplaces while the greatest exposure place with the smoke is at home. Application of limitation to smoking at home is affected by various factors such as race, ethnicity, income, age, gender, degree of socioeconomic status and degree of development. Level of people convictions about the effect of smoking on the health as well as limitation for smoking for cutting down the exposure to imposed smoke is effective (16). In Iran, so far no study is done about the limitation of smoking and examining the factors related to pregnant women population. Given the increase of smoking among Iranian youth especially among women and lack of eminence of previous studies (17), the studies showed that the consultancy during pregnancy period for eschewing the pregnant mother to environmental smoke, improved the infant weight upon birth (18).

Currently, more information is available about the risks from mother smoking during pregnancy period and its lifetime consequences affecting the performance of children lung. Such as increased risk of morbidity to wheeze and childhood asthma. Recent studies show many morbidities of smoking during pregnancy affecting the children lung via nicotine (19). To such extent that refraining to protect the embryo is considered as a sort of embryo abuse. Regarding embryo abuse, its status and undeniable consequents of embryo abuse that in some cases causes considerable and permanent damage to embryo like behavioral problems, attention and learning issues, hyperactivity and premature birth (birth sooner than 37 weeks), abnormalities, increased risk of

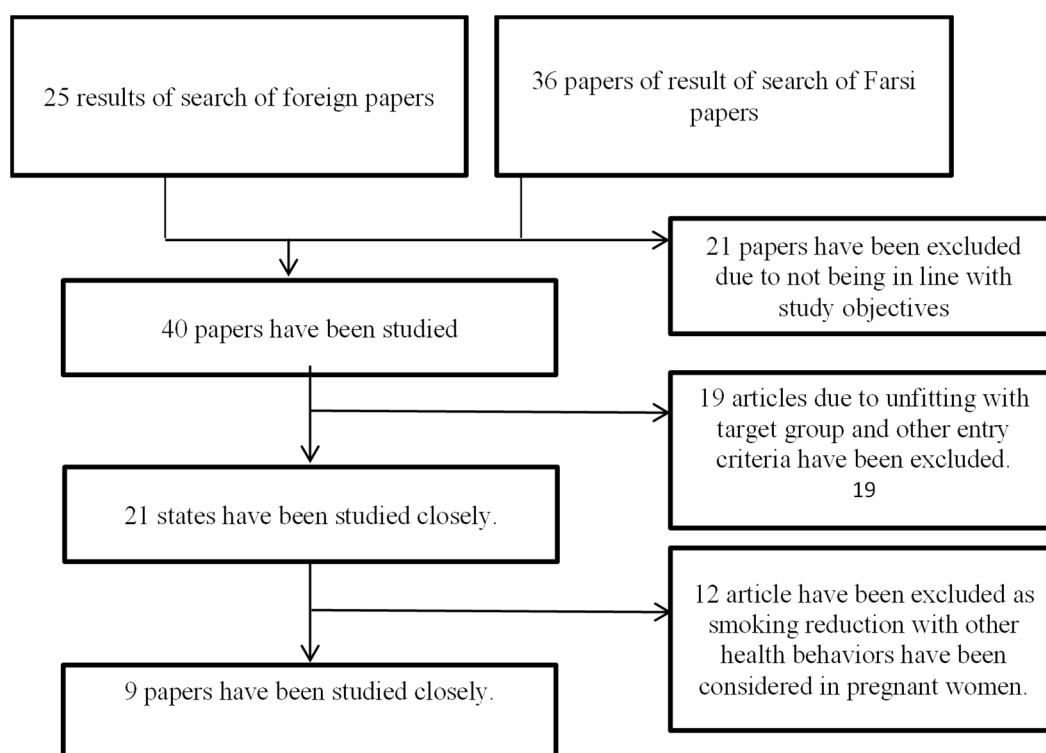
morbidity to infant sudden death syndrome (it is the sudden death of infant younger than one year that despite the conducted studied no reason is specified for it. This syndrome is the most common cause of death after infancy period in developed countries. In a study carried out many etiologic factors is mentioned for it considering sleeping the child on the stomach, exposure to variety of smokes, living in deprived regions, genetic issues, male gender, background of death of other children in family due to this cause and lack of biotin and growth disease, so far in Iran, no study is not done (20). Some of people draw on the cigarette as a means for controlling negative feelings like anger, anxiety, depression and for coping with stress. Studies also suggest that by smoking one cannot cut down the stress and anger, probably such feeling in smokers is related to decreasing stress associated with dependence to nicotine rather than real stresses of life. Thereupon one can note that unlike this belief that the smoking pulls an oar to feeling control, its consumption really ratchets up restlessness, stress and depression during body dependency to nicotine (21). Nowadays, effectively implementing the solutions for smoking quitting can be considered as a substantial investment in the plan of smoking control (22). Such solutions are theory-based and usually based on behavior change patterns. It seems that one of ways of quitting or behavior change regarding smoker is consultancy with individual and family. Bruner believes that patient family should contribute in didactic program so that they can be aware of patient requirements and support the patient in complying with treatment planning (23).

