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DIGITAL GAME ADDICTION, SOCIAL ANXIETY AND ALEXITHYMIA IN ADOLESCENTS

Ergenlerde Dijital Oyun Bağımlılığı, Sosyal Kaygı Ve Aleksitimi

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ABSTRACT

This study was planned as a descriptive study in order to research the digital game addiction, social anxiety, and alexithymia levels of adolescents. This research was conducted with 626 adolescents in the age group of 12-15 years. The data were collected using Descriptive Characteristics Form, DGAS-7 (Digital Game Addiction Scale), SAS-A (Social Anxiety Scale for Adolescents), AQC (Alexithymia Questionnaire for Children). It can be asserted in accordance with the data that digital game addiction level was high in the adolescents who were male, played strategy games, and used internet for more than three hours a day. The adolescents, who were aged between 14-15 years and had high socio-economic level, smartphone, internet in their smartphones, and no health problem, experienced more social anxiety and the adolescents, who had low socio-economic level, a high year-end success score, and health problems, showed more alexithymic personality characteristics.

Keywords: Adolescent, Alexithymia, Digital game, Game addiction, Social anxiety.

ÖZ

Bu çalışma, ergenlerin dijital oyun bağımlılığı, sosyal kaygı ve aleksitimi düzeylerini araştırmak amacıyla tanımlayıcı bir çalışma olarak planlanmıştır. Bu araştırma 12-15 yaş grubundaki 626 ergen ile yapılmıştır. Veriler Tanımlayıcı Özellikler Formu, DGAS-7 (Dijital Oyun Bağımlılığı Ölçeği), SAS-A (Ergenler İçin Sosyal Anksiyete Ölçeği), AQC (Çocuklar İçin Aleksitimi Anketi) kullanılarak toplanmıştır. Verilere göre erkek, strateji oyunları oynayan ve günde üç saatten fazla internet kullanan ergenlerde dijital oyun bağımlılığı düzeyinin yüksek olduğu ileri sürülebilir. 14-15 yaşları arasında sosyo-ekonomik düzeyi yüksek, akıllı telefonunda akıllı telefon, internet bulunan ve sağlık sorunu olmayan ergenler daha fazla sosyal kaygı yaşarken, sosyo-ekonomik düzeyi düşük olan ergenler yüksek bir yılsonu başarı puanı ve sağlık sorunları, daha aleksitimik kişilik özellikleri göstermiştir.

Anahtar kelimeler: Aleksitimi, Dijital oyun, Ergen, Oyun bağımlılığı, Sosyal kaygı.

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INTRODUCTION

In recent years, the game properties are seen to be changing in terms of quality and quantity due to rapid technological progresses. Adolescents are more interested in digital games due to the reasons such as providing the opportunity for fun-interaction-communication, providing individuals the opportunity to realize their dreams they could not fulfill, and getting to experience the feelings of win passion, success, and dominance (Ögel, 2014). While it is accepted that digital games played in a controlled manner have positive effects such as catharsis and relaxation (Prot, Anderson, Gentile, Brown, & Swing, 2014), their negative psychological and biological effects are also known (Wan & Chıou, 2016). Digital games can lead to problems in adolescents such as psychomotor skill disorders, obsessive and aggressive behaviors, tendency to violence, antisocial behaviors, learning disorders, confusion between reality and imagination (Çakır, 2013; Horzum, 2011; Wong & Lam, 2016).

In adolescence period, in addition to the game features, social communication skills play a key role in making healthy decisions about the future and acquiring identity development. Particularly inappropriate games affect communication skills negatively and cause the development of social anxiety (Horzum, 2011; Karaca et al., 2016). Social anxiety is an important problem that causes serious deterioration in the individual's social functions and quality of life (Karaca et al., 2016). This problem, which starts suddenly and becomes rapidly chronic, causes severe loss of ability and brings along social, academic and psychological problems (Segool & Carlson, 2008).

It is important to establish and conduct peer relations in a healthy manner during adolescence period. In addition, adolescents experiencing social anxiety restrict their peer relations and seek different ways of communication. Therefore, adolescents prefer to perform their fun, interaction and communication needs in digital environment with technological devices allowing the limited communication. This can lead to the improve of alexithymic personality traits which are also defined as “not finding words for emotions” (Epözdemir, 2012). It was stated in a study that alexithymic individuals showed symptoms like anxiety, depression, negative self, somatization, anger, and aggression more (Durak Batıgün, & Büyükşahin, 2008).

