Research Paper
The Effect of Mothers Education on Reduction the Aggression Behavior Among Computer Game User Students

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ABSTRACT

Background: Nowadays, children and teenagers easily access computer games while parents are unaware of the dangers posed by excessive use of these games. The present study investigated the effect of educational intervention based on the theory of planned behavior (TPB) on primary school boys' aggression levels.

Methods: This research was a randomized controlled trial. The sample size was determined to be 180 considering a confidence interval of 95% and test power of 90% (group 1=90, group 2=90). The sampling environment was a multi-stage cluster with four primary schools from two education districts in Shiraz City, Iran in 2013. The participants were evaluated once before the intervention and then one week and one month after the educational intervention. We used the aggression checklist (12 items) and a researcher-made questionnaire according to TPB theory, which has suitable validity and reliability. The data were analyzed using SPSS software, version 19.

Results: There was no difference between the two groups before the intervention. After the education program, the 4 constructs of TPB, including attitude, perceived behavioral control, behavioral intentions, and behavior, increased in the intervention group compared to the control group (P<0.001).

Conclusion: According to the findings, it seems that the educational intervention on mothers based on TPB leads to the reduction of aggressive behavior of elementary school students.

Keywords: Primary school students, Computer games, Aggression, Planned behavior theory, Mothers, Education

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Introduction

Playing computer games is now among children's and adolescents' most popular leisure activities [1]. According to Reshadat, 59.7% of girls and 81.7% of boys play computer games [2]. Studies conducted in Iran show that every day, 20 million people play these games, and the time spent playing computer games equates to 40 million hours per day [3]. On the other hand, violent video games are bestsellers. In addition, adolescent boys are more prone to playing violent video games [1, 4]. In a survey by Anderson, reported that the favorite video games of 73% of the fourth grade male students are violent ones. Moreover, a study conducted in Iran shows that 47% of adolescents play violent video games [5]. Although video games have become widely popular among children, adolescents and adults are the most passionate about them [6].

Several studies have found that computer games increase aggression and hostile behavior, decrease patience in frustration, produce time addiction and dependency, reduce social relations, and result in poor academic performance [4, 7]. Shaverdi has found a significant relationship between playing video games and violence and aggression with 95% confidence [8]. In addition, violent video games can render users more aggressive [9, 10]. The important point is that the violence of video games and TV is desensitized, and both children and adults get used to it [11]. Issues related to computer game violence are a problem that affects families and society in different countries [12]. The impact of violent video games on levels of aggression has raised concern and may pose a significant social risk, especially among young people [13].

Researchers have examined violence in four environments (home, neighborhood, school, and television). They reported that exposure to violence on television or at home would predict aggressive behavior, but this relationship was not found in the neighborhood or school environment [14]. The literature reveals that behavioral threats of computer games in students are the promotion of social violence, social delinquency, weak social relations, family emotional crisis, indiscipline, social isolation, increased stress, computer addiction, identity crisis, and behavioral conflict with parents [15, 16]. Another study shows that computer games with violent content also affect the body temperature of adolescents [17].

However, parents are unaware of the nature of video games, which entertain their children [9]. A strong relationship has been reported between parents' control and the content of the video games played by children [11]. Considering that mothers play a crucial role in children's growth, they must be aware of the disadvantages of excessive use of the games. Consequently, they should have more control over their children [12]. If there is no intervention in this matter, aggressive behavior as a stable personality trait can affect other behaviors in childhood [18]. There is a perception that aggression is only seen in adolescence. Still, the literature shows that those children who are highly aggressive in the early school years are often at greater risk for aggression in adolescence [19]. Children's behavior problems at home and school are the main concerns of parents and teachers [20]. Therefore, teaching mothers can make them conscious of their children's needs. It also helps them to meet these needs properly [13].