By consultancy, one means a continuous and purposeful relation that is carried out the collaboration of consultant and patient based on patient needs. In this regard, attention to self-knowledge and decision making by the patient itself is highlighted (24). In fact, expansion of industrial life and development of urbanity and its consequents increased the presence of consultants and psychotherapists for solving the psychological issues in various ambits (25). Consultant suggest many meanings, but one of them is advising and guiding. Why the advising in consultancy is not so accepted? Well, advising says to people what to do and what not to do. Obviously, this style of statement that someone specify the good and bad of life has no room in the consultancy. Even for many consultants the

advising is considered as filthy word. In consultancy the patient is helped to be able take a grasp of the problem on his own and catechize the roots of problem and identify the factors affecting its continuance or intensification and to pay his contribution in changing the vision. Unlikely, in advising the control is in hand of advisor not the audience (26).

## Methods

In this review study, for identifying the intervention studies in which the training is considered as key intervention for cutting back the smoking in pregnant women, electronic search of informational database to has been done in Farsi and English. Among 25 English and 36 Farsi papers (after swerving a lot of papers based on title and abstract (40 papers)) were singled out that were in line with the study objective. Among remnant papers, 19 papers have been eliminated due to unfitting with target group and considering entry and exit touchstones. 21 papers have been studied closely and 12 papers are excluded due to examining cigarette cut-back with other health behaviors in pregnant women that finally 9 papers (7 Farsi and 2 English) have been incorporated in this review study which is specified in figure 1. These papers are derived from Farsi sites, Iran medical science papers information bank (Iran Medex) and science information database (SID) using keywords of pregnancy, pregnant women, quitting, smoking, cutback, cigarette, family counseling, intervention, training, theories and hygiene training models. Similarly, English papers have been searched in information sites PubMed, ScienceDirect and Biomed Central using words, reduction, cession, consumption, family counseling, pregnancy, smoking consumption, smoking cession, smoking theory, intervention, education, high school model. The entry criteria to the study was electronic propagated intervention studies in which only smoking cutback examined for pregnant women at home, studies with control group and target group in which only pregnant women are taken into account, the studies which only considered only the type of cigarette smoking and the studies published between 2005 and 2018. Reason for selecting this duration was increase of smoking related problems in developed countries, especially in developing countries in recent years and attention to pregnant women health. Exit criteria of the study included descriptive, quality,



**Figure 1.** Examined studied for family counseling effect on smoking of smokers sharing a home with pregnant women

review, structured review and meta-analysis studies for smoking reduction with other interventions for carrying out health behaviors in pregnant women and intervention studies for smoking cutback for preventing and decreasing diseases such as diabetes, asthma, depression and other diseases. For determining the quality of intended qualities, two researchers without conflict of interests and with consensus on entry and exit criteria, the articles are examined and the papers which lack the pertinent quality have been swerved given the study objective. In sum, all of examined studies have been done in intervention and control manner. A summary of examined studies features is recorded in the table that devised by scholars, examining the papers interpretative results, by the scholars for consolidating the data validation. The details of these tables included first author name, year, time and place of study, objective of study, target group, sample size, study duration and follow-up duration, theory/model, examined variants, the way in which the intervention is done and the intervention results.

## Results

Recapping the selected articles showed that inmost studied there is a good relation between interventions and smoking reduction of smokers.

The exacter information of these selected studies are presented in Table 1.