Current issues such as digital game addiction, social anxiety and alexithymic personality traits need to be addressed within the scope of school health services defined as a continuation of pediatric health services which is a part of public health services. Problems

should be determined with regular screenings about these subjects and the healthy development should be supported with precautions to be taken on time. In the literature review, no study was found on the digital game addiction, social anxiety, and alexithymia levels in adolescents. This study was conducted to determine the digital game addiction, social anxiety and alexithymia levels of adolescents.

MATERIAL AND METHOD

The institutions where the research was carried out was determined by simple random sampling method in the central districts of Kayseri in 2016-2017, from institutions continuing education. 483 students who were studying at 7th–10th grades of educational institutions specified were included in the sample of the study ($\beta = 92\%$, $\alpha = 8\%$, $d = 0.02$). 650 students were reached considering the loss of data. 24 students was excluded due to missing data and study was completed with 626 students. The number of students studying at these institutions was determined via stratified and simple random sampling method by weighting based on the total number of attendance of the branches. Children between the ages of 12-15, who agreed to participate in the study, and who were able to access digital games were included in the study. Before starting study, ethics committee (Application no: 28) and institution permit (94025929-605-E.10844516) were obtained.

The data collection forms were distributed to the students by the researcher during the guidance hours of the students in cooperation with the psychological counseling and guidance teachers in the institutions. Since the consent of the children as well as the permission of the parents are required for the study, adolescents who want to participate in the study were given forms and after receiving their parents' consent were asked to bring back. The students delivered the forms to the counseling and guidance teachers, after they responded to the forms and researcher taken the forms from the teacher.

The data were collected based on self-report with using Descriptive Characteristics Form, Digital Game Addiction Scale, Social Anxiety Scale for Adolescents and Alexithymia Questionnaire for Children.

Descriptive Characteristics Form is composed of 22 questions covering the subjects about descriptive characteristics of the adolescents such as age, gender, the status of accessing technological devices, and duration and purpose of internet usage. In this form, students were asked to write clearly the type of game they played, later, the types of games played by the students were classified by researcher, using the classification of the play types given in the book of "Understanding the Psychology of the Internet and Coping with Addiction" writed by

Ögel (Ögel, 2014). The students' year-end achievement scores were asked as open-ended questions, then scores were grouped according to the Article 44 of Regulation Republic of Turkey Ministry of Education Secondary Education Institutions (does not pass (0-49.99), passes (50-59.99), middle (60-69.99), good (70-84.99), well (85-100)) (Regulation of the Ministry of Education of the Republic of Turkey Secondary Education Institutions, 2019).

Digital Game Addiction Scale (DGAS-7), was developed by Lemmens et al., to determine 12-18 year- old adolescents' behaviors of playing problematic digital games. The Turkish validity and reliability study of the scale was conductes by Yalçın Irmak and Erdoğan (2015). It is a 7-item short form of DGAS-21 scale and as the total score obtained from the scale increases, the game addiction level also increases (Yalçın Irmak & Erdoğan, 2015). The Cronbach's alpha value of the scale was found as 0.72 in the validity and reliability study. In this study, the Cronbach's alpha value was calculated as 0.82.

Social Anxiety Scale for Adolescents (SAS-A) developed by LaGreca, Dandes, and Wick was then adapted to adolescents by LaGreca and Lopez. The validity and reliability study of the scale was performed by Aydın and Tekinsav-Sütçü (2007). The scale is composed of 18 items and high score indicates high social anxiety level (Aydın & Tekinsav Sütçü, 2007). The Cronbach's alpha value of the scale was found as 0.88 in the validity and reliability study. In this study, the Cronbach's alpha value of the scale was calculated as 0.89.

Alexithymia Questionnaire for Children (AQC) developed by Rieffe et al. consists of 20 items. The validity and reliability study of the scale was conducted by Koçak et al. (2015). High score indicates high alexithymia level (Koçak, Karaboğa, & Baloğlu, 2015). The Cronbach's alpha value of the scale was found as 0.78 in the validity and reliability study. In this study, the Cronbach's alpha value of the questionnaire was calculated as 0.71.

