The effect of mothers' pathological internet use and psychopathology on children's pathological internet use

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SUMMARY

Objective: This study aimed to examine the mediating role of psychological symptoms of mothers in the relationship between pathological internet use (PIU) of mothers of preschool children and PIU of their children.

Method: 283 mothers residing in Istanbul and having children aged 4-5 years participated in the research. Within the scope of the research, mothers' pathological internet use was evaluated with the Young Internet Addiction Scale, mothers' symptom levels were evaluated with the Symptom Screening Test, and children's pathological internet use level was evaluated with the Family-Child Internet Addiction Scale.

Results: When the time the child spends on technological devices is controlled, there is a significant relationship between mothers' pathological internet use and their children's pathological internet use. Mothers' symptoms including obsessive-compulsive (b=.14, 95% CI [.01,.29], p<.001), interpersonal sensitivity (b=.12, 95% CI [.01,.26], p<.01) and paranoid thoughts (b=.13, 95% CI [.02,.26], p<.001) have a partial mediating role.

Discussion: Mothers' pathological internet use level and psychopathological symptoms have an effect on children's pathological internet use level. It is thought that pathological internet usage behaviors of mothers can be a role model for children and various psychological symptoms of mothers can strengthen this situation. As part of future studies, it is recommended to plan studies that include fathers or evaluate internet usage in detail.

Key Words: Pathological internet use, childhood, mother–child relationship, psychopathological symptom, internet addiction.

INTRODUCTION

The preschool period is recognized as part of the early childhood stage. This stage represents a developmental process that forms the basis of human life. This period is characterized as a critical stage in which the child's physical, mental, social, emotional and language development is intense (1). In the preschool period, the family is of great importance for children; in this process, children are in a strong relationship with their parents and other family members. They use various strategies to reinforce children's positive behaviors and correct their negative behaviors (2). In this way, children's positive behavioral skills are expected to increase and negative behaviors are expected to decrease. Behavioral patterns acquired in this period have reflections that can be seen in adulthood. Therefore, preschool children's relationship with their caregivers is more critical than in other periods. Psychological problems of parents may prevent communication with their children. It is known that family members expose their children to more technological devices when the child is not given enough attention or time (3). In a study conducted by Yengil et al. (2019), 59.8% of mothers reported using technological devices for social media and 49.5% for personal needs. In addition, it was determined that 57.1% of the participant mothers used technological devices for 0-1 hour, 28.5% for 1-2 hours, 11.9% for 2-3 hours and 2.4% for more than 3 hours a day (4). In Doğan and Döğer's (2023) study, it was reported that 56.1% of mothers used technology between 0-2 hours and

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20.6% between 2-4 hours a day (5).

In studies, it has been observed that intensive internet use in children and adolescents may cause problems in self-identity development, difficulties in social relationships and academic success in the future (6,7,8). In other studies, significant correlations were found between pathological symptoms from parents and Internet use by young people (8,9,10,11). For example, Lam L.T. (2015) found a significant relationship between the level of depression in mothers and pathological internet use in children (8). In another study conducted by Lam L.T. (2020), it was observed that children's mental health and parental internet use mediated the relationship between parental mental health and children's internet addiction (9). Park et al. (2008) found a relationship between communication within the family and Internet addiction in children (10). In a study conducted in the Netherlands, it was found that strong communication within the family regarding internet use prevented children from developing compulsive internet behavior (11). Although the studies conducted in this context in our country are limited, according to TUIK data, the rate of internet use among children aged 6-15 years increased from 50.8% in 2013 to 82.7% in 2021. When analyzed by gender, it was observed that the rate of use by boys increased from 53.7% in 2013 to 83.9% in 2021, while that of girls increased from 47.8% to 81.5% (12). It is thought that this increase may be associated with pathological internet use if not directed correctly.

