Family-based cognitive factors effective on preventing the onset of substance use in Iranian Society's Children: applying the intervention mapping protocol

FAMILY-BASED COGNITIVE FACTORS EFFECTIVE ON PREVENTING THE ONSET OF SUBSTANCE USE IN IRANIAN SOCIETY'S CHILDREN: APPLYING THE INTERVENTION MAPPING PROTOCOL

MEHDI MIRZAEI-ALAVIJEH[1], ALIREZAHIDARNIA[1*], GERJO KOK[2], SHAMSADDIN NIKNAMI[1], MOHAMMAD ESMAIL MOTLAGH[3]
[1]Department of Health Education, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran - [2]Department of Work and Social Psychology School of Psychology and Neuroscience, Maastricht University, Maastricht, Netherlands - [3]Department of Pediatrics, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ABSTRACT

Introduction*: According to increase prevalence rate of substance abuse and appears a reduction in mean age of onset substance use in Iranian society and importance of developing theory and evidence-based prevention family skills training programs the present study was done aimed to investigate family-based cognitive factors effective in preventing the onset of substance use in Iranian society's children by applying the intervention mapping protocol.*

Materials and methods*: This cross-sectional study was carried out among 234 Iranian mothers in Tehran who were randomly selected to participate voluntarily in the study. The participants filled out a self-administered questionnaire. Data were analyzed by the SPSS software (ver. 21.0) using Pearson correlations, independent t-test, ANOVA and linear regression at 95% significant level.*

Results: *Knowledge, attitude, perceived risk, subjective norms, and self-efficacy were cognitive factors that accounted for 48% of the variation in the outcome measure of the behaviors in preventing the onset of substance use among children. Linear regression showed that self-efficacy (β=0.509 & P=0.001), attitude (β=0.436 & P=0.009), subjective norms (β=0.344 & P=0.028) and Behavioural intention (β=0.222 & P=0.001) were the most influential predictors on preventing the onset of substance use among children.*

Conclusion*: The findings suggest that to developing a theory and evidence-based prevention family skills training program it will be useful to increase mothers' self-efficacy, attitude, subjective norms, and Behavioural intentionto preventing the onset of substance use among children.*

Key words*: Family Skills Training Program, Substance Abuse, Cognitive Factors, Parents.*

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Introduction

During the recent years, drug abuse has been widely reported in Iran. Studies since 2000 to 2009 suggested that, after inflation and unemployment, drug abuse is the third major problem in Iran[(1)]. Also, drug abuse age has significantly decreased[(2)]. Thus, it seems necessary to prevent substance use since childhood. However genetics, natural and environmental factors all affect a child development, family dynamics plays an essential role inchild development[(3)].

Also, researchers investigated various models to explain different factors influence the possibility to substance abuse and reported parental and family factors have a central position in the long-term pathways leading to substance abuse, while peers effect was a often the major reason adolescents initiate drug use in lower ages. In other words, a positive family environment is the primary reason youth do not engage in risky behaviors such as substance abuse[(4)]. Studies listed the following effective family factors to protect children from the onset of substance use: secure and healthy parent/child attachment; parental supervision, monitoring and effective discipline; Communication of pro-social family values; Parental involvement in child's life; and Supportive parenting (emotionally, cognitively, socially and financially)[(5)].

Furthermore, studies suggested evidence on certain family features which have been known as major risk factors, such as poor management on children behavior, rough and contradictory disciplines, lack of opportunity to learn social skills to resist against social and educational problems teenagers may face in society[6].

Generally, a chaotic family environment and lack of organization in family have been known as risk factors to substance abuse[7]. In addition, apathetic, non-responsive parent-child relationship, emotional insecurity and lack of organized care and control from parents to provide peace to children during their first years of growth increase the risk of anxiety, depression and communication problems among children and young adults[8].

Studies on the field showed that major family factors which increase the possibility from the onset of substance use among children include: Lack of bonding and insecure relationship with parents; lack of a significant relationship with a caring adult; ineffective parenting; chaotic home environment; Parents or siblings who abuse substances, suffer from mental illness or are involved in criminal behavior; ansocial isolation[8].