Data Assessment

IBM SPSS Statistics 22.0 (IBM Corp., Armonk, New York, USA) package program was used to assess the data of the study. The Kolmogorov-Smirnov normality test and Q-Q graphs were examined to determine whether or not the data showed a normal distribution. Mann-Whitney U test was used in the comparison of two independent groups. ANOVA or Kruskal-Wallis test was used for the comparison of two or more independent groups. In the correlation analysis, Spearman correlation analysis was applied depending on the distribution of data in correlation analysis.

RESULT

Table 1. Identification Features of Adolescents

Identification features	***n***	***%***
Age (year)		
12-13 age	251	40.1
14-15 age	375	59.9
Gender		
Female	234	37.4
Male	392	62.6
The most common purpose of internet use *		
Play a game	186	14.6
Chatting	344	27.0
Do research and homework	423	33.2
Watching movies / listening to music / reading newspapers-book	322	25.2
The most played type of digital game (n=320)		
Action	61	19.1
Adventure	16	5.0
Puzzle	29	9.1
Entertainment	19	5.9
Simulation	16	5.0
Sports	67	20.9
Strategy	112	35.0
Daily internet usage time		
Less than 1 hour	216	34.5
1-2 hours	178	28.4
2-3 hours	131	20.9
Over 3 hours	101	16.2
Have a health problem situation		
Yes	326	52.1
No	300	47.9
Experienced of health problem *		
Head and neck pain	82	19.4
Attention deficit	165	39.1
Visual problems	132	31.3
Other health problems (panic attack, eye swelling, waist-neck hernia, migraine, sleep problem)	43	10.2
Status of access to technological tools *		
Computer at home	488	78.0
Internet at home	456	72.8
Smartphone	492	78.6
Internet on phone	381	60.9
Tablet	338	54.0
Total	**626**	**100.0**

* More than one option is marked.

It was determined that the average age of the adolescents participating in the study was 13.20±0.79 years, 62.6% were male, mothers of 35.3% had primary school education, fathers of 33.3% had university and higher education degree, and 6.4% had a high socio-economic level. It was found that 78.6% of the adolescents had smartphones, 78.0% had computer, 72.8% had internet access, 60.9% had internet in their mobile phones, and 54.0% had tablet. 33.2% of the adolescents expressed that they used internet for research/homework, 27.0% for chatting in social networking sites, 25.2% for watching movies/listening music/reading

newspapers-book, and 14.6% for playing games. It was found that 35.0% of the adolescents played strategy games, 20.9% sports games, 19.1% action games, 9.1% puzzle games, 5.9% entertainment games, 5.0% adventure games, and 5.0% simulation type games. It was determined that 34.5% of the adolescents had less than one hour of internet use, 52.1% had any health problem like head/neck pain, attention deficit, and visual problems (Table 1).

Table 2. Comparison of DGAS-7, SAS-A, AQC Scores According to the Descriptive Characteristics of Adolescents

