

## The effect of educational programs based on the theory of planned behavior on parental supervision in students' television watching

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### Abstract

**Background:** Excessive and uncontrolled television watching by children predisposes them to some risks such as developmental, social and psychological disorders. Parents play an important role in nurturing their children and controlling the factors affecting their health. The aim of this study was to determine the impact of health education programs on parents' supervision skills to control their children's television watching habits based on the theory of planned behavior.

**Methods:** One hundred twenty parents of the students at the first and fifth grades of primary school were randomly divided into an intervention and a control group. Data were collected by a self-report questionnaire at the beginning of and one month after intervention. An educational intervention was implemented for the case group parents, who were divided into four 15-member groups, in the form of three 45-60 minute sessions with focus group discussions. Moreover, the parents were provided with children and television booklet. Data were entered into SPSS-16 and were analyzed using Chi-square, paired t test, Mann-Whitney and Wilcoxon tests.

**Results:** After the intervention, significant changes were detected in the intervention group with respect to the mean hours of watching television (from 6.74±2.02 to 4.28±2.40; p= 0.039), knowledge scores (from 5.8±2.1 to 7.7±1.9; p= 0.001), attitude towards less television watching (from 35.5±11.5 to 48.4±8.9; p=0.003), subjective norms (from 11.8±8.1 to 24.5±8.6; p>0.001) and behavioral intention (from 18.6±7.4 to 31.8±5.1; p=0.001).

**Conclusion:** The results revealed that educational interventions based on the theory of planned behavior are capable of changing knowledge, attitude, subjective norm and intention of parents towards controlling and monitoring their children's television watching and can improve the performance of parental control and reduce the hours of TV watching by children. Therefore, this pattern is suggested for reforming the nurturing skills of parents about other behavioral problems of their children.

**Keywords:** Education, Parental Supervision, Student, Television Watching, Theory of Planned Behavior.

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### Introduction

Television (TV), as one of the popular and most effective media, plays a major role in formation of behaviors, beliefs, emotions, and individual personality as well as social relationships (1). Watching

TV is a main hobby in people's lives and has notable impacts on all age groups, particularly children and adolescents (2). Due to the expanded use of TV, families need to improve their general knowledge and learn new behavioral methods (3). Nowadays,

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children watch TV more; therefore, they are more inactive compared to their peers in the previous decades. Only a few children go out for playing after school, while 80% of them are interested in watching TV at home (4). Watching TV for more than two hours per day is associated with obesity, social isolation, aggression and attention problems in children (5,6). Moreover, it increases emotional-behavioral disorders among children (7). Moreover, a positive correlation has been reported between an increase in the amount of watching TV and its negative effects on children's health and behavior (8). Inappropriate and excessive TV watching leads to anxiety, physiological arousal, changes in breathing and metabolism, photosensitive epilepsy, and obesity. Learning some violence related behaviors, teaching delinquency, escaping from reality and addiction to watching TV, physical inactivity, and changes in cultural values are considered as the psychosocial consequences of this phenomenon (2). Normally, children initiate watching cartoons at the age of two and get used to watching TV at 6. This implies that they find TV as a friend before they attend school. Violent TV programs have negative effects on children's beliefs and values (7,8). Imaginary movie heroes teach them that powerful people are always right and everything can be achieved by the use of power (9). The results of a meta-analysis in England, which was based on 359 studies in various countries, revealed that adolescents aged  $\geq 18$  watched TV for 1.8-2.8 hours a day, with 66% watching TV for less than two hours and 28% more than four hours a day (10). Additionally, based on the study conducted in Tehran, Iran, 3-9 year-old children watched TV about 4 hours and 26 minutes a day on average, and 7-12 year-olds spent 5 hours and 12 minutes on watching TV (11,12)

One of the most important factors that affects formation and continuation of behavioral patterns is environmental factors; and the most effective factor is advertising awareness. Nowadays, children are living

in an environment full of media stimuli that influence many of their behaviors. This has made children the main target of T.V commercials. Television is also the most popular media in Iran and most people who watch T.V happen to watch commercials too (13).

