

Is digital addiction a reason for obesity?

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Abstract

Aim: Technology dependency is increasing rapidly in the twenty-first century. As for technology dependency, television, computer, mobile phone, internet dependency come first. While rapid progress of technology simplifies our daily living, its misuse may cause psycho and physio-pathologic symptoms and obesity among children and teenagers. Technology dependence is an important public health problem. Measures against technology dependency are important. The objective of this research is to investigate the association between rapidly increasing internet addiction and obesity, a major health problem.

Material and Methods: A total of 150 children aged between 11 and 18 years participated in the study from March to April 2018. Participants were informed of their height, weight, age, parental education and tested for internet addiction.

Results: In this research there was no significant correlation between obesity and internet addiction. But as education levels of mothers increase, internet addiction levels also increase in children. Average internet addiction score of males is higher

Conclusion: If time spent on internet and television reaches pathological levels then grave health consequences could be expected in our children. Families and youngsters should be educated about smart usage of internet to prevent damages of technology addiction and obesity upon mental and physical health. This education should be given before internet addiction begins.

Keywords: Obesity; Internet Addiction; Adolescent, Child.

INTRODUCTION

Addiction is defined as not to be able to give up a substance or behavior despite its harmful results. (1). Addiction is not only substance abuse like cigarettes, alcohol or narcotic drugs but can also be behavioral like overeating, playing, television watching, internet surfing, shopping etc. (2).

Rapid progress of technology in the 21st century, promoted easy and rapid access to knowledge thorough internet, which especially has damaging effects on schoolchildren's physical and mental health. Technology addiction covers media, television, cellphone, computer and internet addictions. The importance of technology addiction is increasing day by day in terms of public health. In company with technology addiction physical, psychological, social and cognitive development of children and youngsters are afflicted (3,4,5,6).

Obesity is also an eating disorder and, in some cases, an addiction to eating. Obesity, which starts in childhood, is moving to older ages and is growing like an obesity and health problems brought about by obesity (7,8). The

association of internet addiction with obesity has been shown to be a serious problem by the studies conducted in our country (9).

The aim of the study is to examine the relationship between internet dependence and obesity, two major public health problems that are considered as problems in the near future.

MATERIAL and METHODS

This study was conducted on 150 individuals (75 females and 75 male adolescents aged 11 to 18) who applied to Kagithane State Hospital and Taksim Acibadem Hospital in March-April 2018. Between March-April 2018, who was taken to work consecutively among adolescents who applied to Kagithane State Hospital and Taksim Acibadem Hospital and accepted to join research. Genetic and metabolic diseases were not included in the study. A test was conducted to measure internet addiction with the approval for the Istanbul Educational Research Hospital ethics committee no. 1200. The internet addiction test was developed by Dr. Kimberly Young. In Turkey, the validity of

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the test-reliability study was conducted by Ozlem Cakir Balta and Mehmet Peace Horzum in 2008. (10). The test comprising 20-questions was applied.

Personal information forms were used to determine the demographic characteristics (sex, age, mothers' education, fathers' education, the height, the weight) of children aged 11 to 18 years.

According to the scores obtained from the Internet Test Results:

20-49: The average internet user group was considered that they can control internet usage

50-49: The group was considered that they might have trouble in controlling their internet use

80-100: The group was considered that they have a major problem in controlling their internet use.

In the study, WHO's child developmental proportions have been used in classifying children according to the BMI result: Underweight less than the 5th percentile; normal or healthy weight 5th percentile to less than the 85th percentile; overweight 85th to less than the 95th percentile; obese equal to or greater than the 95th percentile (11)

Statistical Analysis: Stata 14.1 program was used for statistical analysis. Pearson correlation coefficient (r) was used to examine the relationship between descriptive statistical methods (frequency and percentiles) as well as quantitative variables when study data were evaluated. The mean was tested by the Shapiro-Wilk test for the normal distribution of the groups to be compared, and all groups provided a normality hypothesis of 0.05 at the level of error ($P > 0.01$). Thus, the two groups' averages were tested by two independent sample t tests independent of the parametric tests. The variances in the groups were compared with the F test. Averages of multiple groups were compared with one-way ANOVA. The homogeneity of the groups was tested by the Bartlett test and the groups were homogeneous ($P > 0.01$). The difference group was found by Scheffe Method ($P < 0.10$). Significance was assessed at $P < 0.01$, $P < 0.05$ and $P < 0.10$

RESULTS

This study was conducted among 50% (n=75) female and 50% male (n=75). The mean age of the cases was 14.5 ± 2.12 years and the mean BMI (percentile) values were 64.67 ± 24.96, 2. % (n = 3) underweight, 73.3% (n = 110) normal and 24% (n = 36) overweight and 0.7% (n = 1) obese. Also, the average internet addiction scores of the cases were 41.49 ± 14.91, which was lower than 49 in 74.7% (n = 112), 80.3 in 23.3% (n = 35) 50-79 and only 2% were within the range (Table 1).

The result of the statistical analyzes shows that there is no significant relationship between the age of the events, the BMI (percentile) values and internet addiction scores.

The internet addiction scores of the cases are statistically different according to their genders. The average internet addiction scores of males were 45.87 and those of the

females were 37.12. The difference is 8.75. This difference is statistically significant ($P = 0.000 < 0.01$) and the average internet addiction score of males is higher. (Table 2.)