Early interventions that target the education of mothers in controlling children's aggression are very important [21]. The results of a study show the importance of parent education and inhibitory control in children's aggressive behavior [22]. Therefore, with careful planning and training of parents and cultural-educational officials, the ground should be provided to reduce aggression and better and appropriate use of these games. Also, with the help of parents, we should teach the culture of correct use of video games to children and teenagers [23].

Different theories exist in learning, analyzing health behaviors, and directing educational interventions to improve health behavior [24]. One of these theories is the theory of planned behavior (TPB), introduced by Ajzen and Fishben in the early 1990s [24]. According to this theory, behavioral intention, or an individual's attitude towards performing a certain behavior, determines one's behaviors. Behavioral intention is identified through three constructs: Individual attitude towards behavior, perception of social norms of friends and environment, and perception of the degree of control for performing and non-performing a behavior [25]. Studies show that TPB constructs can predict aggressive behavior well. One study found that the TPB might provide a useful framework for developing violence prevention programs [26].

A lot of experimental research has been done on treating aggression, but behavioral approaches based on the educational framework have received less attention. In Iran, few studies have been conducted on reducing children's aggression due to playing computer games through parent education. Therefore, this study investigated the effect of educational intervention based on TPB on the aggression of elementary school boys in Iran (Shiraz City) in 2013.

Methods

The present study is a randomized control trial. The research population comprised mothers of male fourth-grade primary school students studying in Shiraz City, Iran, in 2013. The sample size was calculated using the sample size determination formula based on two independent groups, with a confidence interval of 95% and study power of 90%. Hence, 180 subjects (student mothers) were determined for each group (intervention group=90, control group=90) (Figure 1).

Sampling

The sampling method was a multistage cluster. Of 4 education districts in Shiraz, two districts were selected as a cluster, from which two boys' primary schools were randomly selected. Then, they were randomly divided into the intervention (group 1) and control (group 2) groups. The intervention group was trained, and the final evaluation was performed after one week and one month. The research participants were informed about how to conduct the study, the confidentiality of the information, and the research objectives.
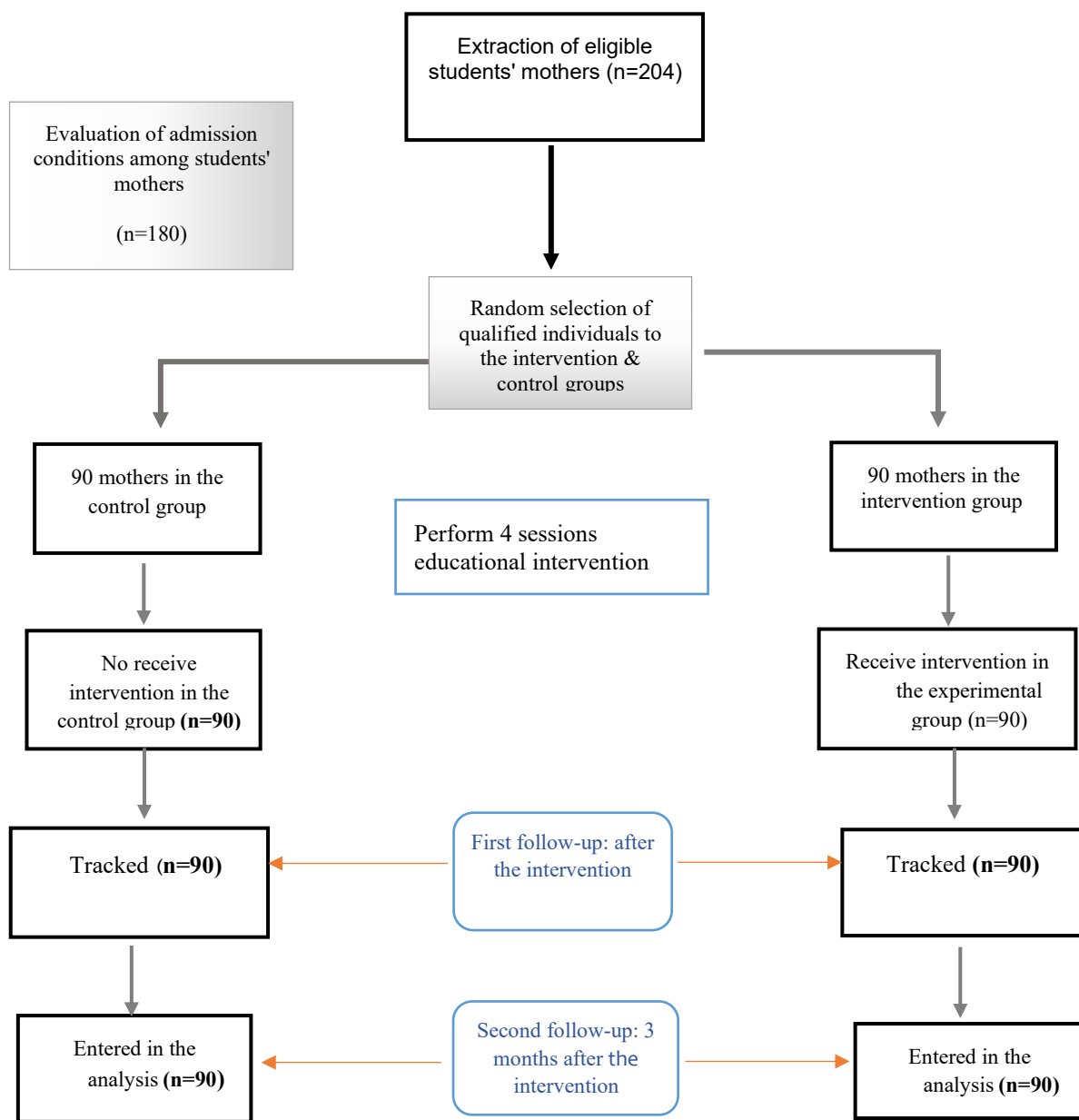