As a result, this study aims to evaluate the mediating role of mothers' pathological symptoms (interpersonal sensitivity, hostility, somatization, anxiety, obsession, depression, psychotic, paranoid and phobic symptoms) in the relationship between mother's pathological internet use (PIU) and child's pathological internet use. The hypothesis of the study is “it is thought that mother's psychopathological symptoms may have a mediating effect on the significant relationship between mother's PIU level and child's PIU level.” In addition, by focusing on preschool children's technology use, it aims to evaluate the relationship between mothers' technology use and their children's internet use. The data obtained in this way aims to fill the gap in the literature on this subject and to provide a basis for identifying groups of young children at risk before the development of pathological internet use.

METHOD

Sample

The sample consisted of 283 mothers with children aged between 4 and 5 years. The targeted total number of participants was found to be 250 using the G Power 3.1.9.2. program, with a reliability rate of .95, alpha error of .05 and effect size of .07 for multiple linear regression analysis (13, 14). It was aimed to work with a minimum of 280 mothers to prevent data loss. The inclusion criteria for the study were that the participants were over 18 years of age, had at least one child and the age of the children was between 4 and 5 years. Accordingly, the exclusion criteria were that the participants were younger than 18 years of age, did not have children, and their children were younger than 4 or older than 5 years of age. One participant did not answer more than 25% of the scale questions; the total scores of the participant were compared with the participants who answered the questions and no significant difference was found (p=.78). For this reason, she was not included in the analysis and the study was completed with 282 mothers. Demographic information about the participants is presented in Table 1.

Data Collection Tools

Symptoms Distress Check List (SCL-90-R): This scale is used to determine the psychopathological symptoms of individuals (15). The inventory is divided into nine different sub-dimensions and contains ninety items in total: Depression, somatization, phobia, anxiety, psychoticism traits, interpersonal sensitivity, hostility, paranoid ideation and obsessive-compulsive symptoms. Each dimension includes between six and thirteen questions. Participants were asked to answer the questions by thinking about their experiences over the past fifteen days. Responses were categorized as “not at all, very little, moderately, quite a lot, and extremely”.

Table 1. Distribution of participants according to sociodemographic characteristics

	N	%
Age		
26-30	84	29,8
31-35	120	47,6
36 and above	78	27,7
Marital Status		
Married	268	95
Divorced	9	3,2
Lives separately	5	1,8
Number of Children		
1	89	31,6
2	152	53,9
3	40	14,2
4 and above	1	0,4
Child's Age		
4	81	28,7
5	201	71,3
Working Status		
Working	139	49,2
Does not work	143	50,8
Educational Status		
Primary education	38	13,5
High school	114	40,4
Licence	103	36,5
Degree	27	9,6
The time children spend with daily technological devices		
Less than 1	125	44,3
1-3	140	49,6
3-5	16	5,7
6 and above	1	0,4

Young Internet Addiction Test Short Form (YIBT-SF): This scale was developed by Young to measure the presence and severity of pathological internet use. The PIBT-SF, which was converted into a short form by Pawlikowski et al. consists of 12 items and is a five-point Likert-type scale (1=Never, 5=Very often) (16, 17). There are no reverse coded items in the scale. Therefore, high scores obtained from the scale indicate a high level of pathological use. The minimum score that can be obtained from the scale is 12 and the maximum score is 60.

Family-Child Internet Addiction Scale (FCIAS): The Parent-Child Internet Addiction Scale is a six-level Likert-type scale and is completed by parents. The aim of the scale is to determine children's perceived level of pathological internet use. The scale levels consist of "Not Applicable", "Rarely", "Occasionally", "Mostly", "Very Often" and "Consistently" options. These options are given scores between 0-5 respectively. As a result of this scale, a score of 80 and above indicates that the child's internet use is at a pathological level, a score of 50-79 points indicates limited symptoms, and a score of 49 points and below indicates that there are no symptoms (18). The scale can be applied to parents with children up to the age of 17.

Sociodemographic Data Form: The sociodemographic data form, which was created to collect personal information, includes 7 questions in total. It includes questions about the participants' gender, age, marital status, employment status, number of children, education level and the time children spend with technological devices daily.

