

The Effect of Puberty Health Education based on Health Belief Model on Health Behaviors and Preventive among Teen Boys in Marivan, North West of Iran

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Abstract

Background

Maturity and its related sexual and mental changes are one of the most important events in the life of every individual. The purpose of this study was to determine the effect of puberty health education based on Health Belief Model on health behaviors and preventive among students boy first secondary school in Marivan city in 2015.

Materials and Methods

This research is an experimental intervention study that was conducted in 2015. The study participants were 64 male students of second year of first secondary school boys who were selected randomly with cluster sampling from two schools among 12 schools in first grade of high school in the Marivan city. Totally 32 students were selected randomly in the intervention group in the one of the schools and 32 students in the control group in the other school. The data collection instrument was a questionnaire developed by the researchers based on the health belief model. The validity and reliability of questionnaire was confirmed. Statistical analysis was carried out using SPSS version 17, Chi square, descriptive statistics and independent t-tests.

Results

Results showed significance differences after educational intervention in the mean scores of awareness, perceived susceptibility, perceived severity, perceived benefits, cues to action and performance in the intervention group ($p < 0.05$), but there were no significant differences about perceived barriers.

Conclusion

The findings of this study emphasize and describe the efficiency of educational intervention based on health belief model in adopting the preventive and controlling behaviors in principles of maturity health describing the maturity.

Key Words: Maturity health, Male students, Belief health Model, Marivan.

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1- INTRODUCTION

The period of adolescence is the time of emotional, cognitive, social and physical great changes. Maturity and its related issues that individual and society are faced with them are numerous and varied (1). The critical period of adolescence is the ages of 10-19 years of age that is considered as a period of transition from childhood to adolescence and is the introduction of a unique process of physical changes that continues until the child becomes an independent mature be acceptable for society in the intellectual, professional and sexual different levels (2). In Iran, according to the 2011 census, 16 .5% of all population are consist of adolescents in the age group of 10-19 year old that approximately 52% percent of those are boys (3). Our country with such a huge investment requires accurate planning and attention to the growth health of adolescents (4).

The investigation of health history and needs of adolescents show that in recent years has been paid less attention to the health and needs of this group in comparison with child and even adults (5). Issues about maturity period and how to pass this period in both genders are very important, because it has noticeable effect on the social and sexual function in adulthood. Reproductive behaviors begin with the appearance of maturity, and the feeling of independence in adolescents increases especially in present of parent's neglect which is possible to be exposed to unhealthy behaviors such as communicating with bad friends and criminal groups, smoking and drug abuse, friendship with the opposite sex, unsafe behavior, lack of control of physical health and weight, improper use of the internet, satellite and academic times (6). Various effective factors are involved in the crime of children and adolescents, also, these crimes are usually social crimes. According to statement by Otto Kleinberg,

any factor alone is not enough to explain the complex behavior such as youth crime, thus, the effective factors in crime of youth are so varied that if it is impossible, it is sophisticated to count all of them. Certainly, this problem does not ignore us to evaluate the different factors, know the effective one of crime and analyze the effect of each factor (7). In a study is found that 47.9% of boys had no training and information about issues of maturity and 39.9% of them in the early stages of maturity had experienced dizziness and confusion and had hatred from this stage (8). Students face with special disturbances including anxiety, distress, eating syndrome, depression, substance abuse and physical symptoms. Daily stress plays a main role in starting and maintaining a variety of mental disorders and this has been studied occasionally in the past few decades and almost all researches have focused on the relationship between daily stress and depression. Stressful life events can cause behavioral and psychological damage for example depression, and have a vital role in the relapse of this disturbance (9).

Puberty health is consisting of care and principles that leads to promotion and maintenance of mental and physical health in individual in this period (10). Maturation and reproductive health needs of children, promotion of knowledge level and awareness of sexual and physical changes, emotional changes, changes in behavior and mood, physical health care, proper nutrition, exercise and healthy recreation are maturity and reproductive health needs in boys (6). The lack of satisfaction and satiation of the adolescent can be a base for aggression, disruption and mental difficulties or in reverse isolation and depression (11).