Past research often have been done aiming to shed light on the cigarette smoke effects (second hand smoke) on the weight upon the birth and modality of growth of embryo and on pregnant mother anemia and in searching of the literature it has been revealed that no study has dedicated exactly to family counseling regarding change of smoking style at the presence of pregnant women and therefore, one has drawn on the similar studies in this regard, which is discussed in the following. A study carried out in 2011 under banner of the effect of training family based problem solving on the self-esteem of patients addicted to narcotic substances by Rahim Habibi et al in attenders to Mehr rehabilitation clinic of Mashhad. In this study, 60 patients have been put in two groups of 30 people randomly. All of study units, forms and questionnaire of self-esteem have been completed before the intervention. For test group for two-month duration, eight 45-degree sessions of family based have been organized. Then each group have separately filled the self-esteem questionnaire. The results showed that intervention in test group results in significant increase up to 4.5 times in self-esteem score with respect to control group (27). This study showed that support of family is among

**Table 1.** The included studies

Author	Study type	Sample size	Intervention	Findings
Habibi et al (2011)	Experimental with two groups with pretest and post test	60 persons	Family based problem solving training	Intervention in test group results in significant increase up to 4.5 times of increase in self-esteem score than control group.
MomenAbadi et al (2014)	Quasi experimental	80 persons	BASNEF pattern training	Post training results showed a significant difference in score average of approach, abstract norm and behavioral intention.
Fathi et al (2016)	Quasi experimental	126 people	Planned behavior theory	Organizing the didactic sessions based on the planned behavior theory give rise to prevention and cutback of smoking in students.
Honora et al (2015)	Two group experimental with pretest and posttest	46 persons	Training plan based on planned behavior theory	Results showed significant increase in the score changes average of attitude, behavioral intention and perceived behavioral control, before and immediately the intervention in the people of the test group than the control group.
Shaban et al (2005)	Two groups experimental with pretest and posttest	160 persons	Counselling training program	Study findings suggest the effectiveness of nurse role in patient counseling.
MohammadiZeyd et al (2013)	Controlled quasi experimental	130 people	Training based on change stages model	Pregnant women performance average has increased from 49 to 73.6 in association with mouth and teeth hygiene in test group in a significant manner.
Thomas (2017)	Two groups experimental with posttest and pretest	30 persons	Didactic materials (pamphlet)	The positive effect of didactic material on participant cigarette quitting
Hong et al (2016)	Two group experimental with posttest and pretest	30 persons	Phone counselling intervention on family members	In patient children based on telephone counseling section for cigarette cessation to Chinese parents the results were acceptable.

abstract norms and in our study also family support is used for behavior change.

A study carried out in 2014, under banner of effect of didactic intervention based on BASNEF pattern on intention of hookah smoking behavior of students inhabiting Kerman university of medical science dormitories by Victoria Momenabadi et al. 80 male and female students of dormitory dweller have been randomly and in several steps split up in two groups of control and intervention. The data has been collected by demographic questionnaire and researcher made questionnaire of scale of hookah smoking behavior based on BASNEF pattern construct. Didactic intervention was 2 months and in two sessions of collective discussion, a reminder session, and CD and didactic SMS. In assessment after intervention the average of attitude score ( $p=0.66$ ), abstract norm ( $p=0.103$ ) and behavioral intention ( $p=0.13$ ), in both groups, it hasn't significant difference before intervention. However, the results after training have significant different in attitude score average, abstract norms and behavioral intention. The

activator factors in both groups before and after intervention don't show a significant difference (28). We in our studies, BAZNEF model structures questionnaire is used and similarly for determining the number of sample we will use this study.