Process

At the beginning of the cross-sectional study, ethical approval for the study was obtained from the ethics committee of Gelişim University at its meeting dated 18.11.2019 and numbered 2019-20. After obtaining the necessary permissions from two kindergartens in Istanbul (Abdülkadir Öztemir Kindergarten and Avcılar Selahattin Müzeyyen Kaçaker Kindergarten), mothers were contacted and asked to fill out the scales face-to-face. The scales were delivered to the mothers by students, and announcements were made through communication channels involving teachers and parents. After the mothers agreed to participate in the study in the consent form prepared according to the Declaration of Helsinki, they completed the Sociodemographic Information Form, SCL-90-R Symptom Screening Test, Young Internet Addiction Test Short Form and Family-Child Internet Addiction Scale respectively. The participants were informed that they should be in a distraction-free environment so that they could focus while completing the scale questions. Afterwards, the data of the participants were collected according to the schedule determined with the school administration. Data were collected between November 2019 and February 2020.

Data Analysis

SPSS Statistics 26 and SPSS Process v4.2 package programs were used to analyze the research data. In all statistical evaluations, .05 was accepted as a significant value. Descriptive and intergroup analyses were performed after testing the normal distribution of sociodemographic data using kurtosis

Table 2. Results of correlation analysis between variables (N = 282)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Mother-PIU	1,000												
2. Mother-PPS Total	0,477**	1,000											
3. Mother PPS-Somatic	0,284**	0,777**	1,000										
4. Mother PPS-OCD	0,396**	0,756**	0,513**	1,000									
5. Mother PPS IS	0,360**	0,800**	0,494**	0,587**	1,000								
6. Mother PPS-Depression	0,437**	0,873**	0,614**	0,636**	0,672**	1,000							
7. Mother PPS-Anxiety	0,445**	0,800**	0,622**	0,480**	0,572**	0,618**	1,000						
8. Mother PPS-Hostility	0,237**	0,684**	0,467**	0,420**	0,522**	0,566**	0,555**	1,000					
9. Mother PPS-Phobia	0,355**	0,669**	0,496**	0,431**	0,525**	0,524**	0,570**	0,393**	1,000				
10. Mother PPS IS	0,348**	0,770**	0,469**	0,550**	0,702**	0,673**	0,545**	0,527**	0,471**	1,000			
11. Mother PPS Psychoticism	0,403**	0,795**	0,567**	0,536**	0,634**	0,644**	0,647**	0,536**	0,502**	0,588**	1,000		
12. Mother PPS Extra points	0,406**	0,762**	0,528**	0,615**	0,557**	0,630**	0,554**	0,448**	0,463**	0,568**	0,559**	1,000	
13. Child - PIU	0,350*	0,280**	0,172**	0,272**	0,260**	0,253**	0,204**	0,149*	0,126*	0,258**	0,253**	0,169**	1,000

**p<.001, *p<.05, Abbreviations = PIU: Pathological Internet Use; PPS: Psychopathological Symptoms; OCD: Obsessive Compulsive Disorder; IS: Interpersonal Sensitivity; PT: Paranoid Thoughts

and skewness values and Levene's test in the SPSS program. In determining the control variable, the variables that showed a significant correlation above .20 as a result of the Pearson correlation test within the dependent variable and sociodemographic information were taken as the basis. Then, in order to test the mediating variable, Model 4 was used in the SPSS Process program. In testing the models of the mediation effect, the significance analysis of the models and relationships was carried out with the Boostrap Confidence Interval or Monte Carlo Confidence Interval tests. The criterion of not including the value 0 in the lower and upper confidence interval values with 95% confidence intervals was taken into consideration; if it contains a value of 0, the mediation effect cannot be mentioned (p>.05). The data were analyzed by determining 5000 resampling options with the Bootstrap technique.