Adolescents between the ages of 10 and 19 years are considered as a healthy group. Nevertheless, many adolescents may die because of suicide, accidents, violence,

complications dealing with pregnancy and other diseases that are either preventable or treatable. Additionally, many diseases in adulthood have root in adolescence. For example, smoking, sexually transmitted infections such as HIV, malnutrition and poor exercise habits, lead to illness or premature death in life (12). There are health behavior models to provide beneficent methods to providers of oral care to consider effective client-based behavior. Thus, health behavior models is very useful for identifying the determinant factors of oral health behaviors to make valid plans by health care providers and access effective community-based interventions (13).

The results of the study of Bronmandfar et al., showed that more than half of the boys about maturity signs, sexual and physical health and psychological changes during this period are unaware or have a little information (14). Health education is the one of the fundamental and prosperous ways of health promotion, which can play the most important and essential role in prevention and solution of the maturity problems. The purpose of health education is the creation of positive behavior changes and help people to decide and maintain healthy behaviors (15). Health belief model is one of the accurate and important patterns and is used to determine the relationship between health beliefs and behaviors (16). This model (perceived susceptibility and severity of a person's understanding of the causes of the perceived threat of a health condition and on the other hand with regard to behavioral stimuli such as perceived benefits, perceived barriers and cues to action) explains the reason of doing or not doing of preventive health behavior by individuals (17). Considering that no study of maturity in boys has been done using this model in Iran, this study aimed to determine effect of puberty health education based on health belief model on

health behaviors and preventive among students boy first secondary school in Marivan city, Iran, in 2015 (**Figure.1**).



Fig.1: Location of Marivan city, Iran

2- MATERIALS AND METHODS

2-1. Study Design and Population

This research is an experimental intervention study that was conducted in 2015. The study participants were 64 students of the second year of first secondary school who were selected randomly with cluster sampling from two schools among 12 schools in first secondary school boy in the Marivan city, North West of Iran. Permission to done study was given by Sanandaj University of Medical Sciences Committee after ethical approval by ethical committee with code No. 94.119. Totally 32 students were selected randomly in the intervention group in the one of the schools and 32 students in the control group in the other school.

2-2. Methods

We are used valid scientific resources related to adolescent period health of Boys (18) in preparing the initial inventory with

regard to the health belief model. The content validity was confirmed after performance of requested modifications and omission of ambiguities by four health education specialists and experts from Kurdistan and Gonabad universities of Medical Sciences in 2015. Also, in this study in order to evaluate the reliability of the questionnaire, the 30 students were asked who participated in a pilot study from same school and grade in order to assess the reliability of the questionnaire, about the level of difficulty and their perception of questions and after a thorough review, the necessary reforms in the questionnaire was applied. The reliability was calculated after collecting the relevant data from 30 students using internal matching and Cronbach's alpha coefficient and approved by 0.81. Actually the asked reformations by consultant specialist in our university applied. Because of ethical considerations in this study, permission of this study has been received from Kurdistan University of Medical Sciences and the necessary coordination has been done with the department of education and school officials in the city of Marivan. The aim of the study was explained to students and parents and their informed consent was obtained in writing.

Before educational intervention, pre-test questionnaire distributed among control and intervention group of students and completed by students using self-reporting method and collected. The intervention group received three sessions of an hour each session through lecture, group discussion and question-and-answer. The booklets of health education in boys' maturity were delivered. Educational intervention was performed by school health teachers and lasted two months, in the designed educational program based on health belief model, in the first session , General Information about boys' maturity and physical, mental and emotional

changes in this period were presented, the second session was held about the beliefs, assumptions and incorrect beliefs about maturity and issues that may be a barrier to health and proper behaviors and the third session, students are encouraged to be sensitive about the adolescent health behaviors (physical hygiene, avoidance of hazardous sexual behavior, nutrition, sports and recreation and etc.), and problems if they do not act in future(perceived susceptibility) and depth perception of complications that may be occurred in the presence of hazardous behaviors in this period (perceived severity). Then in the fourth session about the benefits of proper behavior and health habits (perceived benefits) during this period was discussed. Two months after the educational intervention, post-test questionnaires were distributed to both groups again, completed and collected by self-report.

