Predictors of protection motivation to prevent home injuries among mothers with children under 5 year-old

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Abstract

Unintentional injuries are major cause of death and disability in children. In this regard, mothers play important role in adopting preventive measures to avoid these injuries. The aim of this study was to determine the predictors of protection motivation to prevent home injuries among mothers with children under 5 year-old. This study was performed on 204 mothers having children under 5 year-old in health centers. Proportional stratified random sampling was use as sampling method. The inclusion criteria were living in Jiroft city, ability to read and write, having at least one child under 5 year-old and desire to participate in the study. A researcher-made with 41 items questionnaire was used to measure demographics characteristics and protection motivation theory constructs in terms of home injuries. The results showed that there was significant relationship between mean scores of protection motivation and perceived vulnerability, perceived severity, response efficacy, self-efficacy, response costs and fear. The results of linear regression analysis showed that self-efficacy, fear and response costs could predict 20% of variance of motivation to protect from home-related injuries. Considering that self-efficacy, response cost, and fear could predict protection motivation among mothers so use of such constructs in health promotion interventions can improve the safety behaviors of mothers at home.

Keywords: Children, Fear, Home Accidents, Motivation, Self Efficacy

Introduction

Injuries are recognized as significant threats to child health among the leading causes of death and severe disability among children aged 1-4 years around the world [1,2]. The majority of childhood injuries occur at home. Children less than 5 year-old are more vulnerable to these events due to the lack of awareness about dangers of the surrounding environment [3,4]. It is estimated that in the United States about 1.4 million children under 5 year-old annually were referred emergency room departments due to unintentional injuries [5]. The injury not only affects injured child but also the influence family and the society with approximate annual burden of 87 billion dollars [6]. Among the home-related injuries, drowning and burns are about 35% of the deaths among children aged 1 to 9 years. In addition, falls is the main cause of non-fatal injuries among three million children who annually receive emergency medical

care [7,8]. A study in Iran reported prevalence of home injuries in children younger than 5 year-old as 40% among which the commonest were falling (30.1%), swallowing foreign bodies (22%), burns (16.8%), and poisoning (4.11%) [9]. Several factors influence household injuries in children which include child factors (young age and being male), parent factors (inappropriate home design, lack of supervising children's activities, low education level, and lack of knowledge about the potential dangers at home), and family factors (low socioeconomic status, large number of children at home, living in crowded and poor neighborhood and absence of mother from home for more than 8 hours day) [10-14]. A comprehensive examination of behavioral factors can help us achieve a suitable approach for prevention of home injuries. In this regard, models and theories can explain behavior and identify measures required to change it. Indeed, through application of theory or model, the characteristics of individual and surrounding environment that somehow affects the behavior can be detected [15]. The Protection Motivation Theory is appropriate framework particularly adapted in protective or precautionary behavioral interventions. This theory was developed by Rogers in 1975 explain the effect of fear on attitudes and health behaviors and considers that fear has significant effect on behavior's selection [16]. According to this theory; adoption of recommended health behavior is the direct result of individuals' motivation to protect themselves [17]. Despite the importance of this issue, few studies are available about injuries and related factors especially based on protection motivation theory [18,19]. This means this theory is appropriate to explain home injuries concerning on health threats. This study aimed to determine predictors of protection motivation to prevent home injuries based on the protection motivation theory among mothers with children younger than 5 year-old in Jiroft city, Iran.

Method

This cross-sectional study aimed to determine the predictors of protection motivation to prevent home injuries using the protection motivation theory. It was carried out on mothers with children younger than 5 year-old in Jiroft health centers during July to October 2015. The sampling was performed by proportional stratified random sampling. To this end, 8 health centers of Jiroft city were selected as stratums. Then, list of the households with the inclusion criteria was prepared for each center. According to the random numbers table, a total of 204 cases were involved. The inclusion criteria were living in Jiroft city, ability to read and write, having at least one child under 5 year-old, and desire to participate in the study. A researcher-made questionnaire consisting of two sections was used to gather the data. The first section was on demographic characteristics; including mother's age, parent occupation, parent education level, number of children, history of previous home injuries and family income. The second section consisted of 32 items related to the protection motivation as follows; one item on protection motivation, three items on perceived severity, seven items on perceived vulnerability, three items on fear, four items on response efficacy, eight items on self-efficacy, four items on response costs and two points on perceived rewards. Each item was scored by the participants on a 5-point Likert scale (ranging from strongly disagree to strongly agree).