Undoubtedly, children form a significant part of television audience. On the other hand, a huge section of T.V commercials is directly or indirectly related to children. Based on the literature, every child is exposed to watching 20-30 minutes of commercials per hour of TV watching. If a child watches 4 to 5 hours of TV every day; therefore, he/she watches 130 commercials per day, 900 per week, and 45,000 per year (14).

In addition to the huge range of commercials, this issue is important from other aspects. Children are more vulnerable than adults when exposed to professionally designed commercials (14). Moreover, in countries with a young population such as Iran, the mental and physical health of children should be the main priority in planning and policymaking of different areas including media as the future of the country in economic, social, cultural and political grounds will depend on them (15).

Therefore, with respect to the preceding issues and presence of many problems in this area and not finding a study on how to improve the parents' managerial skills of controlling children's TV watching, we aimed to evaluate the effect of education on parental supervision skills using the theory of planned behavior (TPB). The results of this study can help health authorities and policy-makers recognize and control the harms and problems of media programs on children by the help of the parents. In addition, the findings of this study can be of great helpful in preventing from many social deviations that may damage the proper growth of children (16).

Parents need education and suitable skills to meet their duties and responsibilities. To reach this goal, socialization agents and institutions such as family, school and me-

dia play very important roles, so they should base their actions on planned and scientific methods (17). During childhood, parents are mainly responsible for monitoring their children's behaviors. One of these behaviors, which may have negative effects on children's life, is the time they spend on watching TV. Therefore, to prevent from these effects, parents should not let their children watch TV excessively. In fact, parents can primarily affect their children in what they do before adolescence. Moreover, how children are affected by TV is undoubtedly influenced by their parents and the way they monitor their children's habits of using the media (18). More often, excessive TV watching results from parents' lack of supervision. Many parents do not control the amount or the type of the programs their children watch. This fact does also apply for Iranian children and adolescents (19-21). A very practical strategy for reducing the damages of this phenomenon is application of appropriate interventional methods by parents including asking children to do simple tasks, play with other children, exercise, read books, go out, make crafts, and draw. Hence, families and parents' interventional methods play an important role in the amount and type of TV programs their children watch (22).

In a systematic review carried out by Robson et al., they found strong evidence in support of the efficiency of education on children's TV watching (23). Most of the educational interventions on TV watching lack a theoretical framework as well as appropriate psychological change pattern. Many of the national studies have only focused on the amount of TV watching by children, and we did not find any study on measuring the effect of educational programs. This study aimed to clarify the effective factors on implementation of educational programs in improving parental supervision skills on children's TV watching, using TPB (24). The Theory of Planned Behavior (TPB) is one of the health behavior theories appropriate for training parents

on how to supervise their children's TV-watching (25). This theory provides a framework for evaluating attitudes through behaviors. Studies show that the most effective educational programs are theory-based programs that root in behavior change patterns. Selection of a health education pattern is the first step in planning an educational program. On the other hand, effective health education depends on using the best theory as well as the proper strategies for every certain event (26). Therefore, designing an efficient, sociocultural and theory-based intervention is the most important priority in the scope of this research. This study has been set based on these criteria in order to identify and evaluate the underlying and fundamental beliefs of parents. We have used the theory of planned behavior (TPB) as a theoretical framework for the study. The predictive power of this theory has been proved by many social and health behavior studies. This theory considers the individual as a logical doer in a way that he/she processes information before taking on any action. During this process, underlying beliefs of the individual change because of his/her behavior (27).

According to TPB, an individual's behavior is determined by one's intention, which is composed of attitude towards that behavior, subjective norms and perceived behavioral control. In addition, an individual's attitude includes typical behavioral beliefs and evaluation of the results of that behavior. Besides, subjective norms consist of normative beliefs as well as motivation for compliance (28). Overall, the most important goal of health education is to change the individuals' health behaviors by themselves. Moreover, selection of a model is the first step in planning for an educational program. To date, several studies such as those by Lotfi (29) and Anderson (3) have confirmed the effect of educational interventions on changing knowledge and the constructs of health education models. Nevertheless, these studies have mainly focused on individuals and have not inves-

tigated the effect of training a group on another group's behavior. In this study, TPB was selected as the theoretical framework (30). In addition to the constructs of this model, the participants' knowledge on how to monitor their children's TV-watching was also measured. Overall, this study aimed to assess the effect of educating parents of the first and fifth grades of primary school students on the type and amount of their children's TV-watching habits based on TPB in Gonabad.

