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The relationship between video game addiction and bladder and bowel dysfunction in children

Video game addiction, bladder/bowel dysfunction in children

La relación entre la adicción a los videojuegos y la disfunción vesical e intestinal en los niños

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Introduction. Video games have a strong influence on children and adolescents.Video game addiction has negative effects on children's health.

Objective. To determine the relationship between video game addiction and bladder-bowel dysfunction in children.

Materials and methods. Three hundred sixty-three children and their mothers who met the inclusion criteria of the study constituted the sample of this correlational study. The data were collected using the Descriptive Information Form, the Video Game Addiction Scale for Children (VASC), and the Childhood Bladder and Bowel Dysfunction Questionnaire (CBBDQ).

Results. Of the children, 72.5% and 27.5% were 9 and 10 years old, respectively, and 50.4% and 49.6% of them were male and female, respectively. It was determined that while 4.7% of the students who participated in the study were underweight, 19.6% and 17.9% of them were overweight and obese, respectively. It was found that the mean total scores of the scales were as follows: VASC 50.77±16.17, CBBDQ 29.98±8.90, respectively. The ratio of children with the VASC mean total score of 90 and above was 0.8% (n=3). It was found that 3.6% (n=13) of the children had urinary-fecal incontinence while playing video games. It was revealed that there was a weak positive relationship between the VASC and CBBDQ, bladder and bowel sub-dimensions (r= 0.220; p<0.05).

Conclusions. There is a correlation children's video game addiction scores and bladder and bowel dysfunction scores. The increase in children's video game addiction scores increased bladder and bowel dysfunction.

Keywords: Video games; technology addiction; urinary bladder diseases, child.

Introducción. Los videojuegos tienen una fuerte influencia en los niños y adolescentes. La adicción a los videojuegos tiene efectos negativos en la salud de los niños.

Objetivos. Determinar la relación entre la adicción a los videojuegos y la disfunción vesical-intestinal en niños.

Materiales y métodos. Trescientos sesenta y tres niños y sus madres que cumplieron con los criterios de inclusión del estudio constituyeron la muestra de este estudio descriptivo y correlacional. Los datos se recopilaron mediante el formulario de información descriptiva, la escala de adicción a los videojuegos para niños (VASC) y el Cuestionario de Disfunción Intestinal y Vesical Infantil (CBBDQ).

Resultados. De los niños, el 72,5% y el 27,5% tenían 9 y 10 años, respectivamente, y el 50,4% y el 49,6% eran hombres y mujeres, respectivamente. Se determinó que mientras el 4,7% de los estudiantes que participaron en el estudio tenían bajo peso, el 19,6% y el 17,9% de ellos presentaban sobrepeso y obesidad, respectivamente. Se constató que las puntuaciones totales medias de las escalas fueron las siguientes: VASC $50,77\pm16,17$, CBBDQ $29,98\pm8,90$, respectivamente. La proporción de niños con una puntuación total media de VASC de 90 o superior fue del 0,8% (n=3). Se encontró que el 3,6% (n=13) de los niños tenían incontinencia urinario-fecal mientras jugaban videojuegos. Se reveló que había una relación positiva débil entre las subdimensiones VASC y CBBDQ, vejiga e intestino ($p<0.05$).

Conclusiones. El aumento de las puntuaciones de adicción a los videojuegos de los niños aumentó la disfunción vesical e intestinal.

Palabras clave: juegos de video; adicción a la tecnología; enfermedades de la vejiga urinaria; niño.

The video games industry, which attracts people of all ages, genders, and social classes, is widespread throughout the world with products that run on mobil phones and computers. Intensive use of such a gaming activity may turn into an addiction, namely video game addiction (1). Video games have a strong influence on children and adolescents. They affect gamers' lifestyle, mentality, habits, and preference to be alone (2). It is known that children who spend an hour and more on computer/video games in a day are at high risk for improper eating habits (3). It also affects voiding and bowel dysfunction.

