HOW PARENTAL ATTITUDES AFFECT THE RISKY COMPUTER AND INTERNET USAGE PATTERNS OF ADOLESCENTS: A POPULATION-BASED STUDY IN THE BURSA DISTRICT OF TURKEY

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SUMMARY

Background: We aimed to evaluate the computer usage patterns of adolescents and to determine the effects of family life and parental attitude on these patterns.

Methods: This was a descriptive, cross-sectional, population-based survey that included 935 children between 11 and 16 years of age who were students in the second level of primary school and their parents as well. The following instruments were used in the survey: student and parent questionnaires on computer usage patterns and the Parental Attitude Research Instrument (PARI) to assess parental attitudes towards child-rearing and family life.

Results: Of the study population, the majority of the students had a computer in their homes and spent a lot of time on the Internet. Parental control over the amount of time spent on the Internet and the websites that were visited had sometimes limited and contradictory effects on computer usage among the students. A democratic parental attitude was the best approach. Using the computer as a reward or punishment had a negative impact on the children's computer usage patterns.

Conclusions: Although parents are confused concerning the benefits and harms of the Internet for their children and not certain how to manage their children's use of the computer and safe navigation of the Internet, a democratic parental attitude appears to be the best approach for reaching the most beneficial computer usage patterns for students.

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INTRODUCTION

Millions of adolescents are online every day, chatting and playing along the paths of the cyber world. The use of tablet computers is occurring at younger and younger ages (1). The fact that digital technology and the Internet are so involved in our daily lives has prompted a discussion about their benefits and harms, especially for young people (2). This discussion covers a substantially broad range, emphasising both the great number of educational opportunities (3) and health risks, such as safety issues and Internet addiction, which have been investigated in some studies (2). However, for some issues, no agreement has been reached in terms of benefit and harm. For instance, although one group of researchers supports that online messaging improves communication among adolescents and improves psychological well-being (4), other researchers suggest that excessive and prolonged Internet use can cause psychosocial problems in this population group (5, 6).

Children in early adolescence constitute an exceptionally high-risk group in terms of their online exposure. This at-risk group spends more time online compared with younger children and is less experienced compared with older adolescents (7). When examining the studies that focus on problematic Internet usage or Internet addiction, age emerges as the main risk factor (8).

In many European countries, intervention strategies are practiced in the schools and families of 8- to 14-year-old children (9). Nevertheless, the data obtained from these interventions are quite limited. Thornburgh and Lin (10) reviewed the data in the literature and summarised the most effective intervention strategies. One of the most important factors is the involvement of parents in these interventions (9). Most of the studies describe either Internet addiction or the actual time spent online by adolescents. There are too few evaluative studies that focus on the relationships among family rules, behaviours, and habits related to unsafe Internet usage.

The purpose of this population-based investigation was to evaluate the computer and Internet usage patterns of early adolescent students and to determine the relationship between parental attitudes and healthy Internet usage patterns among children.

MATERIALS AND METHODS

Research Questions

- What is the frequency of unsafe Internet usage among adolescents?
- What are parents' perceptions of their children's computer and Internet usage?
- Does parental control produce any effect on students' computer usage patterns?
- Is there a relationship between a child's Internet usage and parental attitudes towards child-rearing?
- Does using the computer as a reward or punishment have an effect on children's computer and Internet usage?
- What is the relationship between parental and adolescent usage of computers and the Internet?

Participants

Using a stratified sampling method, this descriptive, cross-sectional, population-based study was conducted in 105 primary schools, of which 12 comprising grades six to eight were selected based on the socio-demographic characteristics of schools located in the centre of Bursa.

Bursa is located in northwest Turkey and it is the fourth-most populous city and one of the most industrialised metropolitan centres in the country. All the selected schools participated in the study, which was conducted with the cooperation and permission of the Provincial National Education Directorate. The study instruments were distributed to 935 students and their parents in 12 schools. Twenty-nine parents did not return the questionnaires and consent forms. Thus, 906 students and their parents were included in the study.

Of the study subjects, 502 were females (55.4%) and 404 (44.6%) were males. The mean age of the students was 12.99 ± 0.88 years (range, 11–16 years); 311 (34.4%) students were in sixth grade. In addition, 323 (35.8%) were in seventh grade, and 272 (29.8%) were in eighth grade.