Identification features	***n***	**DGAS-7**		**SAS-A**		**AQC**	
		Mean±Sd	***p***	***Mean±Sd***	***p***	***Mean±Sd***	***p***
Age (year)							
12-13	251	12.09±5.01	*0.590*	39.92±12.88	***0.002***	16.57±5.17	*0.164*
14-15	375	12.06±5.34		37.31±12.98		17.25±5.05	
Gender							
Female	392	10.27±3.95	***<0.001***	38.59±12.50	*0.291*	17.07±4.89	*0.650*
Male	234	15.09±5.65		37.95±13.80		16.82±5.45	
Socioeconomic status							
Income less than expenditure	33	11.96±6.19	*0.215*	44.33±17.39[a]	***0.010***	20.06±5.39[a]	***0.004***
Equal to income expenditure	553	11.90±4.90		38.23±12.46[a]		16.82±4.99[b]	
Income more than expenditure	40	14.47±7.54		35.17±14.85[b]		16.65±5.65[b]	
The most played type of digital game							
Action	61	14.32±5.54[a]	***<0.001***	38.14±15.36	*0.202*	16.45±5.28	*0.846*
Adventure	16	14.00±5.65[a]		41.87±17.37		17.68±6.17	
Puzzle	29	10.17±5.65[b]		41.62±12.93		16.86±5.07	
Entertainment	19	11.10±3.41[ab]		43.05±11.42		15.78±5.26	
Dimulation	16	10.68±4.15[b]		43.68±14.80		18.18±4.56	
Sports	67	12.68±4.40[ab]		38.76±14.36		16.85±5.43	
Strategy	112	16.07±5.73[c]		37.26±11.60		17.04±5.13	
Daily internet usage time							
Less than 1 hour	216	10.70±4.54[a]	***<0.001***	39.91±13.96	*0.174*	16.81±5.30	*0.324*
1-2 hours	178	11.53±4.67[ab]		36.58±11.32		16.51±4.69	
2-3 hours	131	12.46±4.69[b]		37.78±12.30		17.61±5.22	
Over 3 hours	101	15.43±6.47[c]		38.89±14.18		17.33±5.16	
Have a health problem situation							
Yes	326	12.55±5.67	*0.105*	40.00±13.54	***<0.001***	17.75±5.32	***<0.001***
No	330	11.55±4.61		36.56±12.14		16.13±4.72	
Status of have a smartphone							
Yes	492	12.00±5.14	*0.596*	37.43±12.66	***<0.001***	16.91±5.12	*0.800*
No	134	12.32±5.48		41.75±13.67		17.23±5.03	
Status of internet availability on the phone							
Yes	381	12.13±5.39	*0.805*	37.23±12.54	***0.007***	17.10±5.13	*0.332*
No	245	11.97±4.93		40.10±13.50		16.79±5.05	
Year-end achievement score							
Middle and below	22	15.18±4.03	*0.570*	41.50±16.15	*0.054*	15.68±5.24[a]	***0.037***
Good	144	12.19±4.85		40.56±11.87		17.75±4.86[b]	
Well	343	11.60±5.16		37.16±12.78		16.67±5.01[a]	
Mother's educational status							
Primary school	221	11.92±4.88	*0.995*	39.54±12.34[a]	***0.022***	17.25±4.71	*0.759*
Secondary school	116	12.16±5.25		39.41±13.11[a]		16.94±5.65	
High school	167	12.02±5.31		36.16±12.00[b]		16.85±5.28	

University and higher	122	12.32±5.65		38.20±14.96[ab]		16.68±5.03	
Father's educational status							
Primary school	125	11.87±5.13		39.36±13.71[a]		17.28±4.76	
Secondary school	104	12.63±5.16	*0.174*	41.52±11.96[a]	***<0.001***	17.32±5.85	*0.506*
High school	185	11.42±4.76		38.33±13.57[b]		17.10±5.53	
University and higher	207	12.53±5.63		36.18±12.30[b]		16.57±4.66	

*Kruskal Wallis, Mann Whitney U and ANOVA tests were applied.
† a, b superscripts represent intra-group differences in each group, and the measurements in which the same letters appear are similar.
DGAS-7: Digital Game Addiction Scale
SAS-A: Social Anxiety Scale for Adolescents
AQC: Alexithymia Questionnaire for Children

It was found that the mean scores of the adolescents who were male, played strategy games, and had three or more hours of daily internet use were higher and the difference between them was statistically significant. When DGAS-7 total mean scores of the adolescents were examined, it was found that there was no difference between the age groups, socio-economic level and the status of experiencing a health problem, status of have a smartphone, status of internet availability on the phone, year-end achievement score, mother's and father's educational status. When SAS-A scores of the adolescents were compared according to their descriptive characteristics, SAS-A mean scores of the adolescents, who were aged between 14-15 years, had mothers being high school graduate and father being high school and higher education graduate, had high socio-economic level, smartphone, internet in their smartphones and no health problem, were found to be lower. When SAS-A total mean scores of the adolescents were examined, it was determined that there was no statistically significant difference between daily internet usage time, year-end achievement score. It was determined that AQC mean scores of the adolescents having low socio-economic level, a high year-end score and no health problem were higher and the difference was statistically significant. When AQC total mean scores of the adolescents were examined, it was determined that there was no statistically significant difference between aged groups, gender, the most played type of digital game, daily internet usage time, status of have a smartphone, status of internet availability on the phone, mother's and father's educational status (Table 2).