Recent research reported family skill training including: parents active participation, developing social skills and accountability among children, and considering substance abuse issues, to be the most influential program to prevent the onset of substance use at low ages[9].

In present study to identify and prioritize risky and protective family based factors to the onset of substance use among children and also parents cognitive determinants in this regards, we used the first and the second steps of the IM protocol in the presence of a planning group, including stakeholders relatedto family-based substance abuse preventions among children[9].

Based on intervention mapping protocol, in first step byusing of relevant literature, evidence andcollective planning group wisdom identified effectivefamily based preventing factorsinthe onset of substance use among children and also addressed to prioritized the most important and the most changeable factors (according to the literature and evidence) at a sample of families selective according to cultural factors in the society under study[10]. Since the awareness of current conditions related to cognitive determinants about effective family-based risky and protective factors the onset of substance use among children in understudy society is essential to developing preventive programs, the present study was done aims to investigate family based cognitive factors to prevent the onset of substance use among children based on intervention mapping protocol.

Material and methods

It was a cross-sectional study that carried out among 234 randomly selected mothers in Tehran, Iran. Considering the results from the pilot study phase and dependent variablesSD=5.35 related to mothers behavior about preventing the onset of substance use among children, at 95% significant level and d=0.5, the number of samples was defined to be 229and considering 10% attrition rate, a sample of 252 was estimated. A questionnaire was developed to the goal of the study, based on evidence of the previous theory based IM step two and studies on substance abuse prevention to provide determinants items include: knowledge, attitude, perceived risk, subjective norms, self-efficacy, behavioral intentions and actual behaviors to collect required data. Participants were asked to choose their answers from a 5-Likert scale ranging from completely agree to completely disagree.

Background data gathered included age (year), educational level (under diploma (12 grades<), Diploma (12 grades), and academic), family and friends history on substance abuse (yes, no), occupation (housewife, working), and family economic status (very good, good, average, poor, very poor). seven determinants include: four items on attitude (α=0.70) scores ranging from 5 to 20 (e.g. “I believe that family awareness of each other’s feelings, interests, beliefs, opinions, experiences, goals and decisionis effective on preventingthe onset of substance use among my children”), six items on perceived risk(α=0.83) scores ranging from6 to 30 (e.g. “Defining and discussing family values and expectations about substanceuse have no effect on the onset of substance use among my children”), one item on knowledge, scores ranging from 1 to 5 (Family contention and not discussing to find the solutions is effective on the onset of substance use among children), eight items on self-efficacy (α=0.79) scores ranging from 8 to 40 (e.g. “I have the skills to avoid disagreement to my spouse and find proper solutions through discussions to overcome the difficulties made to prevent of the onset of substance use among my children”), two items on subjective norms (α= 0.86) scores ranging from 2 to 10 (e.g.

"Praising positive behaviors (for instance; paying attention to family and social values and rules, and taking responsibilities) is not important in my family to prevent the onset of substance use among my children"), behavioral intension with ten items (α=0.74) scores ranging from 10 to 50 (e.g. " I tend clarify substance use regulations in my family to prevent the onset of substance use among my children"), and behavior with 10 items (α= 0.81) scores ranging from 10 to 50 (e.g. " I spend more time with my family and I responsible to my family members requirements to prevent the onset of substance use among my children"). To confirm content validity index (CVI) and content validity ratio (CVR) of the questionnaire were used through consulting experts in health educating, addiction, family and psychology and face validity was approved based on the qualitatively collected view points of a target group, similar to the under study population, about difficulty, appropriateness and ambiguity of items. Inclusion and exclusion criteria to the study were: healthy family framework, being Tehran resident, age range 30 to 50, having a child at pre-school level, no substance use in parents or other family members. Self-reports were the bases to confirm non substance user. Also all the participants were justified on how to study and confidentiality of information as well as the aim of this study and directed to the study on their own willingness in order to comply with research ethics.The collected data were analyzed using SPSS version 21 making use of descriptive and analyticalstatistics:Pearsoncorrelation, independent t-test, ANOVA and linear regression analysis at 95% significant level.