The prevalence of voiding disorders has increased in recent years (4). The incidence of urinary incontinence in children is between 9.01% and 21.7% (4-6). The close relationship between voiding and defecation dysfunction is well known. For this reason, the expression "bowel bladder dysfunction" is used. As can be understood from the expression, it is the togetherness of functional bladder (excessive activity,frequent urination) and functional bowel (constipation,fecal incontinence) problems (7). The most common problem among intestinal dysfunctions is constipation. The frequency of constipation in children has been reported to vary between 4.7 and 28.7% (8-10). Functional constipation is affected by many factors. That is genetic factors, socioeconomic status, maternal education level, nutritional habits (11). These problems adversely affect the child's quality of life, school success, absenteeism, and learning (12,13). Based on this information, health professionals providing healthcare to children play a significant role in determining children at risk in the prevention of diseases that may adversely affect the lives of children in line with the holistic care philosophy and providing education and care in accordance with the needs. The adverse effect of addiction on physical health has been clearly explained in the literature. There is

no study in the literature evaluating the relationship between these two conditions (video game addiction and bladder and bowel dysfunction). This research's aim is to evaluate the relationship between video game addiction, and bladder-bowel dysfunction in children. The research questions are as follows.

What are the factors affecting video game addiction?

What are the factors affecting bladder and bowel dysfunction?

Is there a relationship between video game addiction and bladder, bowel dysfunction in children?

Materials and methods

Study design

This research was conducted as a correlational study.

Sample and population of the study

The study was conducted in 4 schools affiliated to the Serdivan District National Education Directorate located in the district center of Sakarya province in the Marmara region of Turkey between 17/10/2020-17/11/2020. A total of 1179 students studying in the 3rd grade (n=566) and 4th grade (n=613) of four primary schools randomly selected from eight schools affiliated to the Serdivan District National Education Directorate located in the district center of Sakarya province constituted the study population. The study sample was calculated according to the sample calculation formula in cases when the population was known, and the number of students to be included in the sample was calculated as n=290 using Neyman allocation,which is a stratified random sampling method. Using the stratum sample size $n_h = \frac{Nh*sh}{\sum Nh*sh}$*n formula, the number of students in the 3rd grade was determined as n=139 [A School: 31,B School: 58,C School: 29,D School: 21],and the number of students in the 4th grade was determined as

n=151[A School: 37,B School: 64,C School: 28,D School: 22]. The total number of samples determined according to grade strata was proportionally allocated among the schools. The study sample consisted of 363 student-mother dyads who met the criteria for inclusion in the study, voluntarily accepted to participate in the study and filled out the forms related to the study completely.

The inclusion criteria are as follows: a) Students aged between 9 and 10 years, b) Students' non-involvement in an inclusive program, c) Students living with at least one parent, d) Mother's and child's willingness to participate in the study, e) Mother's and child's lack of any communication problem, and f) Completion of the data collection forms by the mother and child.

Data collection instruments

In the study, the data were collected using the Descriptive Information Form,the Video Game Addiction Scale for Children (VASC),and the Childhood Bladder and Bowel Dysfunction Questionnaire (CBBDQ).

Descriptive Information Form: The "Descriptive Information Form" prepared by the researchers to determine the descriptive characteristics of children and their families consisted of 10 questions. It includes descriptive characteristics such as parents' and children's age, gender, video game playing behavior, education and employment status of the parent, economic condition, family type, and the number of living children.

Video Game Addiction Scale for Children: The items of the Video Game Addiction Scale for Children (VASC), which was developed by Yılmaz et al. the validity and reliability study of which was performed by them, are in five-point Likert type (14).The scale consists of 4 sub-dimensions (self-control, reward/reinforcement, problems, and involvement) and 21 items. VASC scale is

used between the ages of 9-12. Total scores are obtained by summing children's response scores. The total score to be obtained from the scale varies between 21 and 105. A score above 90 indicates a possible addiction to video games. The Cronbach alpha internal consistency coefficient for the Turkish form of the scale was .89. As a result of reliability analysis in Turkey, the internal consistency reliability (Cronbach's alpha) of the scale and sub-scales was satisfactory. The Cronbach alpha of the scale for the sample group was .93. The Cronbach alpha of the sub-scales was between 0.66-0.91 (Self-control = 0.91, reward/reinforcement = 0.79, problems = 0.80, involvement = 0.66).