Table 3. The Correlation Between the DGAS-7, SAS-A, AQC Scores (N=626)

Scales	**SAS-A**	**AQC**
DGAS-7	r=0.182 p≤0.000	r=0.218 p≤0.000
AQC	r=0.493 p≤0.000	-

* Spearman correlation analysis applied.
DGAS-7: Digital Game Addiction Scale
SAS-A: Social Anxiety Scale for Adolescents
AQC: Alexithymia Questionnaire for Children

When the correlation between the scale scores was examined, it was found that while there was a positive weak correlation between DGAS-7 and SAS-A and AQC scores, there was a positive moderate correlation between SAS-A and AQC scores (Table 3).

DISCUSSION

The technological devices that provide internet connectivity have become a part of the society's life since they provide many possibilities and benefits. However, excessive and uncontrolled use results in addiction and the emergence of many problems with it. When the internet usage duration of the adolescents was examined, the data of study were very thought-provoking. In some studies conducted in Turkey, it was determined that students mostly used the internet for an hour a day (Çakır, 2013; Gür, Şişman, Şener, & Çetindağ, 2016; Talan & Kalınkara, 2020). Kaşıkcı et al., reported in their study that the number of children using internet for more than two hours in Europe was nearly three times more than Turkey (Kaşıkçı, Çağıltay, & Karakuş, 2014). In this study, it can be asserted that the duration of the internet use by adolescents was similar with the other studies but the expected and observed durations of internet use was higher. Besides, since the data were based on the self-report of adolescents, it was thought that they did not reflect the correct results, their internet use duration was higher but the adolescents were not aware of this situation.

In the adolescence period where the individual begins to know him/herself and the world of adults, making use of spare time contributes to the mental, physical and social development of the individual (Aslan & Arslan Cansever, 2012). When the activities done by the adolescents to make use of their spare times were examined, it was determined that 16.7% listened to the music, 16.6% watched television, 13.3% spent time in social networking sites, and 8.0% played online games. In Çakır's study, families stated that they thought that playing computer games got ahead of social activities such as sports, reading books, entertainment (Çakır, 2013). It can be asserted that adolescent did the activities that causing loneliness feeling and not supporting development instead of evaluating leisure time with the activities such as establishing communication, sharing and the activities developing healthy lifestyle behaviors. However, it should not be forgotten that adolescents' leisure time activities are both a developmental indicator and a socialization opportunity.

Nowadays, the types of internet-based games affect the daily life of adolescents quite a lot. It is known that although some game types have positive effects in adolescents such as increasing perception, skill, and thinking ability, some game types may drive adolescents even suicide. When the studies are examined, it is seen that the adolescents mostly prefer action, strategy and sports type digital games in parallel with the results of this study (Aslan & Arslan Cansever, 2012; Taylan, Kara, & Durğun, 2017; Talan & Kalınkara, 2020; Ustinavičienė et al., 2016). The reason for preferring these digital games is that it allows the adolescent to make progress and fulfill their success feeling by making logical decisions, as well as to socialize and make new friends when playing online. It is thought that educational, instructional and developmental digital games can contribute to the development of adolescents when they are played in a controlled manner and within the appropriate time scales.

The sedentary lifestyle which emerges with the increase in the use of technological devices forms a basis for many health problems. When using technological devices, adolescents can stay in the positions that can adversely affect the body posture for a long time. It was determined in this study that 52.1% of the adolescents had health problems. When the health problems experienced by the adolescents were examined, it was found that 39.1% experienced attention deficit, 31.3% had visual problems, and 19.4% had pain. Ustinaviciene et al. reported in their study that, to evaluate the health status of the adolescents and the use of problematic computer game related to the internet addiction in adolescents it was found that 8.4% of girls and 15.0% of boys expressed their health conditions as poor (Ustinavičienė et al., 2016). In addition to the health problems of adolescents such as fatigue, depression, anxiety, sleep and concentration disorders (Mannikkö, Billieux, & Kaariaınen 2015), they were reported to have physical and emotional problems (Wong & Lam 2016).