The validity of the questionnaire was assessed by measuring Content Validity Ratio (CVR) and Content Validity Index (CVI). CVI and CVR were determined as 0.76 and 0.80 by using opinions obtained from the health education expert panel. The test-retest (within 10 days) was used for protection motivation construct (the Spearman correlation coefficient was 0.71) to assess the reliability, while internal consistency was used for other constructs. For this purpose, a pilot study was performed and the questionnaire was completed by 20 women having same conditions as the participants of the current study. The final Cronbach's alpha was obtained for the evaluated items as follows 0.90 for self-efficacy, 0.86 for perceived vulnerability,

0.72 for perceived severity, 0.78 for response costs, 0.70 for response efficacy, 0.79 for perceived rewards, and 0.76 for fear that is considered acceptable. The data were analyzed by using the SPSS-18. Descriptive statistics were used to examine the characteristics of women. The Pearson correlation test was used to examine the correlation between the protection motivation theory constructs and linear regression analysis to predict protection motivation ($p<0.05$).

Results

In the present study, the age range was 16-49 year-old and most women were in the 25-29 age group. 77.5% women were housewives and 46.1% women had higher education. 44.6% of the women had one child and the child sex was female for 50% of the participants. There was history of home injuries in 46 children (22.5%), which included 25 cases of burn (54.3%), 8 cases of poisoning (17.3%), 7 cases of fallings from stairs (15.2%), 5 cases of cuts (10.8%), and 1 case of asphyxiation (2.1%). The family income of less than one million Toman monthly (approximately 300 dollars) was reported in 66.7% (Table 1). According to the results of one-way analysis of variance, there was significant relationship between mean scores of protection motivation and husband's occupation ($p=0.01$). No statistically significant relationship was observed between the mean scores of protection motivation and mother's age group ($p=0.47$), mother's education level ($p=0.81$), father's education level ($p=0.51$), mother's occupation ($p=0.97$), and number of children ($p=0.06$). Also according to the independent samples test, no statistically significant relationship was found between mean scores of mother's protection motivation who had girl or boy ($p=0.19$) and family income ($p=0.64$).

Table 1 *Distribution of demographic characteristics in women participating in study (n=204)*

Demographic characteristics		Number (%)
Age group	≤25 year	35 (17.1)
	25- 29 years	64 (31.4)
	30- 34 years	61 (29.9)
	≥ 35 years	44 (21.6)
Occupation	Household duties	158 (77.5)
	Employee	46 (22.5)
Husband's Occupation	Employee	62 (30.4)
	Casual labourer	25 (12.3)
	Self-employed	117 (57.3)
Education level	≤12th grade	110 (53.9)
	>12th grade	94 (46.1)
Husband education Level	≤12th grade	136 (66.7)
	>12th grade	68 (33.3)
Number of children	1	91 (44.6)
	2	70 (34.3)
	≥ 3	43 (21.1)
Child gender	Boy	102 (50)
	Girl	102 (50)
History of home injuries	Yes	46 (22.5)
	No	158 (77.5)
Monthly family income	≤ 300 $	136 (66.7)
	≥300 $	68 (33.3)

Mean, standard deviation and range scores of the protection motivation theory constructs are given in Table 2.

The correlation between protection motivation theory constructs is provided in Table 3.

Table 2 *Mean, standard deviation and range of attainable score of protection motivation theory in women participating in study (n=204)*

Construct	Mean ± SD	Range of attainable score
Protection motivation	4.48 ± 0.85	1-5
Perceived vulnerability	23.21 ± 8.74	7-35
Perceived severity	11.65 ± 3.48	3-15
Perceived rewards	5.09 ± 2.45	2-10
Response efficacy	16.59 ± 3.48	4-20
Self-efficacy	28.31 ± 6.16	8-40
Response costs	10.37 ± 4.36	4-20
Fear	11.97 ± 2.88	3-15

According to the Pearson correlation test, there is significant correlation between mean value of protection motivation, and perceived vulnerability (p=0.012), perceived severity (p=0.001), response efficacy (p=0.006), self-efficacy (p<0.001), response costs (p=0.005), and fear (p<0.001).

Table 4 shows the predictors of protection motivation in women of current study. According to the results of linear regression analysis self-efficacy, fear, and response efficacy explain 20% of the variance of protection motivation for prevention of home injuries.

Table 3 *Correlation matrix between protection motivation constructs in women participating in study (n= 204)*

Constructs	1	2	3	4	5	6	7	8
Protection motivation	1							
Perceived vulnerability	0.17*	1						
Perceived vulnerability	0.22**	0.61**	1					
Perceived rewards	0.12	0.22**	0.13	1				
Response efficacy	0.19**	.011	0.20**	0.08	1			
Self-efficacy	0.37**	0.17*	0.24**	-0.18**	0.51**	1		
Response costs	-0.19**	0.18**	0.09	0.45**	-0.09	-0.25**	1	
Fear	0.32**	0.29**	0.35**	-0.03	0.55**	-0.48**	0.03	1

p<0٫05*, p<0٫01**

Table 4 *Predictors of protection motivation of home injuries in women participating in study (n= 204)*