A study in 2016 in Lorestan University of medical science titled as effectiveness of didactic curriculum planned based on behavioral theory in prevention and cutback of smoking in the students which is carried out by Yadollah Fathi et al. in this quasi-experimental study, 126 persons of male students have been divided randomly into two group of test and control. Information collection tool includes questionnaire based on planning behavior theory and respondents' demographic information. Intervention program includes 4 didactic sessions which is organized for participants of test group. Two groups of control and test have been followed up three months after the test. The data have been parsed using Chi Square test, t independent, pair t and Mcnamar test. Significant difference for average of attitude scores, abstract norms, behavioral intention have

been observed between test and control groups after implementation of intervention program. Similarly, the findings of this study showed that there is a significant difference regarding cigarette and hookah consumption among test and control groups after implementation of didactic intervention (29). A study in 2015, by Fatemeh Honari et al in Birjand University of medical science titled as assessment of effect of training theory based on planned behavior curriculum on caregiving of pregnancy of addicted pregnant women. This study is a random control field trial study which is carried out on 46 addicted pregnant women qualified with entry criteria. People randomly have been put in two groups of test and control. Information collection tool was validated and reliable questionnaire for measuring the planned behavior theory. Questionnaire has been completed before, immediately and to months after the intervention for both groups. The intervention included 6 training sessions based on planned behavior theory which is carried out for test group members. The findings have shown the significant increase in the average of changes of attitude score, behavioral intention and perceived behavioral control, before and two months after the intervention in group members with regard to control group, similarly the perceived behavioral change average before and two months after the intervention in test group people with regard to control group has significant increase (30). A study in 2015, titled as the effect of counselling on smoking quitting of patients with chronic obstructive pulmonary disease (COPD) by Shaban et al has been done in Tehran University of medical science. The study is devised as intervention type and based clinical trial. Sampling is done randomly and 160 patients have been selected with study features and then divided into two group of intervention and control. Data collection tool included questionnaire, information paper and Fagerstrom standard test. For doing so, one refers to patients' medical record and the questionnaire is completed and Fagerstrom test is administrated. For intervention group the counseling is done for 3 months for smoking quitting and in control group only they are encouraged to cigarette quitting. Then one and three months later smoking amount has been examined in both groups. The results showed that one months after the study in the intervention group 22 people (28.8%) and in the control group, 18 people (5.22%) quit the smoking. Three

months after the intervention in the intervention group, 33 persons (41.3%) and 21 persons (26.3%) of the control group quit the smoking and this difference was significant. The findings of the study indicate that the role of nurses in the counseling of patients is effective (31).

A study that was conducted in 2013 by Isa Mohammadi Zayd and his colleagues at Qazvin University of Medical Sciences titled as the effect of training intervention based on changes in the stages of change in the performance of pregnant women in relation to oral health. The study was a quasi-experimental, randomized controlled trial. Using a multi-stage sampling method, 130 pregnant women referred to Qazvin health centers were selected to participate in this study. Demographic data, questions related to the structures of change stages model and performance of pregnant women about oral health were collected using a self-administered and validated questionnaire before and after training intervention. Based on the needs assessment and according to the model structures, 3 sessions of 45-minute group discussions with lectures, questions and answers, and presentation of the pamphlet were conducted for the intervention group. The results showed that the mean performance was 49 to 73.6 in pregnant women and when it comes to the oral hygiene, their function significantly increased in the experimental group (32).

A study by Thomas in the Healthcare System in New York City, LA, USA, in 2017, aimed at using the children's book at the pediatric clinic, pediatricians, in addition to consulting couples, they can prevent the increase of the children second-hand smoke exposure (SHSE) to result in quit smoking. Seven sites of pediatric clinics were randomly divided into intervention and control groups. Pediatricians in intervention group of children books about SHSE, in addition to counseling, they took action for their patients. While, in control group, only the counseling is done by counseling caregivers without receiving any book. In the beginning of the study, there is a significant difference between control and intervention group between pediatricians for showing and counselling caregivers for smoking cigarette ( $p=0.29$ ) (33).

A study carried out in 2016 by Hong et al under banner of effect of parent smoking and patient children exposure to second hand smoke in China. Children SHSE at home entails many

detrimental effects. This study is based on the effects of intervention on smoking of family members in patient children experimental group for reducing SHSE of children and encouraging to quit the smoking. This pretest is devised for evaluation of effectiveness of telephone counseling intervention on family members of children hospitalized in pediatric ward. The data is collected using Chinese standard questionnaire. The results from the completion of questionnaire from family members with report of full limitation of smoking to home (55%), not smoking at home and at everywhere else (37%), not allowing others to smoke in car (70%), not allowing to smoke around the child (57%), the answer of the report was at base study. After three months of supplementary study of family members that not smoking at home (49%) and in car (22%) the results were considerably lower than before intervention and counseling. In general, 7% of participants reported smoking cessation after three months. In the patient children based on telephone counselling section for smoking cessation to Chinese parents the results found to be acceptable. The intervention encouraged several parents to smoking cessation, however most of parents have sufficed to take actions for reducing the children SHSE (34). In our study, the effect of counselling for refraining to smoke at the presence of pregnant women is used.