## Methods

### *Participants and Procedures*

This quasi-experimental study was conducted on the parents of students at the first and fifth grades of primary school in four primary schools of Gonabad, Iran (November 2011- May 2012). We selected the first and the fifth grades because they are the beginning and the final grades at the primary school. The inclusion criteria were living with both or one of the parents and having a TV set at home. Exclusion criterion was the lack of parental involvement in the session. The participants were randomly selected and classified into a control and an intervention group. The parents of the two groups were matched based on parents' age, level of education and occupation. Considering the coefficient of 95% and power of 95%, 110 participants were selected for the study using Pocock's formula. However, considering the 10% attrition, 120 participants (60 for each group) were entered into the study. Furthermore, the amount of watching TV was gathered three months before and after the intervention. In each school, one class of each grade was selected for the study. Thus, each study group included 60 participants (30 from the first and 30 from the fifth grade) from a girls and a boys' primary school. Participants were selected using cluster sampling method.

### *Questionnaire*

1. Students and parents' demographic data included students' age, grade, rank birth/

and parents' sex, age, level of education, parents' job and also Parents' knowledge on the side effects of TV watching. Ten true/false items scored from zero to ten were utilized (each correct and wrong answer was given score of one and zero, respectively) to assess parents' knowledge (For instance, watching TV commercials encourage children to buy junk food). The total knowledge scores ranged from 0 to 10, and the reliability of these items was 0.88. The content validity of the questionnaire was certified by both a panel as well as a quantitative method.

2. Theory of planned behavior variables:

A. Parents' attitude towards children's TV-watching was evaluated by 12 items based on a Likert scale ranging from 1 (completely agree), 2 (agree), 3 (no idea), and 4 (disagree) to 5 (completely disagree), (e.g.: Number of hours that parents think is necessary for children to watch TV).

(Hours of watching TV can be decreased through providing alternative entertainments and dedicating enough time to play with children)

The minimum and the maximum scores for these items were 12 and 60, respectively, and the reliability of attitude items was obtained to be 0.79.

B. Subjective norms about parents' role in monitoring children's TV-watching habits were assessed using 8 items, (Most parents agree to monitor the number of hours of watching television by their children). (For instance, parents should replace watching too much TV with entertainments, games, or studying.) Moreover, eight items on a scale from 1 (completely agree), 2 (agree), 3 (no idea), and 4 (disagree) to 5 (completely disagree) were used to assess subjective norms. Their scores ranged from 8 to 40 and the reliability of the items was reported as 0.74.

C. Perceived behavioral control was measured using 6 items in a five-point Likert scale ranging from 1 (completely agree), 2 (agree), 3 (no idea), 4 (disagree) to 5 (completely disagree), (e.g.: Controlling hours of children's TV-watching is difficult

for parents). (e.g., it is easy for me to determine the time my child could watch TV.)

The scores of this section ranged from 6 to 30 and its reliability was 0.79.

D. Behavioral intention of parents to monitor how much TV their children watch was assessed through 9 five-point items including “I definitely do this (5), I most probably do this (4), I may do this (3), I possibly do not do this (2), and I will not do this at all (1)”, (e.g.: From now on I'm going to monitor the amount of time my child watches TV). The scores of this part ranged from 9 to 45 and its reliability was 0.92 (5).