2-3. Measuring Tests

The data collection instrument was a researcher made questionnaire based on the health belief model designed in four parts. The first part of the questionnaire was included 15 questions about demographic data (such as sex, age, level of education and father's occupation). The second part included 20 questions about awareness (correct response and incorrect response were given a score of one and zero respectively). The third part included 25 questions related to the health belief model, was specified with the 5-choice Likert scale from strongly agree to totally disagree including 6 questions, perceived susceptibility (with a min score of 6 and a max score of 30), 5 questions about perceived severity (with a min of 5 and a max score of 25), 5 questions about perceived benefits (with a min of 5 and a max score 25), with 6 questions about perceived barriers (with a min score of 6 and a max score of 30), and 3 questions about cues to action with low to high range

(with a min score of 3 and max of 6). The fourth part of the questionnaire, included 10 questions about performance with the 5-choice Likert scale (1: always 2. often 3. sometimes 4. rarely 5. never) and how to scoring the questions about performance was marked with a mini of 10 and max of 50.

2-4. Inclusion Criteria

Inclusion criteria included first-year students in high school and satisfaction to participate in the study.

2-5. Exclusion Criteria

Exclusion criteria included failure to fulfill the questionnaire correctly and completely.

2-6. Ethical Considerations

This study was approved by the Ethics Committee of Sanandaj University of Medical Science, with code No. 94.119 and the objectives of the study were explained to all participants and all of them accepted to participate and were assured of the confidentiality of their individual information as well as the voluntary nature of participating in the study.

2-7. Data Analyses

Statistical analysis was carried out using SPSS version 17, Chi square, descriptive statistics and independent t-tests. P-value less than 0.05 were considered. Dependent variables (health belief model structures) were described as mean \pm standard deviation (SD) and independent variables were expressed as number of individuals and percentages

3-RESULTS

In this study, a total of 64 subjects participated and had no attrition in the number of subjects. Some demographic variables was studied in this study such as age, gender, parents' occupation and parents' education.

Table-1: This table showed that according to findings there was no significant difference between intervention and control groups in terms of age, family, education level of parents, mother's occupation and the history of failing in exam, but in the father's occupation and birth order in family was observed statistically significant relationship. Findings indicated that 40.4% of students participating in the control group and 41.4% of students participating in the intervention group were 13 years old, 43.76% of students in the control group and 46.88% of students in the intervention group had families with 4 persons. First birth order was the most prevalent in the intervention and control groups, respectively (35.5% and 38.2%), 46.6% of mothers in the control group and 42.4% in the intervention group had undergraduate education, 64.6% percent and 4.42% percent, education guidance. The highest level of education in the fathers (41.1%) in the control group and (39.8%) in the intervention were primary and undergraduate. Most mothers in the control group (87.5%) and the intervention group (84.37%) were housekeeper. The most occupation in fathers was related to laboring, 34.37% in the control group and 40.63% in the intervention group.

Table- 2: This table revealed that there was no significant difference in mean score of health belief model (awareness, perceived susceptibility, perceived severity, perceived benefits and perceived barriers and cues to action) before educational intervention between the two groups. After the educational intervention, independent t-test showed a significant difference in the structure of awareness, perceived susceptibility, perceived benefits, performance and cues to action between the two groups. Two months after the intervention, the paired t-test was used to evaluate the efficacy of education intervention and according the results,

mean score of awareness increased in the intervention group after the intervention from 10.5 to 17.4 and the paired t-test showed significant differences between mean scores before and after the intervention ($P<0.001$). The mean score of perceived susceptibility increased from 17.5 to 23.7 in the intervention group ($P<0.001$). The mean score of perceived severity increased from 14.5 to 19.3 in the intervention group ($P<0.001$). The mean

score of perceived benefits increased from 12.7 to 21.2 in the intervention group ($P<0.001$). The mean score of perceived barriers increased from 17.5 to 18.2 in the intervention group ($P<0.011$) that was significant. The mean score of cues to action increased from 3.4 to 5.7 in the intervention group ($P<0.001$). Also, the mean score of performance increased from 27.7 to 34.8 in the intervention group ($P<0.026$) that was not significant.