Variable		n (%)	Mean	SD	P-value
Education level	Under Diploma (12 grades<)	19 (8.1 %)	31.31	4.53	0.028
	Diploma (12 grades)	179 (76.5 %)	31.88	4.41	
	Academic	36 (15.4 %)	34.08	6.04	
Economic Status	Very Poor	13 (5.6 %)	29.84	3.43	0.239
	Poor	23 (9.8 %)	31.86	4.72	
	Average	143 (61.1 %)	32.63	4.63	
	Good	45 (19.2 %)	31.48	5.08	
	Very Good	10 (4.3 %)	32.4	6.05	
Positive Family history of Substance	Yes	4 (1.7 %)	31.25	7.88	
Abuse	No	230 (98.3 %)	32.19	4.71	0.696
Positive Friends history of Substance	Yes	5 (2.1 %)	30.8	6.22	0.515
Abuse	No	229 (97.9 %)	32.2	4.73	
Occupation	Housewife	212 (90.6 %)	32.07	4.63	0.298
	Working	22 (9.4 %)	33.18	5.85	

Table 1: Association between background variable and behaviors' preventing the onset of substance use among children.

	Mean (SD)	X¹	X²	X³	X⁴	X⁵	X⁶
X¹. Attitude	15.76 (1.75)	1					
X². Perceived Risk	22.36 (2.44)	0.321**	1				
X³. Knowledge	3.68 (0.52)	0.251**	0.280**	1			
X⁴. Self-Efficacy	28.26 (3.49)	0.600**	0.285**	0.208**	1		
X⁵. Subjective Norms	6.66 (1.62)	0.306**	0.433**	0.343**	0.235**	1	
X⁶. Behavioural Intention	32.72 (5.32)	0.397**	0.352**	0.380**	0.447**	0.423**	1
X⁶. Behaviour	32.17 (4.75)	0.520**	0.330**	0.286**	0.609**	0.360**	0.529**

Table 2: Predictor variables of cognitive factors effective on preventing the onset of substance use among children.

Results

The mean age of respondents was 35.92 years [SD: 4.03], ranged from 30 to 45 years. Demographic characteristics of the participants are shown in Table 1.There was a significant correlation between having family and friends history of substance abuse, educational level and behaviors' preventing inonset of substance use in Iranian society's children. However, there was no significant difference between behaviors' preventingin onset of substance useand job, economic status (Table 1). In addition, Bivariate associations among the age, and behaviors' preventing in onset of substance use showed statistically not significant (r=0.124 & P= 0.059).

Variable	*B*	SE *B*	Beta	*T*	*P*-value
Step 1					
Attitude	0.413	0.167	0.152	2.468	0.014
Perceived Risk	0.079	0.107	0.041	0.737	0.462
Knowledge	0.336	0.479	0.037	0.701	0.484
Self-Efficacy	0.505	0.085	0.371	5.968	0.001
Subjective Norms	0.284	0.166	0.097	1.707	0.089
Behavioural intention	0.209	0.053	0.234	3.939	0.001
Step 2					
Attitude	0.421	0.167	0.155	2.524	0.012
Perceived Risk	0.086	0.106	0.044	0.805	0.421
Self-Efficacy	0.504	0.085	0.370	5.964	0.001
Subjective Norms	0.303	0.164	0.103	1.849	0.066
Behavioural intention	0.217	0.052	0.243	4.205	0.001
Step 3					
Attitude	0.436	0.166	0.161	2.632	0.009
Self-Efficacy	0.509	0.084	0.373	6.034	0.001
Subjective Norms	0.344	0.155	0.118	2.215	0.028
Behavioural intention	0.222	0.051	0.249	4.345	0.001
SE=Standard Error Final model: Step 3, Adjusted *R* squared=0.48, , F= 53.938, and *P*<0.001					

Table 3: Predictors of mother's behaviors preventing the onset of substance use among children based on linear regression analysis.

Table 2 shows bivariate correlations between the predictor variables of cognitive factors effective in based on bivariate correlation analysis Finally, linear regression analysis was performed to explain the variation of mother's behaviors preventing the onset of substance use among children. As shown in Table 3, collectively, Predictors variables accounted for 48% of the variation seen in behaviors preventing the onset of substance use in Iranian society's children.