Childhood Bladder and Bowel Dysfunction Questionnaire (CBBDQ): The Childhood Bladder and Bowel Dysfunction Questionnaire (CBBDQ), which was developed by van Engelenburg-van Lonkhuyzen et al. (2017) and the validity and reliability study of which was performed by Aydın et al. (2020) in Turkey, consists of 18 items, and two sub-dimensions: (1) the bladder symptoms scale (10 items) and (2) the bowel symptoms scale, including abdominal pain and bloated belly (8 items) (15,16). The CBBDQ scale is used between the ages of 5-12. The scale is a 5-point Likert-type scale, and the items are scored between 0-4. It shows that symptoms increase as the score on the CBBDQ scale increases. A Cronbach's α value of 0.83 was an indicator of good internal consistency of the Turkish-CBBDQ5-12y (16). The Cronbach alpha of the scale for the sample group was 0.74.

Statistical analysis

Before the study, the aim of the study was explained by contacting the directorates of the schools determined by a random method, and the classes where the data would be collected, the date range, and time were determined.

The aim of the study was explained to the children. The explanatory text regarding the aim of the study, confidentiality, and how to use the data was sent to the parents of the children who agreed to participate in the study. The explanatory text included the phone number of the researcher to answer the questions of the participants. The participants' questions were answered by phone. Written informed consent was obtained from the mothers by informing them that all data would be safely protected. Mothers who did not want to participate in the study were excluded from the study. Among the data collection forms, while the descriptive information form and the CBBDQ were filled out by mothers and their children, and the VASC was filled out by children.

The data obtained from the study were evaluated in the computer environment using the IBM SPSS Statistics 23 and IBM SPSS AMOS 23 programs. Frequency distribution is given for categorical variables, and descriptive statistics (mean, standard deviation, minimum, maximum) are given for numerical variables. The "significance test of the difference between two means" (independent t-test) was used to examine the difference between categorical variables with two groups, and the "one-way analysis of variance" (ANOVA) was used if the group number was more than two. The Mann–Whitney U test and the independent sample t-test were used to determine whether there was a difference between the two independent groups according to the normal distribution of the variables, and the Kruskal–Wallis test was used to determine whether there was a difference between more than two independent groups. A Tamhane's T2, Tukey's ANOVA, and Games-Howell test were used for further analyses. Pearson's correlation coefficients were calculated to determine correlations between the scores of the

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VASC, CBBDQ, and subcategories. Cronbach's alpha value was used for the reliability of the scale. A p-value < 0.05 was considered statistically significant.

Ethical considerations

Permission was obtained by e-mail to use the scales before starting the study. Ethical approval was obtained from the Health Ethics Committee of Sakarya University (04/04/2020-E.3950), Provincial Directorate of National Education (16/10/2020). Verbal permission was also obtained from the school directorates where the study was conducted. Before the study, the children and mothers were informed about the study by the researchers, and it was stated that personal information would be protected. Verbal and written consent was obtained in accordance with the voluntary principle.

Results

Of the children who participated in the study, 72.5% were 9 years old and 27.5% were 10 years old. 49.6% of the children were girls and 50.4% were boys. Of the mothers of the children, 39.7% were high school graduates and 73% stated that their economic status was equal to their income and expenses. It was found that 4.7% of the children were underweight, 57.9% were normal weight, 19.6% were overweight and 17.9% were obese. Incontinence rate while watching videos was 3.6%.

Some sociodemographic characteristics of the children and their mothers who participated in the study are presented in table 1. The examination of the relationship between some sociodemographic characteristics and the VASC, CBBDQ, and sub-dimensions is presented in table 1. No significant difference was found between the child's age and the VASC, CBBDQ total score and sub-dimensions total scores ($p>0.05$). The total VASC scores and the total scores of

the self-control, reward-reinforcement, problems, involvement sub-dimensions were high in boys, and the difference between them was statistically significant (p<0.05). When maternal education level was compared to the VASC, reward-reinforcement, involvement, VASC total scores of the children of high school graduate mothers were significantly lower compared to the children of primary school and university graduates. It was determined that the total scores of the children on the self-control and VASC scales increased significantly as the income level decreased (table 1). The total score median of bowel dysfunction was significantly higher in the children of mothers with primary education than the children of high school graduate mothers. It was determined that the bladder and bowel symptoms of the children of mothers with income less than expenses were significantly higher (p<0.05).