Table 1. Distribution of descriptive characteristics

		Min-Max	Mean ± SD
AGE		11-18	14.50±2.12
BMI		5-95	64.67±24.96
SCORE		16-100	41.49±14.91
		n	%
GENDER	Male	75	50.0
	Female	75	50.0
BMI	Underweight	3	2.0
	Normal weight	110	73.3
	Overweight	36	24.0
	Obese	1	0.7
SCORE	<49	112	74.7
	50-79	35	23.3
	80-100	3	2.0
Father's Education	Primary school	30	20.0
	Secondary school	17	11.3
	High school	52	34.7
	University	51	34.0
Mother's Education	Primary school	43	28.7
	Secondary school	13	8.6
	High school	46	30.7
	University	48	32.0
		150	100.0

Table 2. Comparison of gender and internet addiction scores

Gender	n	Mean±SD	Average difference	t	P
Male	75	45.87±1.75	8.75*	3.81	0.000
Female	75	37.12±1.55			
	150	41.49±14.91			

Bağımsız iki örneklem t testi, * $P < 0.01$

The result of the statistical analyzes made is; There were no significant relationships between age and BMI (percentile) values and Internet addiction scores. In addition, the relationships between these variables were examined separately for girls and boys, but no statistically significant correlations were found.

In addition, the internet addiction scores of the cases are not statistically significant compared to the fathers' educational status, but the mothers' education has statistically significantly effects (Table 3).

Statistically significant differences were found between the average of the Internet addiction scores of cases depending on the education level of the mothers ($P = 0.030 < 0.05$). The group with the highest Internet addiction

is the children of the high school graduate mothers while the children with the lowest internet addiction are the children of the secondary school graduated mothers. Although the levels of internet addiction of children of primary and high school graduate mothers are above the general average, children of secondary school and college graduated mothers have internet addiction levels lower than the general average, but they are children of mothers of secondary school graduates who make a statistically significant difference (Table 3).

Table 3. Comparison of Mother's education level and Father's education internet addiction scores in children

Mother's Education	n	Mean ±SD	Group showing difference	F	P
Primary school	43	43.93±16.77	Secondary school	3.05	0.030
Secondary school	13	32.38±7.57			
High school	46	44.26±15.65			
Üniversity	48	39.12±12.75			
Father's Education	N	Mean ±SD	Group showing difference	F	P
Primary school	30	41.63 ±16.07		0.55	0.650
Secondary school	17	45.75±16.08			
High school	52	40.85±16.41			
Üniversity	51	40.65 ±12.16			
Overall means	150	41.49±14.91			

Tek yönlü ANOVA, *P<0.05

DISCUSSION

Internet addiction and especially computer is emerging as a major public health problem. As a consequence of overuse and an increasing dependence, influencing many aspects of life with visual stimuli, causing changes in mood, being low cost, (2,12). The outcome of misuse of the internet is disturbing the physical and mental health of children. For a long time, computer internet addicts are exposed to somatic and mental problems such as pain in the arm and body, obesity (5).

In recent years, access to information technology has been facilitated by a smart phone without a desk. This situation has caused each individual to become addicted to the internet. This situation is confronted as phubbing defined as avoiding individual relation by giving attention to smart phones in case of inter-individual communication. Phubbing seems to become more insidious and have more harmful consequences than many previous forms of virtual dependence. So, it requires further investigation before leading to serious psycho-pathological and sociological problems (13).

When you look at the world population, your obesity rate increases with every passing day. According to the

results of the study in the USA, the obesity rate increased from 12% in 1991 to 17.9% in 1998 (14). The reason for the emergence of simple obesity in these studies is the result of multiple factors such as inheritance, overeating, lack of physical activities and social factors; among them, the lack of physical activity is now an important factor recognized by many researchers (15).

The internet addiction, which triggers each other when the obesity struggles, arises from immobility that threatens the health of the community and starts to affect the mental health of the depression like anxiety and so from very young ages, increases day by day. In a study, internet addiction was found to be 10% (4). In another study, 2.33% was found to be internet addicted and 17.45% was found as internet addiction in risk and threshold group (16). In our study, internet addiction is seen as a problem by 2%. In one study, the use of pathological internet was found 7.1% (5). An anxiety score, depression score, anxiety depression score was found to be statistically significant in comparison with children using normal internet. However, there was no significant difference in daily exercise in normal internet users and problem internet users (5).

When the child and adolescent health was examined on obesity and internet dependency, the results of using internet and computer for children and adolescents and physical activity were different in relation to obesity. There was no significant relationship between BMI and internet addiction in our study. In one study, 73.4%, 17.6% and 9.5% of normal internet users were found to be 68.4% underweight and normal, 21.4% slightly overweight and 10.2% obese respectively, which were not statistically significant (5). In other studies, obesity rates were significantly higher than children that were Internet addicted and not internet addicted (17,18,15). Because of the extreme computerization of internet addiction, being away from sedentary life and physical activity causes obesity (15). Internet addiction significantly correlates with internalizing problems of overweight / obese adolescents and internet addiction is a risk factor for depression and anxiety (19).

The link between internet addiction and obesity reveals the importance of formulating preventive public health policies aimed at physical health, education and established online lifestyle at the beginning of adolescence, with special attention paid to children (20).

In order to prevent obesity, which is one of the most important health problems caused by the time spent on the internet and television, our children should be guided to sportive and artistic activities where children can have energy and develop themselves and have a pleasant time. Families should be informed about these topics (3,6,21).

Internet dependency studies also show that there is a lack of preventive efforts in eye-catching internet addiction. Prevention studies without dependence on schools and health institutions are important for both low cost and short-term results (22,5,23,24).

CONCLUSION

The results of the study suggest that it is necessary to reproduce the sample group while not showing the relation of internet dependence and obesity. An important result of the study is that the children of educated families have high internet score cards. The high dependency on internet in educated families has shown us the importance of education of internet addiction

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