RESULTS

Correlation Analysis of Mother and Child's Pathological Internet Use and Mother's Psychopathological Symptoms

The aim of this study is to examine the effect of psychopathological symptoms of the mother on the relationship between mother and child's pathological internet use. In parallel with the research purpose, the significant relationship between the dependent, independent and mediating variables was examined in the first stage (see Table 2). According to the table, there were significant and positive relationships between mothers' PIU levels and psychopathological symptoms (r=.477, p<.001), between mothers' PIU levels and children's PIU levels (r=. 350, p<.001), and between mothers' psychopathological symptoms and children's PIU levels (r= .280, p<.001).

According to the results of Pearson correlation analysis conducted to determine the control variable before the mediation effect test, a significant and positive relationship was found between the child's age and the child's pathological internet use (r=.129, p<.05) and between the time the child spent with technology and the child's pathological internet use (r=.211, p<.01) among the sociodemographic variables. However, since the correlation strength of the child's age was below .20, it was not included in the study as a control variable. No significant relationship was found with other sociodemographic variables (p>.05, see Table 3).

Table 3. Results of correlation analysis between child PIU and sociodemographic variables

	Mother's Age	Mother Marital Status	Number of Children	Child's Age	Mother-Employment Status	Mother-Educational Status	Child Time Spent on Technology
Child PIU	.042	-.053	.029	.129*	-.008	.088	.211**

* p<.05, ** p<.01, Abbreviations = PIU: Pathological Internet Use

Figure 1. Mediating effect of mother's OCD symptoms in the relationship between mother- PIU and child - PIU

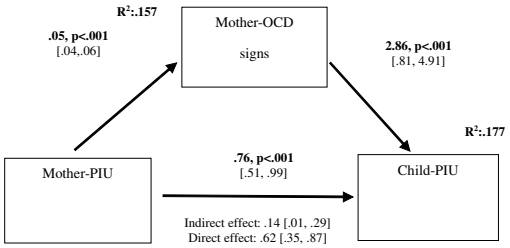
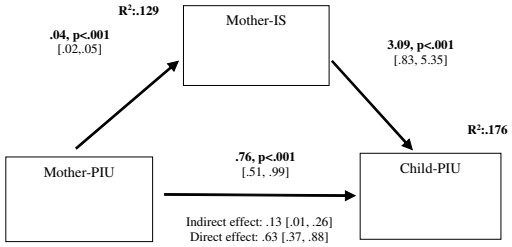


Figure 2. Mother's interpersonal sensitivity (IS) in the relationship between mother - PIU and child - PIU



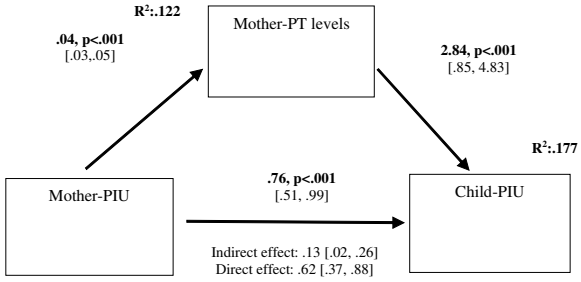
Mediation Test Analysis of Maternal Psychopathological Symptoms

In the first stage of the mediation effect test, the mediating effect of the OCD symptoms of the mother on the relationship between the mother's pathological internet use level and the child's pathological internet use level was evaluated, controlling for the time spent by the child with technological devices. Firstly, it was observed that the mother's pathological internet use significantly and positively affected OCD symptoms (b = .05, t(279) = 7.22, p< .001). Mother's pathological internet use significantly and positively affects child's pathological internet use (b = .61, t(278) = 4.64, p < .001). Mother's OCD symptoms have a significant and positive effect on child's pathological internet use (b = 2.86, t(278) = 2.75, p < .001). According to the mediation effect test, mother's OCD symptoms significantly partially mediated the relationship between mother's pathological internet use and child's pathological internet use (b = .14, 95% CI [.01, .29], see Figure 1).