As indicated in table 1 and 2, a statistically significant relationship was found between urinary-fecal incontinence while watching videos and the total VASC, self-control and problems sub-dimensions, total CBBDQ, bladder symptoms subscale score medians (p<0.001). Children eating a meal or snack while watching videos had higher total VASC, self-control, reward-reinforcement, problems, involvement score medians, and it was determined that the difference between them was statistically significant (p<0.05) (table 1). Overweight children had significantly more bladder symptoms compared to normal-weight children (table 2).

The VASC, CBBDQ total and sub-dimension mean scores are presented in table 3. It was found that the mean total scores of the scales were as follows: VASC 50.77±16.17, CBBDQ 29.98±8.90, respectively. The ratio of children with a mean total score of 90 and above for the VASC was 0.8% (n= 3).

As a result of the correlation analysis, a weak positive correlation was found between the VASC and CBBDQ (r = .220; p = .000), bladder (r = .202; p =. 000) and bowel (r = .168; p = .001) sub-dimensions (table 3).

Discussion

In this section of the study, the relationship between children's video game viewing habits (VASC), and bladder-bowel dysfunction (CBBDQ) was discussed based on the literature.

The relationship between some characteristics of the participants and the VASC and its sub-dimensions is presented in table 1. The mean total score of the VASC was 54.63 for the boys who participated in the study and 46.85 for the girls, and the difference between them was significant. This result was one of the important and remarkable findings of the study. In the study conducted by De Pasquale et al. (2021) the mean total score of the VASC scale was found to be 51.63 and 42.20 for boys and girls, respectively (17). Many studies examining video game addiction support our result, and it was reported that there was a relationship between the male gender and the VASC (18-20). In contrast to these studies, another study found that girls had higher scores and were at risk of addiction (21). In our sample group, three children (0.8%) who scored 90 and above and should be examined in detail in terms of addiction were male. In the study carried out by Oflu and Yalçın (2019) using the VASC scale, it was reported that four children got a score of 90 and above (1.6%) and that all of these children were boys (22). It can be said that boys are more prone to video game addiction, which can be explained by the different physical, psychological, and personality traits of boys than girls.

It was determined that there was a significant difference between the VASC and mothers' primary school graduation, income less than expenses, BMI overweight, eating or snacking while watching videos, and urinary/fecal incontinence while watching videos (Table 1). In the studies, it is known that as the education level and income level of mothers decrease, their children's duration of internet usage and video game playing increases (23,24). This result can be associated with mothers' lack of knowledge about the dangers of using technology for a long time. Similar to the study result, in the literature, it has been emphasized that snacking sweet foods and consuming high-calorie foods during the time spent on sedentary activities such as watching TV, computer, and internet use increase the risk of obesity (25,26).

A significant difference was determined between the CBBDQ and urinary/fecal incontinence while watching videos (table 2). In the studies, a significant relationship was found between playing video games for a long time and high levels of depression, aggression, trait anxiety, emotional instability, impaired family communication, loss of appetite, sleep disorders, and the behaviors of neglecting or being reluctant to physical activities (27-29). In addition to the problems that may be observed in the studies, it is considered that the child's stay in front of the screen for a long time causes a decrease in physical activity and delay in the need to urinate/defecate. In our study, the ratio of children with urinary incontinence while watching videos was 3.6%, which is very significant. In a prevalence study, it is known that day-night incontinence and constipation are the most common symptoms of BBD and that delaying the urination/defecation needs by children who intentionally squeeze their sphincters despite the need for urination contributes to the formation of bladder-bowel dysfunction (15,30).

Children who are at risk should be directed to the relevant units and should be well analyzed both physically and psychologically.

The relationship between the VASC, and CBBDQ scales used in the study was analyzed by correlation analysis. There was a significant positive relationship between restriction, the total score of the CBBDQ and the bladder sub-dimension and the total score of the VASC and the problems sub-dimension (table 3). As the duration of screen use increases, children sleep less, blood pressure increases, healthy cholesterol level decreases, insulin resistance increases, and thus, visual disorders, obesity, and many health problems due to inactivity occur in children (31). Furthermore, there is also a decrease in the school success of children due to decreased attention and memory capacity (32). In this study in which the relationship between excretion status, and video game addiction was examined, it was observed that video game addiction adversely affected excretion. Mothers should impose time limitations on technology use. We predict that being still in front of the screen for a long time affects the excretory system and that the child delays going to the toilet. Children can be directed to physical activity to discharge their energy.