Figure 1. Consort flow diagram showing participation throughout the study

Motazedian T, et al. The Effect of Mother's Education on Reducing the Aggression of Elementary School Students. JRH. 2024; 14(3):241-248.

243

Inclusion criteria

The inclusion criteria were mothers of students who are users of violent video games, at least primary education for student mothers, and absence of cognitive disorders.

Exclusion criteria

The exclusion criteria were absence of more than one session from the educational program, incomplete questionnaire, and cessation of video game use during the intervention.

Data gathering tools

The demographic questionnaire included 8 questions about mothers' age, level of education, occupation, number of children, presence or absence of equipment for playing computer games, place of playing games, type of games, and duration of playing games by children.

Aggression checklist

This single-factor checklist contains 12 questions scored based on a Likert scale. Baadi et al. measured the checklist's validity and reliability (α=0.089) [27]. The questions in the checklist measured the intensity of students' aggression with a 7-point Likert scale and were completed by the mothers.

Theory of planned behavior questionnaire

In this questionnaire, 4 main constructs of TPB, i.e. attitude, behavioral intention, perceived behavioral control, and behavior, were used to design the questions. After conducting a pilot study on 60 mothers, the final form of questionnaire for each structure was determined. It has 10 questions for the attitude, 6 for behavioral intention, 6 for perceived behavioral control, and 7 for the behavior structure. The answers are scored on a 5-point Likert scale (from completely agree=1 to completely disagree=5). The evaluation and validation of the content and structure of the questionnaire were done using a panel of experts. The reliability of the questionnaires was confirmed by conducting a preliminary study and calculating the Cronbach α values as follows: Attitude (0.91), behavioral intention (0.98), behavioral control (0.61), and behavior (0.82).

Intervention

The educational program for the intervention group was run during four 2-h sessions. In the intervention sessions, educational content regarding the effective be-havior of parents in monitoring their children's computer games includes the importance of computer games, the content of computer games and its impact on children, alternative solutions, and coping with playing computer games to increase parental supervision of children playing computer games and reducing aggression. Education content in these sessions was provided through booklets, pamphlets, PowerPoint, and videos. Also, after completing the education, motivational short messages were sent to the mothers. After implementing the educational intervention, a post-test was taken one week after the intervention and one month later. Data were analyzed by performing the chi-square test, t-tests for independent and paired samples using SPSS software, version 19.

