

How parental internet use impacted parenting practices and children's behavior during the Covid-19 pandemic

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ABSTRACT: *Our survey aimed to investigate how online parental behavior affects their parenting practices and how such practices may affect their family relations, their children's social competencies, school achievements, and self-esteem. We examined a sample of 357 Greek-speaking parents (77.3% mothers and 22.7% fathers). We applied Young's (1998) Internet Addiction Questionnaire, the Alabama Parenting Questionnaire (APQ), and Kontopoulou's (2008) questionnaire to assess children's school performance and social competencies, their self-esteem, and family relationships. Our findings indicated that almost half of the participants are moderately addicted to the internet. Parental pathological internet use affects parental style and consequently impacts family relations and children's behavior. Gaining knowledge from the research data helps design and implement intervention programs to prevent and raise public awareness through psychoeducational information programs towards preventing internet addiction. Keywords: compulsive behavior, covid-19, internet addiction, online risks, parenting practices, pathological internet use.*

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INTRODUCTION

The internet provides many benefits and is an essential tool for knowledge, information, communication, and entertainment, especially for young people. However, there is a rapid increase in internet users and internet use in general. Irrational internet use and lack of

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information and awareness cause significant problems for people (Baym, 2015; Rainie & Wellman, 2012). Internet use by children and adolescents is increasing rapidly nowadays and has become a growing concern among parents. Children and adolescents are among the most avid consumers of online digital entertainment (Kyriakou & Glentis, 2021). According to Davis (2001) and Young (1998), internet addiction is defined as the forced, excessive use of the internet and the irritability or behavior that occurs when people are deprived of internet use. Internet addiction characterizes the person who cannot control the use of the internet, which could ultimately cause psychological, social, academic, and professional problems in his or her life. Internet addiction is a situation in which the person has no control over his or her desire for internet use (Huang et al., 2019). The first characterization of unrestricted internet use as an addictive disorder came from Young (1998). In contrast, twenty-two years later, Lam (2020) claimed that a significant minority of all internet users develop "internet addiction." Although internet usage has excellent benefits and advantages, it also has many hazards.

Researchers in the early 21st century (Young et al., 2000; Dejoie, 2001) referred to five types of internet addiction, namely addiction to virtual sex, chatting, seeking information, playing games, and gambling (Young et al., 2000; Dejoie, 2001), whereas they consider the time spent online as addiction indicators. However, let us take college students as an example. Nowadays, they stay connected to the Internet 24/7 by using their contracts with telecommunication companies or the available Wi-Fi. As Wallace (2014) observes, the internet is accessible round the clock, and its usage no longer necessitates a special session in front of a desktop to log in. Studies reveal heavy internet use by people of all ages, particularly children and young adults, to obtain information for their studies or access the news for interaction and entertainment purposes. Research in this area has focused, up to now, on examining how parenting practices affect children's online behavior or how parents use the internet. However, there are gaps concerning the relationship between parental internet use in everyday life and the parenting role.

Our study explores how parental online involvement may impact their parenting practices and how such practices may affect their family relations, children's social competencies, school achievements, and self-esteem. We postulated the following research questions:

- Are there any differences in internet use according to parents' demographic characteristics (gender, age, educational level, residence, family income)?
- To what extent does parental internet involvement affect their parenting practices (involvement, mentoring/supervision, positive parenting techniques, corporal punishment, inconsistent and negative discipline), and what impact does this have on their children?