The study results can be generalized to students studying at the schools where the data were collected on the specified dates. It is difficult to measure video game addiction. Measurements are performed based on the child's self-report. Children's BMI was calculated according to the height and weight information provided by children and their parents. The inability to measure the height and weight of the children by the researchers is among the study's limitations. Since the primary and secondary schools are located in separate places, the study was carried out only with children in the 9-10 age group in primary schools. The

study's strength is that it is the first study that examines the relationship between bladder and bowel dysfunction and video game addiction in children.

In study, it was a remarkable result that three children at risk for video game addiction were male. Furthermore, in our study, the ratio of children with urinary-fecal incontinence while playing video games was significant. The increase in children's video game addiction scores increases bladder and bowel dysfunction scores. This result will help to understand the impacts of video game addiction on bladder and bowel dysfunction by drawing a framework. Furthermore, the resulting evidence showed that there are variables that affect both video game addiction and bladder and bowel dysfunction. We think that interventions should be made to reduce video game addiction, which is the independent variable. In this direction, it is important to provide awareness training for children and parents on video game duration, healthy internet use, and the harms of internet addiction. A detailed evaluation of children's video game habits and bladder-bowel dysfunctions, identifying at-risk children and directing them to the relevant units are extremely important in terms of preventing the diseases that may adversely affect the child's life. Moreover, schools should contribute to developing their physical and mental health by organizing after-school activities and directing children to activities that support their development (physical activity, active games, etc.). It is recommended to conduct studies evaluating the effects of different interventions such as education and counseling in children at risk in the future.

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Conflıct of ınterests

The authors declare that there are no conflict of interests.

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Sociodemographic characteristics	n (%)	Self-control Descriptives	Reward-reinforcement Descriptives	VASC Problems Descriptives	Involvement Descriptives	Total score Descriptives
Table 1. The comparison between the VASC scores and some sociodemographic characteristics of the children-their mothers (n = 363)						
Age (years) 9 years old 10 years old Test statistics	 263 (72.5) 100 (27.5)	 17.0[7.0-33.0] 17.0[7.0-35.0] Z=-.029, p=.977	 20.0[6.0-28.0] 20.0[6.0-27.0] Z=-.033, p=.974	 7.0[4.0-20.0] 7.0[4.0-18.0] Z=-1.404, p=.160	 7.0[4.0-20.0] 7.5[4.0-19.0] Z=-.646, p=.518	 50.52±15.82 51.44±17.13 t =-.483, p=.629
Child's gender Female Male Test statistics	 180 (49.6) 183 (50.4)	 14.0[7.0-33.0] 19.0[7.0-35.0] **Z=-4.389,p=.000*****	 18.0[6.0-27.0] 21.0[6.0-28.0] **Z=2.954,p=.003****	 6.0[4.0-19.0] 8.0[4.0-20.0] **Z=-4.428,p=.000*****	 7.0[4.0-13.0] 8.0[4.0-20.0] **Z=-3.439,p=.001****	 46.85±15.15 54.63±16.26 **t =-4.716,p=.000*****
Mother's education Primary school (1) High school (2) University (3) Test statistics	 106 (29.2) 144 (39.7) 113 (31.1)	 17.0[7.0-35.0] 15.0[7.0-33.0] 17.0[7.0-34.0] KW =4.362,p=.113	 20.0[6.0-28.0] 17.0[6.0-27.0] 21.0[6.0-27.0] **KW =18.775,p=.000*** 1>2 [a] 3>2 [a]**	 7.5 [4.0-19.0] 7.0[4.0-19.0] 7.0[4.0-20.0] KW =4.541,p=.103	 8.0[4.0-14.0] 7.0[4.0-18.0] 8.0[4.0-20.0] **KW =7.607,p=.022* 3>2 [a]**	 52.42±15.46 47.21±14.53 53.76±18.00 **F=6.130,p =.002** 1>2 [b] 3 >2 [b]**
Economic status Income is less than expense (1) Income is equivalent to expense (2) Income is more than expense (3) Test statistics	 57 (15.7) 265 (73) 41 (11.3)	 19.0[7.0-35.0] 17.0[7.0-33.0] 13.0[7.0-28.0] **KW=11.733,p=.003** 1>2 [a] 2>3[a]**	 20.0[6.0-28.0] 20.0[6.0-27.0] 17.0[6.0-26.0] KW =3.461,p=.177	 8.0[4.0-19.0] 7.0[4.0-20.0] 6.0[4.0-15.0] KW =4.139,p=.126	 7.0[4.0-19.0] 8.0[4.0-20.0] 6.0[4.0-11.0] KW =4.216,p=.122	 53.44±18.14 51.26±16.13 43.87±11.42 **F=4.716,p =.010* 1>2 [b] 2>3[b]**
Weight Status Category Underweight (1) Normal or Healthy Weight (2)	 17 (4.7) 210 (57.9)	 19.0[7.0-33.0] 17.0[7.0-33.0]	 20.0[6.0-26.0] 19.0[6.0-27.0]	 9.0[4.0-19.0] 7.0[4.0-20.0]	 8.0[4.0-13.0] 7.0[4.0-20.0]	 56.52±20.28 50,64±16,47