Content validity Ratio (CVR) and Content Validity Index (CVI) were utilized to investigate content validity quantitatively. Furthermore, to measure CVR, we sought assistance from 10 experts in areas of health education, sociology, clinical psychology, general health, and educational sciences to divide the items into 3 categories of “necessary”, “beneficial but not necessary”, and “not necessary”. Based on the Lawche table, the items with  $CVR > 0.62$  were considered as significant and maintained in the questionnaire ( $p < 0.05$ ) (22). Considering CVI, based on Waltz and Bausell, the items with  $CVI > 0.7$  were included and the rest were excluded (31). The applied interventional program had a designed educational program for promoting parents' skills to control their children's TV watching habits. This educational program included 45-60 minute sessions, which is considered to be appropriate for active learning (28).

The contents of these sessions were about the monitoring and controlling children's TV-watching habits as well as positive and negative aspects of TV, effect of TV on children, replacement strategies, preventing children from excessive TV-watching as well as the role parents play in controlling their children's TV watching habits.

Overall, the educational sessions aimed at encouraging the parents to monitor their children's TV watching and helping them use replacement strategies for overcoming

the issue. Furthermore, intervention group parents were also provided with a booklet namely “Children and TV” which included the above-mentioned issues. The researcher and instructor's phone numbers were also given to the parents so they could call in case they faced any questions or problems. Moreover, some meetings (each including 15 members) were arranged for the parents in the intervention group by the help of Parent-Teacher Association of the school. On the other hand, for the control group, the same questionnaires were filled out by parents of 30 students in both the first and fifth grades of primary school without any kind of intervention.

#### *Ethical Considerations*

Ethical issues have been completely observed by the authors. Meanwhile, respondents participated in the survey voluntarily and were fully debriefed about the aims and objectives of the study. In addition, researchers committed themselves to behave respectfully with participants and keep their information confidential.

#### *Statistical analysis*

To analyze data, Kolmogorov-Smirnov test was used to determine the normal distribution of the data. Then, data were analyzed by SPSS-16 statistical software using Chi-square, paired t-test, independent t-test, Mann-Whitney and Wilcoxon tests.  $P < 0.05$  was considered as statistically significant.

#### **Results**

No significant difference was found between the two groups with respect to the students' age, sex and grade with education and occupation of the parents. According to the results, 80% ( $n=48$ ) of the parents in the intervention group and 78% ( $n=47$ ) of those in the control group had diploma and higher degrees. In addition, all the households had TVs. Family size of the intervention and control group was 3.45 and 3.58, respectively. Before the intervention, the 120 studied children had watched TV for

Table 1. Descriptive Statistics of TV-watching Indexes in the Intervention and Control Groups before and after the Intervention

Index	Pre-test		Post-test		p
	Mean	SD	Mean	SD	
Number of hours of watching TV by children during the day	6.85	2.16	4.35	2.23	p<0.001
Number of hours TV is on at home during the day	8.42	4.25	6.22	3.73	
Number of hours of studying at home during the day	2.72	1.05	4.80	1.56	
Number of hours of reading (non-academic) books during the day	0.23	0.04	0.85	0.07	

Table 2. Comparison of the Mean and SD of Scores of Knowledge and Constructs of the Theory of Planned Behavior before and after the Intervention

Knowledge and Model Constructs		Before the intervention	After the intervention	p
		Mean (SD)	Mean (SD)	
Knowledge	Intervention	5.8(2.1)	7.7(1.9)	0.001
	Control	5.5(2.31)	5.7(2.19)	0.386
	p*	0.712	0.003	
Attitude	Intervention	35.5(11.5)	48.4(8.9)	<0.001
	Control	34.2(12.3)	35(13.6)	0.612
	p*	0.823	<0.001	
Subjective norms	Intervention	11.8(8.1)	24.5(8.6)	<0.001
	Control	12.6(7.4)	13.1(8.9)	0.415
	p*	0.902	0.0006	
Perceived behavioral control	Intervention	11.4(10.3)	13.3(8.8)	0.086
	Control	10.9(11.2)	11.2(10.8)	0.211
	p**	0.661	0.045	
Behavioral intention	Intervention	18.6(7.4)	31.8(5.1)	<0.001
	Control	17.9(7.2)	18.7(8.3)	0.732
	p*	0.815	<0.001	

\* Independent t-test, \*\*Mann-Whitney test

6.85±2.16 hours a day. The number of hours of watching TV before the intervention was computed as 6.74±2.02 and 6.92±1.98 hours a day in the intervention and control groups, respectively, which changed to 4.28±2.40 and 7.12±2.11 hours a day for each group, respectively after the intervention.