One of used model for people behavior change is BASNEF model that is a complete and full-fledged model for behavior study and change. BASNE model deems the elements like beliefs, attitude, social norms and enabling factors as effective in behavior change and they are a hybrid of constructs of proceed model and rational action theory. This model is coined for the first time by Dr. John Hobly professor of Lids University and one of health enhancement and hygiene training program actors at international level in 1993. With experience from working in developing countries, he noticed that one's belief in consequences and interests from a behavior play a key role in establishing the attitude toward the behavior and the people living around him and their opinions are important for the individual play a key role in formation of one's abstract norms formation toward the behavior. Therefore, for him, with moderating these two factors one can bolster behavior intention in the individual and after the behavior intention is formed, some

factors like awareness, skill and resources and equipment play a key role as enabler factors in turning the intention into the behavior (35).

## Discussion

In this review study, some studies conducted in the context of smoking reduction interventions among pregnant women has been examined. Based on studies classification, among 9 examined studied, 4 studies address the smoking reduction assessment in high school adolescents without use of hygiene training and health enhancement models and 5 studies catechized the smoking reduction using hygiene training and health enhancement models. The desired results of the studies without hygiene training models and theories can derive from studies duration and this provide sufficient time in dealing with all of study aspects. Similarly, a conflation of didactic strategies upon the intervention can ratchet up the results effectiveness. In general, if in the studies for didactic interventions, specifically and clearly the behavioral educational models and theories have been used, the effect of these interventions has been increased. At any rate one can use the training strategies in didactic interventions in which desire and interest of pregnant women and attractiveness in presenting the trainings has been underscored. Roughly any problem can be dealt with in individual and family manner. However, some problems call for family treatment approach. Family treatment is not done merely for change of the patient itself in family environment. Family treatment brings change in all of family members. Therefore, as each family member changes and continue to continuous change for each other, the behavior change is improved and endured (24). Therefore, in fact upon family based counseling, the client problem is not addressed individually however his problem is addressed in association with his or her family. Family counselling acquires succinct information and embarks on treatment for changing the atmosphere ruling the family. He considers all the client and family members and relatives as contributing in the occurrence of the problem and its treatment (35). However, one should bear in mind that the aim of counselling is prevention, however the aim of psychotherapy is treatment. Counselor considers habitual cases, while psychotherapist considers abnormal cases, conflicts and deep character non-adjustments (26). Thus, there is no substantial difference

between counseling and psychotherapy, as the final aim of counseling and psychotherapy is provision of growth and increase of efficiency as well as one's interaction with family and others. In counselling four solving the academic, occupational and family problems are addressed in a fairly short term, while using psychotherapy one solves the problems of individuals with more severe problems in a longer term. However, one can use counselling and psychotherapy instead of each other (26). Similarly, for success in sound behavior change, educators should be aware of solutions affecting the formation of healthy behavior and in this regard using didactic theories is helpful (35). The theories help the designers to think the beyond individual issues while considering the needs and designing the program. Consequently, it helps the designer to have a good understanding of the factors affecting the healthy behaviors (35). For behavior change, there may be abounding problems such as cultural norms and touchstones, theories and didactic models which determine and recognize these factors and their adjustment with sociocultural structures. A model is program or map which guides one for establishing a behavior (35).

### Conclusion

This model so far is used in the various hygiene contexts such as the factors affecting the smoking behavior in boy students (2011), didactic effect on mothers' breastfeeding behavior (2010) in Iran and acceptable results are yielded. Refraining to pay attention to various predictors in determining the behavior intention, lack of practical guidance in determining the behavior are considered among likely limitations of this model. This model though is used in most of developing countries, however it can be used in developed societies as well and one may improve the behavior prediction capability in it by slight changes in the model constituting setup.

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### Conflicts of interests

The authors declare that there is no conflict of interest regarding the publication of this article.

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