The mean age of the mothers was 38.8 ± 5.06 years, and the mean age of the fathers was 42.6 ± 5.29 years. Nearly 40% of the mothers and 50% of the fathers had at least a high school education. In total, 91.7% of the fathers and 30.4% of the mothers were employed outside the home.

Data Collection Tools

Two instruments were employed in this study, one for the adolescents and the other for the parents. The study team from Uludag University designed both questionnaires with support from the Bursa Education and Health Foundation. These questionnaires were reviewed by the school counsellors and were approved by the Advisory Board of the Bursa Provincial National Education Directorate.

Student Questionnaire

The student questionnaire consisted of 54 questions. Twelve of the questions encompassed demographics and some school information, and 42 questions investigated the students' computer usage patterns and attitudes.

Parent Questionnaire

The parent questionnaire consisted of two sections. In the first one, 27 questions encompassed the parents' demographics, education and employment, and the remaining 17 questions were related to the computer usage patterns and attitudes of the parents and their children. In the second part, the Parental Attitude Research Instrument (PARI) was used to investigate parental attitudes towards child-rearing and family life. The PARI is an attitude measure that was designed by Schaefer and Bell (11) to evaluate parental attitudes in research settings. It is a self-report questionnaire that originally consisted of 115 items and 23 scales. PARI was translated into Turkish (12) and was modified into a 60-item questionnaire to reduce response bias. The reliability and validity of the Turkish version were demonstrated in the same study (12).

The PARI score was calculated according to the parents' answers on each item using a four-point Likert scale on which the respondents indicated whether they strongly agreed, mildly agreed, mildly disagreed, or strongly disagreed with each attitude. Based on the responses obtained from the PARI questionnaire, five subscales of the four-point Likert scale were defined as follows (13):

PARI 1 (excessively protective parental attitude) was defined as overly controlling and intrusive parents who expect their children to be active, hardworking, dependent, and understandable. Sixteen items were used to measure this subscale.

PARI 2 (democratic and equal parental attitude) was defined as parenting practices that recognise the equal rights of children, support their ideas, relate as friends, and share many issues with them. Nine items were used to measure this subscale.

PARI 3 (mother's "rejection of the housewife role" attitude) was defined as mothers depending on others to fulfil the typical requirements of motherhood, disliking spending long periods of time with their children, and being nervous and fearful of caring for a newborn. Thirteen items were used to measure this subscale.

PARI 4 (conflict in the family attitude) referred to conflicts between the father and mother regarding child-rearing and a father who is emotionally absent and does not help the mother. Six items were used to measure this subscale.

PARI 5 (strict discipline attitude) referred to negative attitudes towards child rearing and included aggression, strict discipline, the suppression of sexual behaviour, and absolute dominance of parents. The first four subscales of PARI contain questions that exhibit intercorrelation. However, the PARI 5 subscale is typically interpreted separately and evaluates families' negative attitudes. Thus, the PARI 5 subscale was not included in the statistical analysis and is not discussed in the present study.

Data Collection and Analysis

The researchers conducted all study-related procedures with the help of school counsellor and class teachers. First, the researchers visited the schools and planned how the study would be conducted with the school managers and teachers. Next, a number of forms were shared with the students, who were instructed to give the forms to their parents and return them to the school. The forms included the following: a letter with an explanation of the study aim and a request for participation, one consent form for the children and one for the parents, and questionnaires for the parents. The instructions specified that only the mother and/or father should answer the questions so

that those results could be compared. Finally, the students were asked to complete the questionnaire at school and return it to the school counsellor.

The study data were summarised using descriptive statistics (frequency, percentage, median, and range). Because some questions were left unanswered by some participants, only the questions that had been answered on a given survey were evaluated. Pearson chi-square tests were used to compare categorical variables among subgroups. The Kruskal-Wallis test and the Mann-Whitney U test were used for multiple and two-group comparisons, respectively, to compare the PARI subscale scores with respect to the students' computer usage patterns. The level of statistical significance was set at $p=0.5$.

RESULTS

Frequency of Unsafe Internet Usage among Adolescents

A computer and Internet access were present in over 80% of the homes included in this study. Adolescents reported using the computer frequently, for an average of 1.3 hours/day (range 1–5) on school days and 2.4 hours/day (range 1–12) on weekends. There was a considerable proportion of unsafe Internet use. Sixty-four students (7.9%) had visited unknown websites, 224 students (28.1%) reported encountering unwanted and disturbing content on the Internet, and 82 students (10%) reported contact with strangers via chat rooms.