Depending on the increasing use of technological devices, one of the biggest problems in today's world is the digital game addiction. Today, due to the reasons like increased child abuse, decreased sense of confidence in social environments, parents limit the participation of children to the social activities in order to protect them. Therefore, adolescents are forced to spend time with technological devices at home such as computers, tablets, smart phones instead of playing with friends in the streets. Especially in adolescents who cannot direct their energy to different activities, digital game playing brings uncontrollability about time management and game control especially in boys and results in the development of digital game addiction. It is stated in the studies that the digital game addiction is higher in males than females (Hazar, Tekkurşun Demir, Namlı, & Türkeli, 2017; Horzum, 2011; Karaaslan,

2015; Rajab et al., 2020). As compatible with the literature, it was found that digital game addiction levels were higher in males. It is thought that cultural characteristics and social structure are effective in this difference that arose according to the variable of gender. It can be said that the reason why the digital game addiction is higher in males is that males can spare more time for themselves due to patriarchal society structure, they can move more freely, they can enter more comfortably to the environments like internet cafe and they can access technological devices more easily. Although in their study Çakır et al., stated that the game type preferred by the adolescents did not affect the game addiction (Çakır, Ayas, & Horzum, 2011), it was determined in this study that the adolescents who played strategy type digital games and used internet for more than three hours a day had higher digital game addiction level. Strategy-type games are games that require thinking, planning skills and special tactics to achieve victory. It is thought that the desire of gaining power/reward, communicating with other players, being curious about the next level, playing the role that they want to have in real life provided by these games may develop addiction by satisfying their feelings of avoidance from real life problems.

Virtual environments provide the opportunity to communicate with many people but it can negatively affect the relationships in real social life. This situation can result in the development of social anxiety during the adolescence period having great importance in peer relationship. In this study, the social anxiety levels of the adolescents who experienced health problem and had no smart phone nor internet in their phone were determined to be higher. Social anxiety of adolescents may increase due to the reasons such as not having smartphone and internet in the phone for the adolescents who want to be liked and accepted by their peers, feeling that they do not have the same possibilities as their peers and this is also known by their peers, limitation of the possibilities of liking and being liked through the shares in social media. It can be asserted that increased anxiety levels of the adolescents in case of the presence of any health problems or not feeling healthy is an ordinary situation. Similar to the results of this study, Deveci et al., stated in their study that anxiety scores of those who evaluated their own health status bad were higher than those who evaluated their health status as good and moderate (Deveci, Çalmaz, & Açık, 2012).

When the effect of the education status of the parents and the socioeconomic level on the social anxiety is examined, it is seen that there are different results in literature. In the study by Göktürk, it was reported that the mother's education and socioeconomic levels did not affect the social anxiety of the adolescent but as the father's educational level decreased, the social anxiety of the adolescents increased (Göktürk, 2011). Çelebi and Eriş showed in

their study that adolescents whose parents were primary/secondary school graduates had higher social anxiety (Çelebi, 2017; Eriş & Ikiz, 2013). Mohammadi et al. (2020) stated in their study that adolescents whose parents were higher education level had a lower level of social anxiety (Mohammadi et al., 2020). Deveci et al., stated that adolescents having low socio-economic level had higher anxiety levels and the educational level of the parents did not affect the anxiety levels (Deveci et al., 2012). In this study, social anxiety levels of the adolescents whose mothers had high school educational level and fathers had university and higher educational level and the adolescents with high socioeconomic level were lower. When all these results were considered, it can be said that the parents' educational status and socioeconomic level may influence the adolescents' upbringing, self-esteem and peer relations. Reasons like seeing themselves lower than peers and feeling incompetence because of having different possibilities in relation to the socioeconomic level may increase the social anxiety level of adolescents. In this case, the adolescent who cannot express him/herself in real life and cannot socialize may direct to digital games where he/she can exist in a way the he/she wants to be in virtual environment providing especially interaction-communication possibilities and where he/she can experience the sense of success. In addition, it is thought that alexithymic personality characters may develop regarding the emotions experienced by the adolescents.