Table-1: Demographic characteristics of children in control (n=40) and interventional (n=40) groups

Variables		Group Name				P-value
		Intervention		Control		
		Number	Percent	Number	Percent	
Age (year)	13	22	68.75	20	62.5	0.209
	14	10	31.25	12	37.5	
Birth order	First	15	46.88	14	43.76	0.012
	Second	10	31.25	11	34.38	
	Third	5	15.62	6	18.75	
	Forth And Higher	2	6.25	1	3.13	
Father Job	Employee	4	12.5	3	9.37	0.829
	Self-Employed	11	31.38	13	40.63	
	Worker	8	25	10	31.25	
	Retired	3	9.37	1	3.13	
	Other	6	18.75	5	15.62	
Mother Job	Housekeeper	128	87.5	27	84.03	0.129
	Employee	2	6.25	2	6.25	
	Protector	0	0	1	3.13	
	Other	2	6.25	2	6.25	
Father's Education	Illiterate	0	0	1	3.13	0.012
	Elementary	14	43.73	9	28.13	
	Undergraduate	11	34.38	13	40.63	
	High School	6	18.75	7	21.87	
	College	1	3.13	2	6.25	
Mother's Education	Illiterate	0	0	0	0	0.012
	Elementary	10	31.25	11	34.38	
	Undergraduate	15	46.88	14	43.76	
	High School	7	21.8	6	18.75	
	College	0	0	1	3.13	

Table-2: Comparing of mean and standard deviation of health belief model structures and the performance of students in both intervention and control groups before and after intervention

Structures	Group name	Review time			
		Before		After	
		Mean	SD	Mean	SD
Knowledge	Intervention	10.52	3.42	17.41	3.11
	Control	11.28	3.87	12.62	3.76
	P-value	≥ 0.195		≤ 0.002	
Perceived Susceptibility	Intervention	17.32	4.53	23.70	3.11
	Control	16.88	4.87	17.22	3.7414.82
	P-value	≥ 0.225		≤ 0.003	
Perceived Severity	Intervention	14.51	4.43	19.35	5.18
	Control	14.82	4.12	14.18	4.31
	P-value	≥ 0.236		≥ 0.003	
Perceived Benefits	Intervention	12.72	3.43	13.67	4.19
	Control	12.88	3.57	19.81	4.94
	P-value	≥ 0.125		≥ 0.001	
Perceived Barriers	Intervention	17.52	5.45	18.22	5.93
	Control	17.74	5.53	18.13	5.91
	P-value	≥ 0.223		≥ 0.161	
Cues to Action	Intervention	3.48	0.49	5.71	1.11
	Control	3.68	0.58	3.95	0.66
	P-value	≥ 0.225		≤ 0.001	
Performance	Intervention	27.72	9.86	34.84	10.81
	Control	26.93	9.47	27.75	9.76
	P-value	≥ 0.192		≤ 0.002	

SD: Standard deviation.

4- DISCUSSION

Using specific patterns, such as the health belief model in educational programs can help to explain what needs to understand more about health beliefs and behavior (19). Due to the effective use of health belief model in different studies, in this study for the first time, Health Belief Model to promote boys adolescent health performed a study in Iran test that its results confirmed the model on health behaviors and appropriate prevention.