Parents Perceptions about Their Children's Computer and Internet Usage

There was significant inconsistency between the responses of the students and the parents regarding the presence of a computer and Internet access as well as the purpose of computer use (Table 1). The students reported higher rates of computer presence (85.3% vs. 81.7%, $p<0.001$) and Internet access (83.2% vs. 81.5%, $p=0.001$). In addition, whereas the parents believed that the students used the computer for homework,

the students actually used it more often for games and chatting ($p<0.001$ for all).

Does Parental Control Produce any Effects on Students' Computer Usage Patterns?

Students whose parents had control over the amount of time they spent on the Internet spent significantly less time on the Internet ($p=0.023$) (Table 2). However, parental control over the Internet and websites viewed had no significant effect on students' unsafe Internet use.

Is There a Relationship between a Child's Internet Usage and Parental Attitudes towards Child Rearing?

According to the PARI scores concerning computer and Internet usage patterns, the families of the children who went to Internet cafes and used the Internet outside of their homes had higher scores for "protective mother attitude," "mother's rejection of the housewife role attitude," and "conflict in the family attitude," whereas the families whose children accessed the Internet at home displayed more "democratic parental attitudes" (Table 3).

There was no relationship between the PARI scores and unsafe Internet behaviours of adolescents regarding visiting unknown websites, chatting with unknown persons, or offline contact with people met online.

Does Using the Computer as a Reward or Punishment Have an Effect on Children's Computer and Internet Usage?

Approximately 22% of the parents use the computer as a reward or punishment for their children. The children of these parents broke the rules more often and displayed higher levels of unsafe Internet use. They spent more time in Internet cafes ($p=0.039$), played more computer games ($p=0.002$), encountered more disturbing content on the Internet ($p=0.002$), chatted more with strangers on the Internet ($p=0.015$), and more frequently disobeyed their parents' restrictions regarding computer usage ($p=0.012$) (Table 4).

Table 1. Comparison of the students and parents responses regarding computer usage characteristics

Question	Answer	Student n (%)	Parent n (%)	p	Kappa
Is there a computer at home?	Yes	752 (85.3)	721 (81.7)	<0.001	0.779
	No	130 (14.7)	161 (18.3)		
With whom do you share the computer?	Parents	156 (26.8)	23 (4.0)	0.378	
	Everybody in the home	426 (73.2)	559 (96.0)		
Do you have Internet access at home?	Yes	624 (83.2)	611 (81.5)	0.001	0.867
	No	126 (16.8)	139 (18.5)		
What is your purpose for using the computer?	Game	103 (22.7)	78 (17.2)	<0.001	0.388
	Chat	115 (25.6)	81 (18.0)	<0.001	0.431
	Homework	214 (45.6)	245 (52.2)	<0.001	0.520
	Film watching	25 (5.7)	43 (9.8)	<0.001	0.366
	Others	19 (4.7)	25 (6.1)	<0.001	0.424

Kappa test; p<0.05

Table 2. *Effects of parental control on the computer usage of students*

| | | Parental control over time spent on the Internet and websites | | p^a |
		Yes n (%)	No n (%)	
Do you visit unknown websites?	Yes	48 (7.4)	16 (9.8)	0.298
	No	604 (92.6)	147 (90.2)	
How much time do you spend on the Internet per day?	<1 hour	369 (67.3)	112 (56.9)	0.023
	1–3 hours	165 (30.1)	76 (38.6)	
	>3 hours	14 (2.6)	9 (4.6)	
Have you encountered something disturbing on the Internet?	Yes	81 (28.8)	143 (27.7)	0.162
	No	200 (71.2)	373 (72.3)	
Do you chat with strangers on the Internet?	Frequently	34 (5.2)	6 (3.6)	0.288
	1–2 times	30 (4.6)	12 (7.2)	
	Never	592 (90.2)	149 (89.2)	

[a]Pearson chi-square test; $p < 0.05$

Table 3. *PARI scores with respect to Internet use at home or outside of the home*

		n	Mean Rank	Mann-Whitney U	p
Protective	I use the computer at home	633	327.15	6,426.0	<0.001
	I use the computer outside of the home (go to Internet cafes)	35	467.40		
Democratic	I use the computer at home	633	336.21	9,996.5	0.329
	I use the computer outside of the home (go to Internet cafes)	35	303.61		
Rejection	I use the computer at home	633	325.61	5,449.0	<0.001
	I use the computer outside of the home (go to Internet cafes)	35	495.31		
Conflict	I use the computer at home	633	326.43	5,968.0	<0.001
	I use the computer outside of the home (go to Internet cafes)	35	480.49		

What Is the Relationship between Parental and Adolescent Usage of the Computer and Internet?