The mediating effect of the mother's level of sensitivity in interpersonal relationships on the relationship between the mother's level of pathological internet use and the child's level of pathological internet use was evaluated. Firstly, it was observed that the mother's pathological internet use significantly and positively affected the level of sensitivity in interpersonal relationships (b = .04, t(279) = 6.45, p< .001). Mother's pathological internet use significantly and positively affects child's pathological internet use (b = .63, t(278) = 4.85, p < .001). Mother's level of sensitivity in interpersonal relationships has a significant and positive effect on child's pathological internet use (b = 3.09, t(278) = 2.7, p < .01). According to the mediation effect test, mother's level of interpersonal sensitivity significantly partially mediated the relationship between mother's pathological internet use and child's pathological internet use (b = .12, 95% CI [.01, .26], see Figure 2).

The mediating effect of the mother's paranoid ideation symptom level on the relationship between the mother's pathological internet use level and the child's pathological internet use level was evaluated. Firstly, it was observed that the mother's pathological internet use significantly and positively affected the level of paranoid ideation (b = .04, t(279) = 6.22, p< .001). Mother's pathological internet use significantly and positively affects child's pathological internet use (b = .63, t(278) = 4.87, p < .001). Mother's paranoid ideation symptom level has a significant and positive effect on child's pathological internet use (b = 2.84, t(278) = 2.82, p < .01). According to the mediation effect test, mother's paranoid ideation symptom level significantly partially mediated the relationship between mother's pathological internet use and child's pathological internet use (b = .13, 95% CI [.02, .26], see Figure 3). The mediation tests examining the other variables of the symptom screening test (somatization, depression, anxiety, phobia, psychoticism, and hostility) were not significant (p>.05).

Figure 3. Mediating effect of mother's paranoid thought (PT) symptoms in the relationship between mother - PIU and child - PIU



DISCUSSION

As a result of the analyses conducted within the scope of this study, it was seen that OCD, interpersonal sensitivity and paranoid thoughts in mothers had a partial mediating effect on the relationship between mothers' pathological internet use and their children's pathological internet use. It is seen that as the levels of these symptoms in mothers increase, the levels of pathological use also increase. On the other hand, somatization, depression, anxiety, anger and hostility, phobic anxiety and psychotic symptoms did not have any mediating effect on the relationship between the pathological internet use of mothers and their children.

The fact that psychopathological symptoms are observed in mothers indicates that psychopathological symptoms may also be observed in preschool children (19). In line with the results of this study, it is hypothesized that the presence of these psychopathological symptoms in mothers may interrupt the caregiving process of their children and thus they may not receive adequate support. The child, on the other hand, may start spending more time on the internet in order to fill the gap arising from this deficiency. Problematic internet use can be considered as a dysfunctional strategy in the face of upsetting experiences and stressful life events (20). In a study conducted by Lam L.T., it was concluded that maternal depression was associated with internet addiction in adolescents (8). In a different study, it was concluded that there was a relationship between the duration of excessive looking at the television screen of children aged 2-5 years and depression seen in their mothers (21). In the present study, depressive symptoms were not found to have any mediating role in the relationship between mother and child's pathological internet use; however, when the items measuring interpersonal sensitivity in the SCL-90 are examined, it is seen that these are items that express the difficulties experienced due to thoughts of inadequacy and thoughts of self-deprecation. Considering that the difficulties that individuals may experience in these areas may also be symptoms that prepare the ground for a depressive mood (22), it is thought that the current study cannot be considered separately from these studies.

In a study conducted in Turkey, it was observed that there was an increase in psychosocial problems with the increase in internet use by family members. It was found that children and adolescents experienced more problems than adults (23). Socialization is an important part of early academic skill development and is usually supported by the involvement of each member of the environment (e.g. family members, siblings or peers). There is evidence that there is a significant relationship between excessive use of technological devices and low self-esteem, anxiety, depression, social isolation, shyness, emotional and social skill deficiencies. According to Mustafaoğlu and Yasacı's study, technology has been reported to cause mental problems, anxiety and aggressive attitudes (24). Frequent use of electronic devices by children and parents reduces the productive time they can spend together and eliminates the activities they can do together (25). Another study revealed that preschool children were unhappy with their parents' use of the Internet at home. It was found that while parents spent time on the internet, most of the children spent time on smartphones, tablets and applications on computers (26). In an environment where preschool children need parental control, parents should first improve their own internet use habits and have healthy technology knowledge.