In this study, no statistically significant difference were before the educational intervention between the mean score of awareness in intervention and control groups, but after the intervention, the mean score of awareness increased in the intervention group and this increase was significant. According to the results of this study, Mazloomi and et al. investigated the impact of the application of health belief model in deciding preventive behaviors and adolescent health controller in Ardakan city in 2011 (19), their results showed that after intervention, the average

score of awareness was significant differences between case and control groups and the scores of case group increased significantly before the intervention. The results of the study of Moody and et al. and also Shirzadi were consonant with the results of present study (20, 21). The mean score of perceived susceptibility in both groups before the intervention was in the same situation that shows those students' beliefs and perceptions about adolescent health issues were moderate. After the educational intervention, the results indicated a significant difference between mean scores of perceived susceptibility in the intervention and control groups. In other words, students in the intervention group after the intervention, their perception of the problems and behaviors in adolescence were higher. There are several studies that show the health belief model can improve the perceived susceptibility and therefore it is effective to adopt healthy behaviors.

In the other study, Shirzadi et al., investigated about the effect of the training based on health belief model on the maturity health promotion of girls adolescent in hostels welfare centers, in Tehran in 2011, results suggested that the educational intervention have had a positive effect to improve the perceived susceptibility and physical performance of the girls (22), as well as the findings of Mazloomi et al. (19), Hazavehei et al. (22), Sharifirad et al. (23) and Cheraghi et al. (24) confirmed the present study. Before the intervention, no significant difference was between the score of perceived severity in both two groups, the students' perception about the seriousness of unhealthy and high risk behaviors in maturity period was almost the same amount, but, after the educational intervention, significant differences were observed in the average of scores between two groups. These findings matched with the results of the study of Shirzadi et al.

(20), Hazavehei et al. (22) and Aljaseem (25), but did not conform to the study of Mazloomi et al. (19) and Rezapur et al. (30). Before the intervention, the condition of students' perception about the benefits of prevention of physical and mental damages caused by high-risk and unstable behaviors of maturity was relatively weak, but using the educational intervention, the status changed, and the average scores increased in the intervention group and significant difference was observed. This increased perceived benefits in the intervention group can be related to a positive effect of educational intervention to convince the students about the consequences of unhealthy behaviors prevention in maturity (such as behaviors related to physical health nutrition, high risk sexual behaviors and masturbation, the consumption of alcoholic beverages and tobacco, bad friends and participating in their unsafe programs and entertainments). These findings matched with similar studies of Shirzadi et al. (23) and Mazloomi et al. (22), but not conform to the findings of study of Rezapur et al (30) and Robinson Whelen et al. (29).

Before the educational intervention, there was no significant differences between the mean scores for perceived barriers in the two groups and after the educational intervention also, was no significant difference between the mean scores of perceived barriers in two groups which indicated a lack of the effect of educational intervention to eliminate barriers in safe behavior in maturity. The most important findings about perceived barriers in this study were 3 topics, **first**: the embarrassment of students from expressing issues and problems with family members, parents, teachers and school health trainer, **second**: a lack of correct information and the lack of the correct decision and being unstable in behaviors, **third**: friendship and participation in unsafe recreational

programs with bad friends. According to the study of Ebrahimi and et al., the average score of students' perceived barriers was not significant in the intervention and control groups before and after educational intervention (30). But the findings of the study of Shirzadi et al. (23), Mazloomi et al. (22) and Ebrahimikhah et al. (27) did not match with the results of this study. Although before intervention, there was no significant difference between mean scores of cues to action in the two groups, but after intervention, significant differences between both two groups were observed. In this study, students tended to receive maturity health education by a friends (26.2%), teachers (18.9%), brother (12.9%), school health trainers (11.2 %), school counselors (10.3%), father (9.9%), mother (3.9%) and sister (2.6 %). The results of Shirzadi et al. showed that girls obtained the highest information of adolescent health from these resources, in order of priority, school health teachers, books and visited people (23). In accordance with other studies that had been done in the field of adolescent health, the most important source of information were reported for mothers and families (28- 29). In the other study that was done in Egypt, 92.2 % of girls had introduced the media as the source of information about the principles of adolescent health (30).