THEORETICAL FRAMEWORK

Internet Addiction

The internet is well-rooted in today's modern societies and has altered people's daily lives more than any other technological medium. "Surfing" the web is considered "harmless" by many

people, although some people spend so much time scrolling up and down online that it interferes with their everyday activities. When an action or a "craving" obstructs or becomes a priority over essential aspects of one's life, such as social life, professional life, or education, it can be characterized as "addiction"⁴. Analogous examples are alcohol and drug addictions, uncontrollable gambling, or internet use, which have a detrimental impact on the lives of not only the addicts but also their families. According to Li, Garland, & Howard (2014), internet overuse may lead to divorce, job loss, decreased productivity, school failure, and even delinquent behavior patterns. Almost twenty-five years ago, the problem had already reached epidemic proportions in the United States. Since then, internet users have continued to snowball, with more households and businesses going online. Recent research revealed that dysfunctional family relationships and parental attitudes are common elements associated with problematic internet use (Yen et al., 2007; Park et al., 2008; Wu et al., 2013; Liu et al., 2013; Xu et al., 2014; Lam & Wong, 2015).

Experts depict internet addiction as when a person faces difficulties controlling his thoughts, desires, or behaviors for internet access, sometimes causing impairment or distress (Shaw & Black, 2008). Young (2009) poses that internet addiction is a clinical disorder that can lead to problems in several areas of one's life, i.e., interpersonal relationships, professional life, and general social adjustment problems. According to Gentile et al. (2017), 90% of young gamers display adjustment problems in their academic achievements and family and psychological functioning to raise serious concerns. Early on, researchers tried to identify possible causes of internet addiction. King (1996) claimed that it might originate from people's needs for socialization, whereas Morahan-Martin (2005) spoke of loneliness, Young & Rogers (1998) of depression (Young & Rogers, 1998), and Chak & Leung, (2004) saw shyness as a possible cause of internet addiction disorder. Researchers identified five subtypes of internet addiction. In 2001 Davis spoke of two types, namely, (a) specific (which is excessive use of a function or application) and (b) generalized (simultaneous overuse of many functions of the internet). Cybersex addiction may entail involvement with online pornography, visiting adult websites, or adult chat rooms. An obsession with these activities may harm the person's capacity to form real-life intimate relationships. Other internet compulsions may involve gambling or trading, participation in online auctions, or compulsive online shopping, potentially disrupting a person's financial security or professional duties. Online relationship addicts intensely involved with getting to know people online often neglect their real-life family and friends. The ease of accessing data and knowledge online leads information addicts to an uncontrollable urge to constantly seek and gather information. Similar to the compulsions mentioned above, constant information-seeking behavior may also reduce productivity at work. Last but not least, gaming addictions also disrupt people's daily routines leading them to neglect their more essential activities.

According to Young (2008), eight diagnostic criteria can determine if a person is addicted to the internet. 1. When the user feels the need to stay connected to the internet longer and longer and derives satisfaction from it, 2. When the user tries to reduce internet use, and feels

⁴ <https://www.addictioncenter.com/drugs/internet-addiction> [accessed on April 15th, 2022].

dissatisfied, deprived, anxious, stressed or angry, 3. When the user feels relief, euphoria, joy, and the deprivation syndrome subside by reconnecting to the internet, 4. When the user over time maximizes the time, he connects to the internet, 5. When users try to reduce or stop using the internet but fail, 6. When the user avoids spending time with family and friends and prefers to spend time online, 7. When a physical, social, psychological, or professional problem due to internet use appears, the user continues to have a strong desire to connect to the internet, 8. When the user has to lie to important people in his life for his real-time use and internet connection. If the user answers yes to five of the eight questions within six months, the person is addicted to the internet.

Stockdale et al. (2018), who examined child-parent relationships concerning child Internet addiction, found that most children had problems in family and friendships due to increased internet use, resulting in strained relationships within the family and explosive behaviors of the child towards the parents. Siomos and Angelopoulos (2008) argue that parental care plays a vital role in developing Internet addiction. If parental care does not entail attentiveness, health protection, and guidance, the child is vulnerable and can more easily seek out the internet at the risk of becoming addicted. Young (2008) argues that 58% of students had a significant drop in grades and low mood due to overuse of their internet connection. There was also a decrease in school performance and a general decrease in school activities (Young, 2008). Internet addiction is associated with obesity and carries risks to the health and mental health of the user. Addicted users may experience vision problems, musculoskeletal problems, and reduced cognitive functions (Liu et al., 2011; Meng et al., 2015). Young (2008) argues that due to the pathological use of the internet, the user faces problems in interpersonal relationships, resulting in social isolation.