Alexithymic personality trait is characterized by having difficulties in realizing and identifying the emotions, oral expression of feelings, realizing the feelings of others and differentiating emotions and physical complaints (Hindistan, 2012; Uzun, Gönültaş, & Akın, 2020). Along with the neurophysiological dimension, family environment and environmental and sociocultural factors play an important role in the emergence of alexithymic personality trait (Güleç & Yenel, 2010). In the study conducted by Papini et al., with 12-14 year-old adolescents it was reported that boys experienced more difficulties in sharing their personal emotions with their families and friends than girls, older adolescents have more emotional shares compared to the younger ones, gap in family relationships, success and commitment between family members were effective on the alexithymia (Papini, Farmer, Clark, Micka, & Barnet, 1990). Tang et al. (2020) stated in their study that adolescents whose gender was female and whose age was older had higher mean scores on alexithymia (Tang, D. Xu, & J. Xu, 2020). Karaboğa stated in his study that variables of gender and socioeconomic level did not affect the alexithymia level of children (Karaboğa, 2011). In this study, it was determined that age and gender did not affect the alexithymia levels but the adolescents with low socioeconomic level had higher alexithymia levels. High alexithymia level of adolescents

having low socioeconomic level may be due to the negative reflection of their socioeconomic characteristics on their family processes and the upbringing style as well as their peer relations and social activities.

It is known that alexithymic personality traits trigger somatic diseases and mental diseases including dermatological conditions such as chronic idiopathic urticaria (F. Barbosa, Freitas, & A. Barbosa, 2011). Burba et al. concluded in their study that adolescents aged between 12-17 years with somatoform pain disorder showed more alexithymia and anxiety characteristics than their peers (Burba et al., 2006). Sayar et al., found in their study that alexithymic adolescents show more dissociative tendency compared to their peers who are not alexithymic (Sayar, Köse, Grabe, & Topbaş 2005). In this study, it was found that the adolescents experiencing health problems had higher alexithymia levels. This may associated not only with fact that adolescents having alexithymic personality trait cannot express their emotions verbally but show bodily reactions, but also with fact that adolescents fail to cope with the emotional fluctuations due to their health problem.

In this study, it was found that the year-end success score and the alexithymia levels of the adolescents were compared and alexithymia levels of the adolescents with high year-end mean scores were higher. In the study conducted by Parker et al., to investigate the alexithymia level and academic success it was determined that there was a positive correlation between the academic success and alexithymic characteristics (Parker, Austin, Hogan, Wood, & Bond, 2005). In accordance with these results, it is thought to be a result of the fact that the adolescents who had alexithymic personality trait focused on academic studies by getting away from social relations.

When investigating the correlation between the scale scores of the adolescents in this study examining the digital game addiction, social anxiety and alexithymia levels of adolescents, a positive correlation was determined between the digital game addiction, social anxiety and alexithymia scores. Karaca et al., stated in their study that the computer game addiction scores and social anxiety scores increased together (Karaca et al., 2016), Berthoz et al. reported in their study that there was a positive correlation between the social anxiety and alexithymia (Berthoz, Consoli, Perez-Diaz, & Jouvent, 1999). In accordance with these results, the presence of significant correlations between the digital game addiction, social anxiety, and alexithymia levels revealed that these three main issues that can bring many problems should be emphasized. It seems necessary to ensure that digital games are played in a controllable manner, the adolescents are supported to recognize and express themselves correctly, and they are guided to activities that stimulate physical and mental development in

order to raise adolescents having the qualities of the era. Accordingly, it can be recommended to raise awareness in adolescents, parents, and community by organizing regular trainings about the issues such as the use of technological devices, game and communication skills and to organize social programs to direct the adolescents to more active street games where they will develop peer relationships.

Limitations

This study conducted in a certain sociocultural region and only in the schools of 12-15 years of age in Kayseri, not be able to examine all factors that may affect digital gaming addiction (parents' child-rearing attitude, playgrounds of the attended school etc.) is the limitation of this study.

Conclusions

Nowadays, due to rapid technological advances, children and adolescents prefer digital games played with technological tools. Digital games which played uncontrolled can create addiction in adolescents and can lead to the development of social anxiety by affecting communication skills in the negative. This may result in the development of alexithymic personality traits, which are also described as "not finding promises in emotions" in adolescents.

According to the results of this study, as the digital game addiction of adolescents increases, their social anxiety and alexithymia levels also increase. In the direction of these results; it can be suggested that deal with current problems such as digital game addiction, social anxiety and alexithymia in adolescents and appropriate initiatives by foreseeing the problems that may arise.

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