Discussion

Our findings indicated that the attitude, subjective norms, self-efficacy, and behavior intention were the three main cognitive factors which were effective in preventing the onset of substance use in Iranian society's children. Many studies have addressed to prediction of substance use behavior by using cognitive construct, models, and theories[12]. In this regard, Mirzaei-Alavijehet al in their study on role of fathersin prevention of children tendency toward addictive drugs based on theory of planned behavior indicated subjective norms and behavior intention were the best predictors for fathers' behavior about prevention of children tendency toward addictive drugs[13].

In addition van De Ven[14], Harakehet al[15] reported behavioral intention were as important predictors for onset of cigarette smoking among adolescents. Jalilianet al. presented attitude, outcome expectancies, and subjective norms were the most influential predictors for drug abuse among a sample of Iranian male medical college students[16]. Mirzaei-Alavijehet al carried out a research based on prototype willingness model among 18 to 35 years old college students in the center of Iran their results showed that attitude, subjective norms and risk images were the best predictors in preventing of drug abuse[17]. In addition, Gerrard et al. reported the high correlation between behavior intention and drug abuse[18]. Also, Eslamiet al. showed that behavioral intention was a stronger prediction factor to Ritalin misuse among Iranian medical college students.

Since the present study investigated behavior intention constructas intention performance rather than time of intention, this investigationunder the supervision of the experts in the field could be a better predicator to predict behavior outset speed and possible actual behavior[20]. Therefore, considering the role of behavioral intention to predict behavior of preventing the onset of substance use among children in the present study, it seems this behavioral intention construct could be effective on behavior change in intervention program.Based on the our results from the present study and other related studies, cognitive factors, particularly attitude and self-efficacy, play important roles to predict substance abuse and its prevention behaviors, therefore it is essential to consider cognitive determinants to provide preventive intervention programs.

Another funding of this study indicated cognitive factors mentioned accounted for 48% of the variation of parent's behaviors on preventing the onset of substance use among Iranian society's children. Many studies have addressed the cognitive factors their results accounted between 17 to 63% of the variation in the outcome measure of the behavior in substance abuse and substance use preventing. For exampleMirzaei-Alavijehet al. showed that behavioral intention predicted 17.9% of the variance of father behaviors on prevention of children tendency toward addictive drugs in Islamic republic of Iran[21].

Eslamiet al. showed that three predictor variables include; attitude, subjective norms, and prototype accounted for 29% of the variation in intention to Ritalin misuse among Iranian medical college students[19]. Mirzaei-Alavijehet al. showed that theory of planned behavior accounted for 23.5 % of the variance of father behaviors on prevention of children tendency toward addictive drugs in Islamic republic of Iran[13]. Also, Van De Ven et al[14] and Harakehetal[15] reported for 16% and 38%, respectively of the variation in the outcome measure of the intention to the onset of among parents and adolescents. As well as, Jalilianet al. presented attitude, outcome expectation, outcome expectancies, subjective norms, and self-control were cognitive factors that accounted for 49% of the variation in the outcome measure of the intention to drugs abuse among a sample of Iranian male medical college students[16].

This difference in prediction amount could be relative to evaluation of outcome construct; individuals; and social, cultural bases under study. Our results showed that among underlying variables under study, there was a significant relationship between educational level and preventive behaviors, so that the higher educated the mothers, had the more appropriate behaviors to prevent the onset of substance use in their children.

Results from Apotential limitation is that the behavioral and psychological questionnaires used in

the study rely on thyself-report format. The results, therefore, may be subject to self-report bias, resulting in some unspecified amount of misclassification as to the participants' actual levels of preventive behavior about the onset of substance use among children. However, population-based studies must rely on self-report to a large extent because there is frequently no direct contact between the subject and the investigator. The accuracy of self-report has been extensively investigated in the area of health-related behaviors, where it has been found tobe accurate[22]. Also another limitation was lack of relative data on fathers.

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Corresponding author
hidarnia@modares.ac.ir