Although a statistically significant difference was detected in the intervention group in hours of watching TV before and after the intervention (p=0.039), it was not significant in the control group (p=0.516). Moreover, the results indicated that TV was on for 8.4±4.25 hours a day in the participants families' homes (Table 1). In the intervention group, a significant difference was observed in knowledge (p=0.001), attitude (p=0.003), subjective norms (p<0.001), and behavioral intention (p<0.001) before and after the intervention. However, no significant difference was found concerning perceived behavioral control (p>0.05). In the control group, on the other hand, no significant difference was observed in any of the constructs before and after the intervention (p>0.05)

(Table 2).

Before the intervention, the children's recreational activities included watching TV (100%), reading books (15%), going to park at least once a week (25%), going to the movies at least once a week (6.6%), playing with children at home (11.66%), and playing with children outside home (13.34%). Moreover, the programs that the children watched on TV included kids' shows (100%), sports (73.33%), series (63.33%), movies (38.33%), documentaries (30%), and educational movies (5%). Furthermore, the supervision of the intervention group parents on the type of programs their children watched was 26.66%, which increased to 58.33% after the intervention and this difference was statistically significant (p<0.001). However, this difference was not significant in the control group (p>0.05).

Findings of this study revealed no significant difference between the two sexes in number of hours of watching TV. Nonetheless, the first graders watched TV significantly more than the fifth graders (Table 3).

Table 3. Comparison of the Mean and SD of the Number of Hours of Watching TV based on Sex and Grade

Variable	Category	Number of hours of watching TV		p
		Mean (SD)		
Sex	Female	6.32(2.44)		0.121
	Male	7.03(2.65)		
Grade	First grade	5.70(2.06)		0.037
	Fifth grade	7.12(1.88)		

### Discussion

According to the results of this study, the mean number of hours of watching TV was  $6.85 \pm 2.16$  hours a day, which is higher in comparison to other studies (8). The study by Amini et al. showed that 7-11 year-old female students in Tabriz, Iran, watched TV for  $2.26 \pm 1.51$  hours a day on average (8). Moreover, Magnusson conducted a study in Sweden and reported that 34% of the obese or overweight children aged 6 to 12 years watched TV or played video games for more than 3 hours a day (32). Although experts warn about the mental and physical side effects of watching TV on children, based on the survey results of the media research center, children watch TV for 4 hours and 16 minutes on average during a full day, which indicates their interest in this medium (33). In 2008, the mean number of hours of watching TV or movies was  $2.39 \pm 2$  hours a day among middle school students and  $2.86 \pm 2$  hours a day among high school students (34). Nowadays, students go to school while they are highly affected by TV (9). Since parents are concerned about the current mechanical lifestyle and do not trust their neighbors, they keep their children at home while they do not attend school and this can increase the time their children spend on watching TV. Besides, the growing number of TV channels, particularly for children, which broadcast programs all through the day, has provided the grounds for children's excessive TV watching. Thus, today, children are considered among the main audience of this medium (13).

American researchers have shown that excessive TV-watching can bring about delays in cognitive development as well as language learning abilities of children. As mentioned by Time, 30% of the western

families turn on the TV when the whole family gets together at home. This can also delay the language learning processes among children. A group of Washington university researchers measured the verbal speech sounds produced by 329 2-to-24 month old children. The results of this study indicated that children were not able to understand and grab almost 770 vocabularies (70%) mentioned by their parents for each hour that the TV was on at home. They concluded that "this issue can be traced back to the fact that parents use less verbal communication with their children when the TV is on at home (35).