Overweight (3)	71 (19.6)	17.0[7.0-33.0]	20.0[8.0-28.0]	7.0[4.0-17.0]	8.0[4.0-14.0]	52.22±14.63
Obese (4)	65 (17.9)	15.0[7.0-35.0]	19.0[6.0-27.0]	7.0[4.0-18.0]	7.0[4.0-19.0]	48.09±15.42
Test statistics		KW =1.976,p=.577	KW =3.022,p=.388	KW =7.489,p=.058	KW =4.585,p=.205	F = 1.514,p =.211
Eating or snacking while watching a video						
Yes	181 (49.9)	19.0[7.0-34.0]	21.0[6.0-28.0]	8.0[4.0-20.0]	8.0[4.0-20.0]	54.59±16.55
No	182 (50.1)	14.0[7.0-35.0]	18.0[6.0-27.0]	6.0[4.0-18.0]	7.0[4.0-17.0]	46.97±14.89
Test statistics		**Z=-4.187,p=.000*****	**Z=-3.498,p=.000*****	**Z=-3.552,p=.000****	**Z=-3.061,p=.002****	**t =-4.613,p=.000*****
Incontinence while watching videos						
Yes	13 (3.6)	19.0[13.0-33.0]	22.0[11.0-27.0]	10.0[4.0-13.0]	8.0[5.0-11.0]	58.84±12.16
No	350(94.6)	17.0[7.0-35.0]	20.0[6.0-28.0]	7.0[4.0-20.0]	7.0[4.0-20.0]	50.47±16.24
Test statistics		**Z=-2.077 p=.038***	Z=-1.721 p=.085	**Z=-2.333 p=.020***	Z=-.233 p=.816	t =1.838 p=.067

Note. VASC: Video Game Addiction Scale for Children,
KW = Kruskal-Wallis H Test, Z = Mann-Whitney U-Test, F= OneWay Anova, t= Independent Sample T Test
[a]A Tamhane's T2 Test   [b]Tukey AnovaTest
 *p<0.05   **p<0.01   ***p<0.001