Variable	B	SE	Beta	P	F	R^2
Constant (a)	3.06	0.36		0.001	8.30	20
Self-efficacy	0.03	0.01	0.25	0.002		
Response costs	-0.02	0.01	-0.15	0.028		
Fear	0.06	0.02	0.20	0.017		

Discussion

The results showed that self-efficacy, fear, and response cost constructs could explain 20% of the variance of motivation protection related to home injuries preventive behavior in mothers with children under 5 year-old in Jiroft. Consistent with the results in this study, Fathi Shekhi and colleagues' research indicated 20% of home injuries precautionary behavior change was expressed by perceived self-efficacy, perceived barriers, and knowledge [20]. Beirens et al. reported self-efficacy, response efficacy, advantages of

safe behaviors along with some demographic variables such as children who cannot walk and non-Dutch mothers explained 24% of the variance in the use of stair gates in parents with children aged 11-18 months [18]. Also Russel and Champion demonstrated that in addition to self-efficacy, mothers' beliefs about injury and its prevention and their perceptions of social expectations about safety at home could explain 26% of the variance of home injuries [21]. According to the results obtained in the current study and few studies about preventive behavior of home-related injuries used the protection motivation theory [18,19], it seems application of this theory can be helpful to explain factors associated with home injuries in children. In this study, self-efficacy as the most important predictor was positively correlated with maternal protection motivation. According to the results reported by Hendrickson, mothers with higher self-efficacy have more safety behavior at home and their children faced fewer risks [22].

In this study, response cost as another predictor had negative correlation with motivation protection and self-efficacy. This finding is consistent with Beirens and Beirens [18,19]. The response cost often expressed as any cost (money, personal, time, or effort) in relation to the recommended behavior [17]. Greening and Stoppelbein argued response cost as the barrier of behavior [23]. Barriers may include factors such as high cost of safety equipment, living in rented house, overcrowding residential, and lack of support for children [24]. Teaching necessary skills to adopt safe behaviors and applying some strategies to overcome perceived costs would enhance women's self-efficacy.

The findings of the study showed that fear of injury at home were another positive factor that predicts motivation protection. Some studies also show that most parents are concerned about the safety of their children at home and this concern and fear cause to take precautions to avoid injuries [25]. Morrongiello et al. considered the main concerns of women with regard to home accidents as falls, poisoning, swelling and bruising, choking, drowning and

cuts [26]. It is necessary health professionals warn mothers about possibility of household injuries. This can increase the fear of danger and raise concern in mothers. In this way, the mothers' precautionary measures may be improved at home and children's playground. The results indicated that response efficacy, perceived vulnerability, and perceived severity did not predict motivation protection, even though these items have direct correlation with motivation protection. Fathi Shekhi et al. found that mothers' performance on prevention of accidents and injuries in children directly were influenced by perceived benefit, perceived barriers, perceived susceptibility and self-efficacy [27]. Beirens et al. stated parents keeping medicines and cleaning products out of reach of children to prevent poisoning at home have higher response efficacy and severity but lower perceived vulnerability [19]. Also Morrongiello and colleagues showed mothers were not sensitive to the possibility of occurrence of any damage. For example while their perceived vulnerability about possibility of falling was high, it was low about poisoning [26]. Beirens et al. that found perceived severity in the parents that did not use stair gate at home was lower than that in those used stair gate. There is also a statistically significant relationship between self efficiency and benefits of safe and protective behaviors [18]. These factors should be strengthened in educational interventions designed for parents to highlight the messages on benefits of preventive behaviors. Providing statistics of childhood injuries can be effective to enhance parents' understanding of the vulnerability of their children's accidents. In the present study, fathers' occupation was associated with mothers' motivation protection about home injuries. In other studies, socioeconomic and sociodemographic variables such as poverty, young parents, low levels of parental education and immigration status are related to childhood home injuries [24,28,29]. As fathers are partly responsible for child care, survey of their perceptions can be useful in

recommendation of appropriate measures to reduce household injuries.

The limitation of this study was being carried out only in the urban area of Jiroft and also lack of participation of illiterate mothers in the study. In this regard, it is recommended to perform similar studies in rural areas and illiterate mothers.

Conclusion

Findings of this study showed self-efficacy, response costs and fear are important factors to predict motivation protection of home injuries in mothers of children younger than 5 year-old. So, health promotion interventions could be applied by appropriate strategies to influence these structures and ultimately improve safety behaviors of mothers at home.

Contribution

Study design: TR, RF
Data collection and analysis: TR, RF, AK, RM
Manuscript preparation: TR, RF, AK, RM

Conflict of Interest

"The authors declare that they have no competing interests."

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