Also, the results of this study showed that the mean scores of performance in the intervention and control groups were not significantly different before the intervention, but after intervention was significant difference between mean scores of performance in two groups. Two months after the intervention, the mean scores of the intervention group were significantly higher than the control group. In other words, students in the intervention group after the educational intervention, their perception of the problems and behaviors in adolescence were higher, so,

students improved their performance against the damage of unhealthy behavior; these results matched with the findings of various internal and external studies (19, 20, 31, and 32).

4-1. Limitations of the study

The small sample size of include studies are potential limitation of this study. There is still need to further studies to access additional information about health teen boys. Another limitations of the current study, were low of the same study in this field and low of the schools surveyed in marivan.

5. CONCLUSION

According to the findings of this study can be concluded that educational interventions based on health belief model, have positive effect on the improved perception of students (awareness, perceived susceptibility, perceived severity, perceived benefits, cues to action and performance); therefore, it is suggested that health belief model structures should be used in designing and implementing of educational intervention programs including adolescent health behaviors for boys.

The limitations of this study were the use of self-report to complete the questionnaires and evaluate the performance of male students. Considering that the sensitivity of the issue of maturity in Iran health and presented training had been carried out on girls, so it seems to be necessary researches about educational needs in maturity period of boys and providing the essential training.

6- CONFLICT OF INTEREST: None.

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8-AUTHORS CONTRIBUTIONS

- Study design: NG, PT, RV, FY.
- Data Collection and Analysis: FY, LR, NG.
- Manuscript Writing: R V, NG.

9- REFERENCES

1. Dahl RE, Gunar MR, Heightened stress responsiveness and emotional reactivity during pubertal maturation. *J Imp for psychopathology* 2009; 21: 1-6.
2. Kaminski B, Palmert M. Human Puberty: Physiology, Progression, and Genetic Regulation of Variation in Onset 2008; 9: 19-26.
3. Statistical Center of Iran (IR). General Census of Population and Housing, Tehran: the institute; 2013.
4. Amirzade F, Tabatabaee SHR. The incidence rate and causes of accidents among the students of Shiraz guidance schools. *Journal of Kerman University of Medical Sciences*.2007; 14(1):55- 60.
5. Carole LE, Carole LM,editors. Health promotion, 4th ed, Philadelphia. Mosby; 1998.P.558.
6. Ahmadi F, Anoosh M, Vaismoradi M, Safdari M. The experience of puberty in adolescent boys: An Iranian perspective. *J Int Nurs Rew* 2009; 56: 257- 63.
7. Ahangaran MR, Dehpahlavan M. The Role of Family in Abnormality and Crime of Children with a Case Study. *International Journal of Pediatrics* 2014; 2(4.2):86-94.
8. Lin GR. An investigation of adolescent health from cuina. *J Adolescent health* 1997; 20(4): 557.
9. Kiani F, Khodabakhsh MR. Perfectionism and Stressful Life Events as Vulnerabilities to Depression Symptoms in Students. *International Journal of Pediatrics* 2014; 2(4.1):277-85.
10. Steinberg L, Reyome ND,editors. *Adolescence*. 6thed. Boston: McGraw-Hill; 1999.
11. Maleki A, Delkhosh M, Haji amini Z. Effect of puberty health education through reliabl sources on health behaviours of girls. *J Res Behav Sci* 2010; 4(2): 155-61.
12. Taghizadeh Moghaddam H, Shahinfar S, Bahreini A, Ajilian Abbasi M, Fazli F, Saeidi M. Adolescence Health: the Needs, Problems and Attention. *International Journal of Pediatrics* 2016; 4(2):1423-38.
13. Charkazi A, Berdi Ozouni- Davaji R, Bagheri D, Mansourian M, Qorbani M, Safari O, et al. Predicting Oral Health Behavior using the Health Promotion Model among School Students: a Cross-sectional Survey. *International Journal of Pediatrics* 2016; 2(2): 69-77.
14. Boromand-far KH, Abedi M, Hasanzadeh A. Investigation of high school boys' educational needs concerning adolescence period, in Isfahan city. *Iranian J Med Educ* 2002; 2(2): 17-21.
15. Ramachandran L, Dharmalingam T. A textbook of health education. In: Shafiei F, Azargashb E, translators. Tehran: University of Tehran; 2006.
16. Glanz K, Rimer Bk, Viswanath k. Health behavior and health education: theory, research, and practice. 4ed. San Francisco: Jossey-Bass; 2008.
17. Alimohammadian M,editor. *Handbook of puberty health for boys* .Iran: Tehran; 2009
18. Torshizi L, Anoosheh M, Ghofranipoor FA, Ahmadi FA, Hoshyarrad A. The effect of education based on health belief model on preventive factors ofosteoporosis among postmenopausal women. *Iran Journal of Nursing* 2009; 7(22)71-82.
19. Mazloomi Mahmoodabad SS, Norouzi S, Norouzi A, Hajizadeh A, Zare A. Effect of Health Belief Model in Adopting Prevention and Control of Health Behaviors during Puberty High School Students in Ardakan City. *J Toloee Health Yazd Uni*. 2011: 12(1); 56-66.
20. Shirzadi Sh, Shojaeezadeh D, Taghdisi MH, Hoseini F. Effect of education based on