Nearly 60% of parent participants reported using the Internet. These families displayed more tolerant and supportive attitudes towards their children's computer and Internet use. Compared with the children of parents not using the Internet, the children of parents using the Internet went to Internet cafes less frequently and used the Internet at home ($p < 0.001$), played more computer games ($p < 0.001$), encountered more disturbing content on the Internet ($p = 0.012$), and were seldom subjected to a time limit on computer use ($p < 0.001$). The parents who used the Internet were more familiar with the websites that their children were visiting than the parents who did not use the Internet ($p < 0.001$) (Table 5).

DISCUSSION AND CONCLUSION

The present study demonstrates that computer and Internet use are very common among adolescents in Turkey, occurring at rates similar to those observed in industrial countries (14, 15). Whereas the rate of computer usage and Internet access at home was approximately 80%, nearly all of the adolescents reported that they used computers and the Internet every day, with an average of 1.3 hours/day on weekdays and 2.4 hours/day on weekends. Children spent an average of 22 hours/month on the computer, according to a national study (16) that was conducted among 4,700 children from Italy. A study from Romania (17) found that more than 65.7% of students aged 11–18 years had a computer at home and spent over 3 hours/day on the computer, and most parents did not supervise their children's computer use. Previous studies have reported the widespread use of the Internet in Turkey. In 2007, it was reported (18) that Turkey's share of European Internet users was 4.6%. A study on adolescents conducted by Gunuc and Kayri (6) revealed that Internet use was common in this age group, and the rate of Internet addiction was approximately 10% in Turkey.

According to the findings of the above mentioned studies, unsafe Internet use is common among young people, despite studies on safe Internet use and the advice of authorities. In a study by Stahl (19), 10% of students stated that they felt unsafe when they visited unknown websites, and 16% said that they felt most unsafe when they chatted with unknown individuals.

The results of the present study also indicate a high level of unsafe Internet use, such as visiting unknown sites, chatting with unknown persons, and even meeting individuals the children only

Table 4. Effects of the parental use of the computer as a reward and punishment on the computer usage patterns of students

Question	Answer	Parents use "computer" as reward and punishment for child		p^a
		Yes n (%)	No n (%)	
How many hours do you spend in Internet cafes per week?	<1 hour	56 (68.3)	196 (75.4)	0.039
	1–4 hours	15 (18.3)	49 (18.8)	
	4–10 hours	7 (8.5)	14 (5.4)	
	>10 hours	4 (4.9)	1 (0.4)	
Do you play computer games?	Yes	158 (84.0)	456 (72.7)	0.002
	No	30 (16.0)	171 (27.3)	
Have you encountered something disturbing on the Internet?	Yes	70 (37.2)	160 (25.6)	0.002
	No	118 (62.8)	464 (74.4)	
Do you chat with strangers on the Internet?	Frequently	13 (7.0)	19 (3.0)	0.015
	1–2 times	57 (30.6)	165 (26.1)	
	Never	116 (62.4)	448 (70.9)	
Do you obey the computer usage restrictions that your parents implemented?	Yes, I obey	96 (51.1)	396 (64.5)	0.012
	No, I do not obey	8 (4.3)	18 (2.9)	
	I obey, but I am uncomfortable	33 (17.6)	78 (12.7)	
	I occasionally obey, and I argue with my parents	51 (27.1)	122 (19.9)	
Do you put time limits on your computer use?	Yes, and I comply with this limit	91 (48.7)	331 (52.9)	0.027
	Yes, but I always extend this limit	57 (30.5)	133 (21.2)	
	No	39 (20.9)	162 (25.9)	

^{a}Pearson chi-square test; $p < 0.05$

Table 5. Effects of parents' Internet use on the computer usage patterns of students