Parenting styles, Internet addiction of parents and children

Recent research findings emphasize a possible association between interpersonal and comorbid variables and an increased risk of internet addiction among developing adults (Marzilli et al., 2020). A review of familial factors indicated a significant association between parental divorce, single-parenthood, and only children in the family with adolescent internet addiction (Li et al., 2014). Botsari and Karagianni (2014), posed that adolescents with authoritarian parents showed the highest levels of cyberbullying, while the opposite was true for adolescents growing up with authoritative parents. Adolescents with authoritative parents tended to relay to their parents more frequently their cyberbullying experiences than their peers with permissive, neglectful, or authoritarian parents. Lawrence (2021) revealed that possible factors leading to excessive internet use by children and adolescents include family conflict and cohesion, parental drinking, and parental attitudes toward excessive internet use.

Internet addiction among family members is linked to the quality of the family system. Excessive use of the internet by parents is associated with the problematic internet use of their adolescent children (Lawrence et al., 2020). Lawrence also claims a complex relationship between parental mental health and adolescent internet addiction. In contrast, the parents' excessive internet use should be assessed when treating adolescents for internet addiction (ibid). The family therapy approach is usually recommended when treating adolescent internet

addiction, whereas parental internet behavior assessment is part of the treatment protocol. Concerning prevention, Laurence suggests that parents should be informed and educated regarding internet behavior and mental health in the form of psychoeducation relating to the developmental needs of adolescents.

According to Kim et al. (2021), as smartphone use increases, the age of the initial exposure to technology decreases. It seems that various factors may affect a child's screen use, and at younger ages, it is closely associated with the family environment. The mother's excessive smartphone use can also impact children's early smartphone exposure. Lawrence (2020) determined that the link between the parental psychological state, especially in the case of depression, and internet addiction in adolescence is moderated by the mental health condition of the offspring but also the parental internet obsession. Interestingly, these complicated mediating connections are demonstrated more significantly in the father-and-son and mother-and-daughter dyads. Laurence's study (2020) showed that adolescents with high anxiety levels are more prone to problematic internet use regardless of their parents' s excessive use. The same study recognizes familial relational problems and peer pressure as high-risk factors. Another study by Huang et al. (2019) researched the association between household stress and internet addiction, showing that internet addiction impacts each member's psychological and mental well-being and communication.

Internet addiction during the COVID-19 pandemic

The COVID-19 pandemic, caused by the acute respiratory syndrome Coronavirus 2, has been associated with a significant increase in video game products, especially across the USA (Blake & Sauermilch, 2020). Research worldwide has linked the restrictive mobility measures to contain the spread of the Covid19 pandemic with various ramifications for psychological health with the overuse of screen media. Werling, Walitza & Drechsler (2021) claimed that media time use increased by 46% during the lockdowns and never reverted to pre-Covid19 levels. The Covid19 pandemic occurred in a technological and social era with unlimited and instant accessibility to the web (Chen et al., 2020; Moreno et al., 2020). School closures and distance learning increased screen time even more, and healthcare professionals expressed concerns about excessive internet use, especially by school-aged children and teenagers (King et al., 2020). The entire childhood infrastructure has migrated online, i.e., playing or hanging out with friends, visiting family, or doing school- and homework. Due to the physical distancing measures, adolescents were physically separated from their peers and could only connect with them online, thus increasing the time spent on the internet even more (Livingstone, 2020). Even though the increased use of the internet, adolescents' limited physical interaction with their peers led to feelings of loneliness and the amplification of risks to their mental health (Siste et al., 2021).