In a study conducted by Ko et al. with 517 adolescents in Taiwan, it was concluded that the level of pathological internet use was higher in adolescents with poor maternal care (27). According to the results of another study conducted in the Netherlands, the quality of communication between parent and child may be damaged by psychopathological symptoms developed by the parent (11). In a study conducted in Turkey, it was found that when the time adolescents spent with their mothers increased, social support increased and the level of internet addiction decreased (28). These three studies reveal similar results: Internet addiction can be mentioned in cases where family functioning is low. Family members may develop a predisposition to pathologically use technology to avoid difficulties that may arise. All research and current study results show that in a relationship

where one of the family members shows pathological signs or symptoms, the likelihood of addiction in children increases. The way caregivers communicate with their children and their upbringing style affect the satisfaction that children get from technology. From a different perspective, the family-child internet addiction relationship can be explained through social learning theory (29): Children may take caregivers' time spent on the internet as a model and develop addictive behaviors. The assumption here is that children will normalize the behavior of their family members and think that they can do it themselves.

The findings of the study showed that the mother's interpersonal sensitivity symptom had an effect on the mother-child internet use relationship. Studies in the literature (30, 31, 32, 33) show that interpersonal sensitivity symptom is associated with the tendency not to be involved in real social environments. People with high scores on this symptom tend to actively use virtual environments or social media to solve their problems (30) and it has been found that addiction to any social media channel may be associated with high levels of interpersonal sensitivity (22). The results of the current research are in parallel with the literature; it is also assumed that the mother's behaviors related to interpersonal sensitivity symptoms have an effect on the mother and child's tendency to use the internet. Instead of using technology products to solve problems or communicate in real life, the mother may actively use technology products as a role model for the child. This may explain the child's reliance on technology among his/her habits. Similarly, in the study, it was observed that OCD and paranoid ideation symptoms mediated the mother-child internet use. The common view for both variables is that psychopathological symptoms are associated with internet use and are a sustaining factor in pathological internet use (33, 34). In addition to the results of this study, it was observed that the mother's psychopathological symptoms affected the child's pathological internet use and it is thought that this study contributes to the literature since there are few studies examining this relationship.

Since children's pathological internet use was not directly measured, it was evaluated as perceived by the mothers. Therefore, the study was limited. The limited number of institutions selected for sampling within the scope of the study constituted a limitation in terms of representing the population. The findings were limited to the scale items used for the research. Future studies can be conducted with larger sample groups. In addition, psychopathological symptoms of children were not questioned in the current study. Since the presence of psychopathological symptoms may affect pathological internet use, the study was limited in this respect. Finally, the categorical measurement of the age variable of the mothers caused the limitation of the analysis.

Other studies to be conducted within the scope of a similar topic can be created in the context of different demographic data. Thus, demographic information can be compared. It is also thought that the same research design should be applied for fathers; it is predicted that fathers' pathological symptoms and their predisposition to technology may be different from mothers. Finally, the research design can be re-planned according to the variability of internet use (e.g. gaming, shopping or social media).

As a result, there is a direct positive relationship between mothers' internet use and perceived internet use in preschool children. Children's screen time increases when mothers have psychopathological characteristics. For this reason, the primary measures to protect young children from pathological internet use can be achieved by improving maternal mental health and preventing excessive internet use by mothers. Thanks to technological developments, content that can positively affect children's development can be mentioned; however, both children and family members should be sensitive to the time and manner of using technology. The fact that parents play a guiding role in guiding their children's use of the internet will ensure that the process progresses in a healthier way.

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