Question	Answer	Parents' Internet use		p^a
		Yes n (%)	No n (%)	
Do you go to Internet cafes?	Yes	85 (16.7)	140 (40.1)	<0.001
	No	425 (83.3)	209 (59.9)	
Do you play computer games?	Yes	403 (79.5)	237 (68.7)	<0.001
	No	104 (20.5)	108 (31.3)	
Have you encountered something disturbing on the Internet?	Yes	159 (31.3)	80 (23.4)	0.012
	No	349 (68.7)	262 (76.6)	
Do your parents know the sites you visit?	Always	304 (59.4)	174 (51.0)	<0.001
	Sometimes	169 (33.0)	106 (31.1)	
	Mostly do not know	32 (6.3)	26 (7.6)	
	Never know	7 (1.4)	35 (10.3)	
Do you put time limits on your computer use?	Yes, and I comply with this limit	243 (47.6)	205 (61.4)	<0.001
	Yes, but I always extend this limit	137 (26.8)	56 (16.8)	
	No	131 (25.6)	73 (21.9)	

^{a}Pearson chi-square test; $p < 0.05$

know via the Internet. This study demonstrated that undesirable content for adolescents and access to unknown websites were the most important issues related to unsafe Internet use. The habit of going to Internet cafes, which was found out in nearly one-fourth of adolescents, is a threat to safe Internet use because of the lack of sufficient filtration and blocking systems in such cafes.

An interesting finding in this study was the inconsistency between the responses of students and their parents with regard to the presence of a computer and Internet access as well as the purpose of computer use. This inconsistency may be explained by a tendency of parents to be optimistic about their children's computer use or by attempts to create a more optimistic picture

by those parents who were concerned that their parental attitudes were under assessment in this questionnaire.

Parental attitudes towards children's computer and Internet use were investigated in three dimensions. In the first dimension, restrictive mediation such as controlling the duration of children's computer use and the Internet websites they visited was evaluated. In the second dimension, PARI was employed to investigate parental attitudes towards child-rearing and family life. In the third dimension, the use of a computer as a reward or punishment for students' academic achievement was studied.

Conflicting results about the effects of parental control on children's Internet use have been reported (20, 21). Melamud et al. (22) studied 1,380 children and their parents from Argentina and found that children between the ages 4 and 18 years frequently had unpleasant experiences on the computer or the Internet and that they had very little supervision from parents. A study from Greece on a sample of 2,017 students and 1,214 parent respondents reported that the parents had negative views of the Internet and strong worries regarding the potential for addiction in their children; however, the parents employed few security precautions (23).

Studies of parental regulations have found that strict rules regarding the amount of time spent on the Internet may promote compulsive tendencies in children concerning computer use (20, 24). Lee and Chae (25) studied children's Internet use within a family context and concluded that the best attitude was to discuss the benefits and risks of computer use with children, and to make joint decisions rather than implementing strict controls and rewards or punishments.

Our findings confirmed that both parental control of the Internet and using the computer as a reward or punishment for the child had negative impact on children's computer usage patterns in terms both unsafe Internet use and obeying the rules. Moreover, the parents who used a computer and the Internet were more tolerant of their children's Internet use, and they knew about the websites that their children visited without any restrictions. The PARI scores for "democratic parental attitude" were significantly higher in the homes with computers than in those without a computer. The "democratic" PARI scores were significantly lower among the parents of students who patronised Internet cafes. The families who limited children's computer use and employed limits and bans (such as time restrictions or control over the Internet and websites viewed) received lower PARI 2 scores (democratic parental attitude) and higher PARI 1 (excessively protective maternal attitude) and PARI 3 scores (mother's "rejection of the housewife role" attitude). The parental attitudes that were evaluated considering the PARI scores and their responses concerning restrictions on computer use or reward and punishment were consistent with each other, thus indicating the sincerity of parents answering the questions.

In conclusion, because media use belongs to a new era that most parents are not familiar with from their childhood, parents are typically confused about the effects of the Internet and computer use on their children and their role in its management. A democratic parental attitude was found to be the best approach. To obtain the maximum benefits and minimal disadvantages from computer and Internet use, children should be involved in the decision-making and implementation processes for their computer usage rules. Additional studies are needed to define the most beneficial parental attitudes regarding children's computer use, and both culture- and country-specific media education should be provided to parents, students and teachers.

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