Method

Sample

We conducted our study in the city of Limassol, in Cyprus, in 2021 with a sample of 357 Greek-speaking parents whose children went to public primary schools at the time. Mothers accounted for the majority of our sample (77,3%), with fathers representing a mere 22,7%. The mean age

of the participating mothers was 39, and that of the fathers was 40. At the time of their participation, most subjects (95,8%) were married; the majority of our sample (95.8%) and the majority (80,7%) lived in urban areas. Only one-fifth of our sample (19.3%) resided in rural areas. Half of our participants (50,4%) had a family monthly income above 3000 euros, and 39.5% had a monthly income between 1500-3000 Euros as a family. A relatively small percentage of our subjects (10.1%) constituted low-income families with 1500 euros or below monthly income. Only 10.1% of participants. Most of our participants (84%) had achieved tertiary education (Table 1).

Table 1. Participants' distribution and socio-demographic variables (in percentage).

| Socio-demographic characteristics n=357 | | | Socio-demographic characteristics n=357 | | |
|---|-----|------|---|-----|------|
| Demographic variables | n | % | Demographic variables | n | % |
| Gender | | | Age | | |
| Father | 81 | 22.7 | 22-39 | 180 | 50.4 |
| Mother | 276 | 77.3 | 40-59 | 177 | 49.6 |
| Marital Status | | | Educational level | | |
| Married (two parents) | 342 | 95.8 | Secondary level | 57 | 16% |
| Not married | 15 | 4.2 | University level | 300 | 84% |
| Residence | n | % | Family income | | |
| Urban | 288 | 80.7 | 0-1500 | 36 | 10.1 |
| Rural | 69 | 19.3 | 1501-3000 | 141 | 39.5 |
| | | | 3001+ | 180 | 50.4 |

Procedure

Parents who participated in the research were informed about the research's purpose and aims. We collected data through personal meetings with the physical presence of the participants at their children's local public elementary schools. The research team explained information regarding the questionnaires. Parents completed a personal information form by providing demographic data concerning their annual family household income, gender, age, educational level, and place of residence. Specifically, mothers and fathers completed three questionnaires, the first questionnaire on parenting practices (Alabama Parenting Questionnaire APQ), the second, the Internet Addiction Questionnaire (Young, 1998), and the third, Kontopoulou's questionnaire for children focusing on relations in the family, school achievement, social competencies, and self-esteem.

Measures/ Instruments

We collected parental demographic data through a Personal Information Form (PIF) focusing on parental gender and age, marital status and place of residence (urban or suburbia), educational level, and monthly family income. The second questionnaire was Young's (1998) Internet Addiction Questionnaire, a scale measuring Internet Addiction. The questionnaire consists of twenty statements assessed on a five-point Likert scale. Each subject may reach a total grade ranging from 20 to 100 points. A high score indicates a more severe internet addiction. A total score of 20-39 points indicates typical internet use with complete control of its use, a score of 40-69 points indicates above-average use with frequent problems due to its use and risk for addiction, and a score of 70-100 points indicates pathological use and internet

addiction. Cronbach's alpha reliability coefficient of the questionnaire in the whole sample is: $\alpha = .91$.

We applied Shelton's Alabama Parenting Questionnaire (APQ) (1996) to evaluate parenting practices. We piloted the instrument in our sample after translating into Greek and adapting it through a blind back-translation. The APQ is a self-evaluation scale with 49 statements; parents evaluate the statements on a Likert-type scale, with five points varying from 1 (never) to 5 (always). The instrument includes five subscales, namely: Parental Involvement, addressing the degree of parental participation in the child's life; Positive parenting, i.e., the degree to which parents apply praise and other rewards towards their child; Poor mentoring/supervision, signifying that parents pay insufficient attention to the child's behavior(s); inconsistent and negative discipline meaning the unpredictable and unstable application of disciplinary rules and corporal punishment. The internal consistency of the five scales appears moderate ($\alpha = 0.68$ to 0.75). Cronbach's alpha reliability coefficient of the five subscales of the questionnaire in the whole sample is as follows: $\alpha = .75$ (parental involvement), $\alpha = .70$ (positive parenting), $\alpha = .68$ (poor mentoring/supervision), $\alpha = .71$ (inconsistent and negative discipline), $\alpha = .70$ (corporal punishment) $\alpha = .69$.