The findings of this study revealed a significant difference in the intervention group's scores of knowledge and constructs of TPB after the intervention, except for the perceived behavioral control. A large number of studies including those conducted by Mohammadi Zeidi et al. (36) and Mazloumi (37) have indicated significant positive relationships between the constructs of TPB and the intention to do something (38-40). These results emphasize that individuals are motivated to practice healthy behaviors, and they continue to practice these behaviors even in challenges in case they feel that they can control such behaviors (41). However, no significant difference was observed in the intervention group's scores of perceived behavioral control after the intervention. This study's intervention was effective in improving the parents' knowledge and giving them a positive attitude towards controlling the amount and type of the TV programs their children tended to watch. Nevertheless, due to the behavioral role of other family members in watching TV, inability in filling the children's free time, and considering TV as the simplest and safest way of entertaining

children, it is hard for parents to control their children's TV-watching habits. Additionally, most parents are not well aware of the dire consequences of excessive TV-watching habits (42). Findings of this study revealed a significant difference between the intervention and control groups in their scores of knowledge and constructs of TPB after the intervention. In general, education, as a part of the behavior-change interventions, is of great importance. In addition, providing the individuals with the necessary knowledge for changing the lifestyle can prepare them for accepting the recommended changes. Moreover, expressing the advantages of a beneficial behavior and disadvantages of an inappropriate one can provide the grounds for a change in attitude and behavioral intention. The results of the study by Ozmert revealed that problems such as isolation, social, attention and thinking problems, criminal and violent behaviors were positively associated with the length of watching TV (43). Moreover, Amini et al. (8) and Alikhani et al. (34) emphasized the eliminating TV watching, encouraging children to do dynamic activities, creating different types of entertainments at home, and improving parents' knowledge to control the excessive TV watching as effective ways to overcome this issue. Therefore, parents and teachers should help children to the extent possible and take the necessary steps towards reducing the effects of watching TV on children and adolescents' lives. However, unfortunately some parents do not have sufficient knowledge about the negative effects of watching TV and believe it is an appropriate instrument for entertaining their children (13).

### Conclusion

Overall, the findings of this study indicated the positive effects of education on parents' supervision on the amount and type of the TV programs watched by their children. On the other hand, TV is the most accessible way for children to enter the adults' world. In spite of the fact that one of the

main responsibilities of the media authorities is production of high quality and beneficial programs for all of the society members, this goal is quite difficult to achieve. Hence, educational organizations including kindergartens, primary schools and even universities have to provide the future families with effective programs for their lifestyle. This can be partly achieved by educating parents about the optimal use of TV or replacing it with such activities as reading books, reading children's journals, using toys, turning the TV off while having food, not putting TV in the children's bedroom, not letting children watch TV while doing their homework, playing active games with children, helping them make crafts, prohibiting them from watching TV one day a week and taking them out for exercise.

In this study, the questions for measuring behavioral intention of individuals were similar to the questions used to evaluate the behavior of the studied participants. On the other hand, the main goal of TPB is to predict the behavioral intention. Indeed, we can predict individuals' behaviors through evaluation of their behavioral intention. Therefore, construct of behavioral intention was used to indirectly measure individuals' behavior in this study.

### Limitations

The question of "how much do children watch TV" depends on many factors that are formed over time. Thus, we should not expect to solve the problems only through temporary and short educational programs. To solve these problems, it is necessary to consider permanent solutions such as designing educational interventions for the whole education system, parents and children along with a proper feedback system in place. Results of our study indicated that educational intervention based on TPB can change attitude, knowledge, subjective norm and perceived behavioral control of parents towards controlling their children's TV watching and can decrease the hours of watching TV by children. Hence, this pat-

tern is also suggested for reforming the nurturing skills of parents about other behavioral problems of their children. Meanwhile, it is important for the readers to recognize that one of the limitations of this study was the probability of bias in completing the data and differences in parents' rearing and bearing methods.

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### Conflict of interest

None declared.