Table 2. The comparison between the CBBDQ scores and some sociodemographic characteristics of the children-their mothers (n = 363)				
Sociodemographic characteristics		**CBBDQ**		
		Bladder Dysfunction	**Bowel Dysfunction**	**Total score**
	n (%)	**Descriptives**	**Descriptives**	**Descriptives**
Age (years)				
9 years old	263 (72.5)	16.0[10.0-45.0]	12.0[8.0-32.0]	29.0[19.0-70.0]
10 years old	100 (27.5)	16.0[10.0-47.0]	12.0[8.0-36.0]	29.0[18.0-73.0]
Test statistics		Z=-.721,p=.471	Z=-.151,p=.880	Z=-.568, p=.570
Child's gender				
Female	180 (49.6)	15.0[10.0-45.0]	12.0[8.0-36.0]	28.0[18.0-70.0]
Male	183 (50.4)	17.0[10.0-47.0]	12.0[8.0-34.0]	29.0[18.0-73.0]
Test statistics		Z=-1.728, p=.084	Z=-1.279,p=.201	Z=-1.798, p=.072
Mother's education				
Primary school (1)	106 (29.2)	17.0[10.0-45.0]	13.0[8.0-36.0]	29.0[18.0-70.0]
High school (2)	144 (39.7)	16.0[10.0-47.0]	12.0[8.0-26.0]	29.0[18.0-73.0]
University (3)	113 (31.1)	16.0[10.0-41.0]	13.0[8.0-27.0]	28.0[18.0-58.0]
Test statistics		KW =2.510,p=.285	**KW =6.228,p=.044*** **1>2 [a]**	KW =1.953, p=.377
Economic status				
Income is less than expense (1)	57 (15.7)	19.0[10.0-45.0]	14.0[8.0-34.0]	32.0[18.0-70.0]
Income is equivalent to expense (2)	265 (73)	16.0[10.0-47.0]	12.0[8.0-36.0]	28.0[18.0-73.0]
Income is more than expense (3)	41 (11.3)	14.0[10.0-27.0]	12.0[8.0-18.0]	28.0[18.0-38.0]
Test statistics		**KW =10.310,p=.001**** **1>2 [a] 1>3[a]**	**KW =5.911,p=.015*** **1>3[a]**	**KW =10.813,p=.001**** **1>2 [a] 1>3[a]**
Weight Status Category				
Underweight (1)	17 (4.7)	18.0[10.0-32.0]	12.0[8.0-16.0]	31.0[18.0-46.0]
Normal or Healthy Weight (2)	210 (57.9)	15.0[10.0-45.0]	12.0[8.0-32.0]	28.0[18.0-70.0]
Overweight (3)	71 (19.6)	17.0[10.0-30.0]	14.0[8.0-36.0]	31.0[18.0-66.0]
Obese (4)	65 (17.9)	17.0[10.0-47.0]	12.0[8.0-34.0]	29.0[18.0-73.0]
Test statistics		KW =3.315,p=.346	**KW =7.923,p=.048***	KW =6.508,p=.089

			3 > 2[c]	
Eating or snacking while watching a video Yes	181 (49.9)	17.0[10.0-45.0]	12.0[8.0-36.0]	30.0[18.0-70.0]
No	182 (50.1)	15.0[10.0-47.0]	12.0[8.0-34.0]	28.0[18.0-73.0]
Test statistics		Z=1.185, p=.236	Z=-.126, p=.899	Z=-1.081,p=.280
Incontinence while watching videos Yes No	13 (3.6) 350(94.6)	25.0[16.0-47.0] 16.0[10.0-41.0]	17.0[8.0-27.0] 12.0[8.0-36.0]	42.0[27.0-73.0] 29.0[18.0-76.0]
Test statistics		**Z=-4.435,p=.000*****	Z=-1.811,p=.070	**Z=-4.012,p=.000*****
Note. CBBDQ: Childhood Bladder and Bowel Dysfunction Questionnaire KW = Kruskal-Wallis H Test, Z = Mann-Whitney U-Test [a]A Tamhane's T2 Test [c]Games- Howel Test *p<0.05 **p<0.01 ***p<0.001				

Table 3. The correlations between VASC and CBBDQ the scale scores (n=363).								
			CBBDQ					
Scales		**Descriptive**	**CBBDQ Total score**		**Bladder Dysfunction**		**Bowel Dysfunction**	
	Range	**Mean ±Sd**	**r**	**p**	**r**	**p**	**r**	**p**
VASC Total score	21-98	50.77±16.17	**.220**	**.000*****	**.202**	**.000*****	**.168**	**.001****
Self-control	7-35	16.88±7.29	**.192**	**.000*****	**.181**	**.001****	**.141**	**.007****
Reward-reinforcement	6-28	18.45±5.56	**.171**	**.001****	**.154**	**.003****	**.135**	**.010****
Problems	4-20	7.58±3.49	**.231**	**.000*****	**.222**	**.000*****	**.162**	**.002****
Involvement	4-20	7.85±2.85	**.139**	**.008****	**.113**	**.031***	**.129**	**.014***
Note. VASC: Video Game Addiction Scale for Children, CBBDQ: Childhood Bladder and Bowel Dysfunction Questionnaire **r= correlation coefficient * p<.05 ** p<.01 ** p<.001**								