Kontopoulou's questionnaire (2008) addresses the quality of relationships within the family, the child's school achievement, social competencies, and self-esteem. It explores the degree to which parents understand characteristics in their child's development in the ages 7-12 years. The instrument comprises 31 items that depict how parents assess the child's total self-esteem and loads at three factors, namely 1. family competencies addressing the child's degree of satisfaction from family relationships, 2. social competencies assessing the child's relationships with her peers, and 3. school competencies referring to the child's adaptation and school achievement. The total score of the three aforementioned factors yields children's self-esteem.

Data Analysis

We described our samples' characteristics using descriptive statistics and percentages. We examined our two research questions by applying the chi-square, t-test, ANOVA, Pearson's correlation, and regression analysis. We compared the means between parenting practices and parental demographic data and the extent of their internet involvement. We applied the chi-square (χ^2) test to compare the nominal data between groups and performed the t-test and ANOVA analysis to explore differences between groups. We performed the Pearson correlation analysis to examine the relationships between variables in the groups and Multiple logistic regression analyses to determine factors predicting Internet addiction. We accepted the level of statistical significance as <0.05 in all analyses.

FINDINGS

Parental levels of internet dependence and demographics characteristics

Data analysis for the exploration of our first research question regarding parental levels of internet addiction demonstrated the following results: Almost half of the participating parents

(49.6%) are mildly addicted, 47.1% are moderately addicted, and 3.4% of our participants are entirely addicted to the internet (table 2).

Table 2: Degree of Internet use and levels of addiction

| Level of Internet use | Frequency | Percent |
|--------------------------------------|-----------|---------|
| Mild level of Internet addiction | 177 | 49.6% |
| Moderate level of Internet addiction | 168 | 47.1% |
| Severe dependence upon the Internet | 12 | 3.4% |
| Total | 357 | 100.0 |

Further analysis of the sample's demographic characteristics showed a statistically significant difference between men and women regarding the use of the internet [$F(1, 355) = 21,093, p < 0.000$], whereas men ($41.44 + 9.32$) made use of the internet significantly more than women ($36.57 + 10.40$). Another statistically significant difference appears concerning the subjects' income [$F(2, 354) = 13,604, p < 0.000$]; participants with lower monthly income used the internet more ($44.83 + 7.22$) than those with higher incomes ($35.23 + 6.88$). An additional demographic factor that differentiates the use of the internet is, according to our analyses, the age factor [$F(1, 355) = 3,432, p < 0.05$]. Our younger participants used the internet significantly more ($42.20 + 6.28$) than those older ($36.67 + 5.44$). Moreover, the educational level of the participants was also a significant factor regarding internet use [$F(1, 355) = 5,223, p < 0.01$]. Parents with lower educational levels stayed online significantly more ($45.12 + 4.33$) than those with higher educational levels ($37.55 + 4.89$). Further analysis of the levels of internet addiction and demographics showed that almost double the participating men (70.4%) than the women (40.2%) are moderately addicted to the internet. On the other hand, significantly more women (56.5%) than men (25.9%) are mildly addicted to the internet [$\chi^2(1, N = 357) = 23.959, p = 0.001$]. A higher percentage of younger participants, 25-39 years old (5%), as compared to a mere 1.7% of older participants (above 40 years), are severely addicted to the internet [$\chi^2(1, N = 357) = 18.780, p = 0.001$].

There is a significant difference between moderate levels of addiction and educational levels, whereas 52.6% of participants with low educational levels and 46% with high educational levels are moderately addicted to the internet [$\chi^2(1, N = 357) = 16.432, p = 0.01$]. Finally, regarding demographics, our findings showed a significant difference in the severe level of internet dependence, in that 16.7% of participants with low family income are severely addicted to the internet [$\chi^2(2, N = 357) = 28.109, p = 0.001$] in comparison with 1.7% amongst participants earning more than 3000 euros monthly (Table 3).