### References

1. Harden K, Mendle J. Adolescent sexual activity and the development of delinquent behavior: The role of relationship context". *Journal of Youth And Adolescence* 2011;40 (7):825-838.
2. Vadodi E. Television negative effects on children health. *Research & Measuring* 2008;14(50): 88-110. (Persian)
3. Dill KE, Gentile DA, Richter WA, Dill JC. Violence, sex, age and race in popular video games: A content analysis. In Cole E, Henderson-Daniel J, editors. *Featuring females: Feminist analyses of media*. Washington DC: American Psychological Association 2005:115-130.
4. Greitemeyer T. Intense acts of violence during video game play make daily life aggression appear innocuous: A new mechanism why violent video games increase aggression. *Journal of Experimental Social Psychology* 2014;50:52-56.
5. Nancy M, Lekies S. Nature and life course: pathways from childhood nature experiences to adult environmentalism. *Children, Youth and Environments* 2006;16(1):1-24.
6. Chen JL, Kennedy CM. Television viewing and children's health. *J Soc Pediatr Nurs* 2008; 6(1):35-38.
7. Elson M, Ferguson CJ. Twenty-five years of research on violence in digital games and aggression: Empirical evidence, perspectives, and a debate gone astray. *European Psychologist* 2014;19: 33-46.
8. Seyedamini B, Moradi A, Malek A, Ebrahimi M. The Role of Watching TV in Obesity and Behavioral Problems in Children. *Iran Nursing Journal* 2011;23(67):8-14. (Persian)
9. Ironico S. The active role of children as consumers, *Journal of Customer Behavior* 2012;13(1): 30-44.
10. Marshall SJ, Gorely T, Biddle SJ. A descriptive epidemiology of screen-based media use in youth: A review and critique. *J Adolesc* 2010;29: 333-49.
11. Khezrian A. Polling from parents has children between 3-9 years old about rate of TV viewing by children among summer (Research). IRIB research center; 2007. (Persian)
12. Khezrian A. Polling from parents has children between 7-17 years old about of TV effects on child's (Research). IRIB research center 2007. (Persian)
13. Boynton-Jarrett R, Thomas TN, Peterson KE, Wiecha J, Sobol AM, Gortmaker SL. Impact of Television Viewing Patters on Fruit and Vegetable Consumption among Adolescents. *Pediatrics* 2003; 112(6):1321-1326.
14. Priya P, Baisya RK, Sharma S. Television advertisements and children's buying behavior, *Marketing Intelligence & Planning* 2010;28(2):151-169.
15. Valkenburg M. Media and youth consumerism, *Journal of Adolescent Health* 2000;27(2).
16. Pine KJ, Nash A. The Effects of Television Advertising on Young Children. *International Journal of Behavioral Development* 2002;26(6).
17. Teece G. Citizenship education and religious education: threat or opportunity? *Resource. Journal of the Professional Council for RE* 1998;21(1):7-10.
18. Yahyaei A. Television off, Training on. *Kimiaye Tandorosti* 2012;2(19):5. (Persian)
19. Pine KJ, Nash A. The effects of Television advertising on young children. *International Journal of behavioral Development* 2002;26(6).
20. Robaka Sh. Effect of Satellite Television on the Culture of Bangladesh. *New York: European Journal of Business and Management* 2012;4(9).
21. Wilcox BL, Cantor J, Palmer E, Linn S, Dgowrick P. Report of the APA Task Force on Advertising and children. Section: Psychological Issues in the increasing Commercialization of childhood 2004.
22. Javadi F, Eghbali B. Parents supervising on children and adolescences usage of imaging media. *Research & Measuring* 2009;14(51):9-28. (Persian)
23. Robson LS, Stephenson CM, Schulte PA, Amick BC, Irvin EL, Eggerth DE, et al. A systematic review of the effectiveness of occupational health and safety training. *Scand J Work Environ Health* 2012;38(3):193-208.
24. Kirby D, Obasi A, Laris BA. The effectiveness of sex education and HIV education interven-