Results

In the present study, the mothers' mean age in the control and intervention groups were 39.38 and 39.43 years, respectively. In the present study, there was no significant difference in age, gender, education level, or parents of students before the intervention (P>0.05). The mothers' education level in group 1 was diploma (27.2%), and group 2 elementary school (22.2%). Most of the mothers of students in both groups were housewives, two control and intervention groups (group 1=37.8%, group 2= 33.9%). The most used computer games for the intervention and control groups were related to action games, 23% and 21%, respectively. The longest time spent on games (7-10 hours per week) was in group 1(30%) and group 2(32.2%). According to the chi-square test, no significant relationship existed between groups before the intervention (Table 1). According to the chi-square test, no significant difference was observed in the number of hours spent playing computer games between group 1 and group 2 before the intervention (P>0.05). After the intervention, in group 1, the hours of playing computer games changed to 1-6 hours per week (P=0.029). However, in group 2, the hours of playing computer games changed to more than 10 hours per week, and no significant difference was observed in the hours played (P=0.42). According to Table 1, before the intervention, there was no significant difference between the case and control groups in the constructs of attitude, behavioral intention, perceived behavioral control, behavior, and aggression (P>0.05). After the intervention, there was a significant difference between the mean scores of all TPB constructs (P<0.001). Also, time has been a significant factor in these changes (P<0.001). The changes after the educational intervention indicate that mothers' education has effectively reduced aggressive behavior (Table 2).

Table 1. Comparing mean scores change in theory of planned behavior constructs in both groups (intervention & control)

Variables	Group	Mean±SD			P		
		Before the Intervention	One Week After the Intervention	One Month After the Intervention	Time	Group	Time/Group
Attitude	1	34.3±4.53	39.02±5.96	43.38±5.70	<0.001*	<0.001*	<0.001*
	2	33.4±3.96	34.77±8.05	35.25±8.23			
Behavioral intention	1	22.42±3.76	25.72±3.70	25.53±3.21	0.015*	<0.001*	0.058*
	2	19.66±4.96	20.95±5.08	22.04±5.22			
Perceived behavioral control	1	21.27±4.46	24.56±3.39	25.47±3.11	0.042*	<0.001*	<0.001*
	2	19.94±4.99	20.93±5.24	21.18±5.55			
Behavior	1	20.78±5.11	27.26±3.89	30.14±3.66	<0.001*	<0.001*	<0.001*
	2	21.38±5.2	22.65±5.53	23.73±6.03			

Group 1: Intervention, Group 2: Control.

*Significant (P<0.05).

Discussion

The present study was conducted to determine the effect of educational intervention based on the theory of planned behavior on the students' aggression. According to present results, action games were students' most popular video games. In addition, the longest time spent playing video games was 7-10 hours per week. Another study shows that 75% of students reported that their favorite games were action games and spent about 3-6 hours per week playing video games [5]. Boys seem to use games to experience power and fame fantasies, explore exciting and realistic environments, control angry feelings, or release stress. However, boys do not believe that they may be harmed by violent games [4]. It is reported that a positive correlation exists between violent games and time spent playing video games with aggressive behaviors in adolescents [28]. In the present study, after the education in the intervention group, the hours of video game use decreased. Our findings are similar to other studies [15, 29]. According to students' aggression mean scores before the intervention, there was not a statistically significant difference between control and intervention groups before the intervention. After the intervention, the aggression mean score changed after one week and one month in group 1 and had a downward trend, while in the control group, it had an upward trend. In other words, computer games probably increase aggression, and to some extent, this aggression can be reduced by health education [29, 30, 31]. Moller (2012) indicated that a 5-week school-based intervention can produce changes in violence aggressive norms and behaviors that persist over months [32]. If the students choose to play more violent video games, it is further reinforced in aggressive thoughts and representations, which in turn lead the adolescent to make violent choices [33]. Implementing school-based intervention may reduce the aggressive behaviors among students who received intervention. Maybe education based on TPB is an effective method of controlling aggression in their