- health belief model on promotion of physical/puberty health among teen girls in welfare boarding centers in Tehran. *J P Health Research* 2012; 10(2); 59-71.
21. Moodi M, SharifZadeh Gh. Puberty health program effect on knowledge increase among female intermediate and high school students in Birjand. *Journal of birjand University of Medical Sciences* 2007; 13(4): 36-41.
22. Hazavehei MM, SHadzi S, Asgari T, Porabdyan S, Hassanzadeh A. The effect of safety education based on Health Belief Model (HBM) on the workers practice of Borujen industrial town in using the personal protection respiratory equipments. *J Iranian health* 2008; 5; 21-30.
23. Sharifirad Gh, Hazavehei SMM, Mohebi S, Rahimi MA, Hasanzadeh A. The effect of educational program based on Health Belief Model (HBM) on the foot care by type II diabeti. Patients. *Iranian Journal of Endocrinology Metabolism* 2006; 8(3):231-39.
24. Cheraghi P, Poorolajal J, Hazavehi SMM, Rezapur- Shahkolai F. Effect of educating mothers on injury prevention among children aged <5years using the Health Belief Model: a randomized controlled trial. *Public Health* 2014; 128(9):825-30.
25. Aljaseem LI, Peyrot M, Wissow L, Rubin RR. The impact of barriers and self-efficacy on selfcare behaviors in type 2 diabetes. *Diabetes Educ* 2001; 27(3):393-404.
26. Robinson-Whelen S, Bodenheimer C. Health practices of veterans with unilateral lower-limb Loss: Identifying correlates. *J Rehabil Res Dev* 2004; 41(3):453-60.
27. Ebrahimikhah M, Rezapur Shahkolai F, Hazavehei M, Moghimbeigi A. Using health belief model on preventive behaviors related to road traffic injuries among primary school students. *Journal of Research & Health*.2016; 16: 1- 7.
28. Rahnama M, Meshki AB, Dalir Z, Mazlom R. Health status of Menstruation in girls high school in zabol. *Dena Journal* 2006; 1: 11-17.
29. Alavi M, Pshneh K, Khosravi A. Knowledge, attitude and performance of girl students of the third stage guidance aboutpuberty health. *J Health SciRes Uni Jihad* 2008;8; 59-65.
30. El-Gilany AH, Badawi K, El-Fedawy S. Menstrual Hygiene among Adolescent Schoolgirls in Mansoura, Egypt. *Reproductive Health Matters* 2005; 13:147-52.
31. Rahimikian F, Mirmohamadali M, Mehran A, Aboozari Ghforoodi K, Salmaani Barough N. Effect of education designed based on Health Belief Model on choosing delivery mode. *J Hayat* 2009; 14(3-4):25-.
32. Kinsler J, Sneed CD, Morisky DE, Ang A. Evaluation of a school-based intervention for HIV/AIDS prevention among Belizean adolescents. *Health Educ Res* 2004; 19(6):730-38.