- tions in schools in developing countries. *World Health Organ Tech Rep Ser* 2006;938:103-50; discussion 317-41.
25. Godin G, Kok G. The theory of planned behavior: A review of its applications to health-related behaviors. *American Journal of Health Promotion* 1996;11:87-97.
26. Rahmati Najarkolaei F, Shamsaddin Niknami SH, Aminshokravi F, Ahmadi F, Jafari MR, Rahnama P. [Health Belief Model application for AIDS prevention planning in student]. *Payesh* 2009;8:349-59.(Persian)
27. Kassem NO, Lee JW, Modeste NN, Johnston PK. Understanding soft drink consumption among female adolescents using the Theory of Planned Behavior. *Health Education Research* 2003; 18(3):278-91.
28. Ajzen I. The theory of planned behavior. *Organizational Behavior Human Decision Processes* 2005;50:179-211.
29. Lotfi Mainbolagh B, Rakhshani F, Zareban I, Montazeri far F, Alizadeh Siooki H, Parvizi Z. The effect of peer education based on Health belief model on nutrition behaviors in primary school boys in Zahedan city. *Journal of Research & Health* 2012;2(2):214-225.(Persian)
30. Glanz K, Lewis M, Rimer BK. *Health behavior and health education: Theory, research and practice*. San Francisco: Jossey-Bass 2008.
31. Hassanzadeh Rangi N, Allahyari T, Khosravi Y, Zaeri F, Sarami M. Developmental of an Occupation Cognitive Failure Questionnaire: Evaluation Validity and Reliability. *Iran Occupational Health* 2012;9(1):29-40. (Persian)
32. Magnusson MB, Hulthen L, Kjellgren KI. Obesity, dietary pattern and physical activity among children in a suburb with a high proportion of immigrants. *J Hum Nutr Diet* 2005;18(3):187-194.
33. Borzekowski DLG, Robinson TN. The 30-second effect: An experiment revealing the impact of television commercials on food preferences of preschoolers. *J Am Dietetic Assoc* 2001;101(1): 42-46.
34. Alikhani S, Zare M, Bahonar AR, Ramezankhani A, Delavari A, Rahbani S, et al. Relationship between viewing of TV and video with rudeness behavior on boy's high school students hn Pakdasht. *Journal of IAU Medical Sciences* 2008; 17(1): 45-50. (Persian)
35. Baker IR, Dennison BA, Boyer PS, Sellers KF, Russo TJ, Sherwood NA. An asset-based community initiative to reduce television viewing in New York state. *Prev Med* 2007;44(5):437-41.
36. Mohammadi Zeidi I, Pakpour Hajiagha A, Mohammadi Zeidi B. Evaluation of Educational Programs Based on the Theory of Planned Behavior on Employees Safety Behaviors. *J Mazand Univ Med Sci* 2013;23(97):166-177. (Persian)
37. Mazloomi MahmoodAbad SS, Mehri A, Morovati SharifAbad M, Fallahzadeh H. Application of extended model of planned behavior in predicting helmet wearing among motorcyclist clerks in Yazd. *Journal of Birjand Medical Sciences* 2008; 14(4):33-40. (Persian)
38. Galea MN, Bray SR. Predicting Walking intentions and exercise in individuals with intermittent claudication: an application of the model of planned behavior. *Rehabil Psychol* 2006;51(4): 299-305.
39. Kathleen E. Prediction of pharmacist intention to provide medicare medication therapy management services using the model of planned behavior. *Res Social Administrat Pharmacy* 2006;2 (3):299-314.
40. Lam T, Hsu HC. Predicting behavioral intention of choosing a travel destination. *Tourism Management* 2006;27(4):589-99.
41. Deodatus CK, Astrøm AN, Wycliffe LL, Gro TL. Predicting intended use of voluntary HIV young sealing and testing services among Tanzanian teachers using the Model of planned behavior. *Social Science Med* 2006;3(4):991-99.
42. He M, Irwin JD, Sangster Bouck LM, Tucker P, Pollett GL. Screen-viewing behaviors among preschoolers parents' perceptions. *Am J Prev Med* 2005;2(4):120-25.
43. Ozmert E, Toyran M, Yurdakok K. Behavioral correlates of television viewing in primary school children evaluated by the child behavior checklist. *Arch Pediatr Adolesc Med* 2002;156(9): 910-914.