Table 2. Comparing mean scores change in students' aggression

Variable	Group	Mean±SD			P		
		Before the Intervention	One Week After the Intervention	One Month After the Intervention	Time	Group	Time/Group
Aggression	Group 1	42.32±6.99	39.21±4.87	33.03±4.76	0.013*	<0.001*	<0.001*
	Group 2	41.81±6.84	42.03±5.89	45.86±7.88			

Motazedian T, et al. The Effect of Mother's Education on Reducing the Aggression of Elementary School Students. JRH. 2024; 14(3):241-248.

245

children [31]. Focusing on parent-centered interventions may reduce aggression in children and adolescents [34]. In the present study, mothers' attitudes toward computer games experienced a significant increase after educational intervention. These changes indicate that educational programs might be effective in improving mothers' positive attitude towards controlling their children. Our findings are similar to other studies [34-36, 20].

In the present study, the perceived behavioral control in the intervention group significantly increased compared to the control group. Perceived behavioral control is a person's understanding of how much behavior is under his voluntary control. Suppose the behavior is not completely under voluntary control and the influence of the person's attitude and norms, even when she is highly motivated. In that case, persons may not perform the behavior due to the interference of circumstances [37]. Karimi et al. and Bhusiri et al. results support our findings [35, 38]. A study reports that despite the increase in perceived behavioral control in the intervention group, the changes are not significant [20]. The present study's findings indicate a significant increase in mothers' intentions regarding their child's aggressive behavior. This result was in accordance with the study of Finigan-Carr, Roostai Shalmaii, and Arshad et al. [25, 36, 39]. However, Roostai Shalmaii et al. did not find any change in behavioral intention to control aggressive behavior in the intervention group after education [20].

In the present study, the aggression score decreased in students by changing mothers' behavior in controlling students' aggression after education. Therefore, it can be argued that health education effectively prevents unhealthy behaviors [40, 41]. These findings show that parenting skills, including control training, communication, monitoring, and discipline based on TPB, can reduce aggressive behavior among adolescents [29]. Chegini et al. stated in their research that due to the motivational nature and change of beliefs, thoughts and attitudes, teaching mothers-centered theory can lead to a reduction of aggression in children [42]. Bazarafken et al stated that the educational intervention of parents is effective in reducing physical and verbal aggression of students and it is recommended that interventions be carried out in a long period with the aim of controlling the problems of students from childhood [43].The findings of the intervention showed that with the passage of one month after the intervention, attitude, behavior intention and other constructs of TPB increased which shows the effectiveness of education and the maintenance of behavior in a short time [31]. The strength of this study is the use of a theoretical framework to change behavior. Also parent-oriented education to control aggressive behavior is another strength of this research.

Conclusion

According to the findings, an educational intervention based on TPB can affect mothers' attitudes, behavioral intention, and perceived behavioral control and reduce video game hours and aggressive behavior in primary students. However, more research and interventions with longer follow-up are needed.

Study limitations

Considering the role of subjective norms in mothers' lives, in this study, access to others, such as relatives, neighbors, and their spouses, was not important. Therefore, they were not included in the educational program. Another limitation could be the self-report of children's aggression by the mothers.

Ethical Considerations

Compliance with ethical guidelines

This study was registered by the Iranian Registry of Clinical Trials (IRCT) (Code: IRCT2013101415015N1). An informed consent form was completed for all subjects.

246

Motazedian T, et al. The Effect of Mother's Education on Reducing the Aggression of Elementary School Students. JRH. 2024; 14(3):241-248.

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247

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248

Motazedian T, et al. The Effect of Mother's Education on Reducing the Aggression of Elementary School Students. JRH. 2024; 14(3):241-248.