Table 3. Independent variables and level of internet use

| Variables | mild level of Internet addiction | Moderate level of Internet addiction | severe dependence upon the Internet | Chi-square | p-value |
|--------------------------|----------------------------------|--------------------------------------|-------------------------------------|------------|----------------|
| Gender | | | | 23.959 | 0.001** |
| Men | 25.9% (21) | 70.4% (57) | 3.7% (3) | | |
| Women | 56.5% (156) | 40.2% (111) | 3.3% (9) | | |
| Age | | | | 18.780 | 0.001** |
| 25-39 old | 48.3% (87) | 46.7% (84) | 5.0% (9) | | |
| 40-59 old | 50.8% (90) | 47.5% (84) | 1.7% (3) | | |
| Educational Level | | | | 16.432 | 0.01* |
| Low | 42.1% (24) | 52.6% (30) | 5.3% (3) | | |
| High | 51.0% (153) | 46.0% (138) | 3.0% (9) | | |
| Family Income | | | | 28.109 | 0.001** |
| 0-1500 euros | 25.0% (9) | 58.3% (21) | 16.7% (6) | | |
| 1501-3000 euros | 55.3% (78) | 42.6% (60) | 2.1% (3) | | |
| More than 3001 euros | 50.0% (90) | 48.3% (87) | 1.7% (3) | | |

The impact of parental internet use on parenting practices and its effects on their children

In addressing our second question about how parental internet use may affect parenting practices, we detected a statistically significant difference between the use of the internet and parental involvement [$F(2, 354) = 20,469, p < 0.000$]. Parents who are severely dependent on the internet ($m=36,50$) and parents who are moderately addicted to the internet ($m=38,42$) showed less involvement with their children than parents who had a milder addiction level ($m=41,23$). Furthermore, we detected a statistically significant difference between the use of the internet and the application of positive parenting practices [$F(2, 354) = 13,370, p < 0.000$]. Parents who had a severe dependence ($m=23,50$) and parents who were moderately addicted to the internet ($m=26,62$) used less favorable parenting practices than parents who were only mildly addicted to the internet ($m=30,22$). Additionally, our findings demonstrated a statistically significant difference between parental internet use and poor monitoring/supervision [$F(2, 354) = 48,902, p < 0.000$]. The participating parents with severe internet dependence ($m=26,75$) and those with a moderate level of addiction ($m=18,78$) applied

significantly poorer monitoring and supervision of their children than those with only mild levels of internet dependence (m=13,03). The same tendency applied between internet dependence and the inconsistent use of discipline [$F(2, 354) = 40,808, p < 0.000$]. Severely dependent parents (m=20,25) and parents with moderate levels of internet dependence (m=17,83) applied more frequently inconsistent discipline methods than parents with mild internet addiction (m=13,08). Moreover, we established a significant difference between severe internet addiction and the use of corporal punishment [$F(2, 354) = 42,010, p < 0.000$], namely, parents with a severe (m=10,25) and those with a moderate (m=8,90) internet dependence used corporal punishment significantly more than those with a mild (m=5,15) online dependence in disciplining their children.

Moreover, findings show that parental internet addiction has a significant negative correlation with various forms of parental behavior, namely where parental internet addiction increased, parental involvement ($r = -0.418, p < 0.000$), and the application of positive parenting practices ($r = -0.452, p < 0.000$) decreased. We detected the same tendency with children's self-esteem ($r = -0.344, p < 0.000$), their family relations, school achievement, and social competencies ($r = -0.380, p < 0.000$; $r = -0.340, p < 0.000$ and $r = -0.382, p < 0.000$ respectively). Intense parental involvement with the internet yielded a positive correlation with the dimensions of poor mentoring and supervision ($r = 0.408, p < 0.000$), the use of corporal punishment ($r = 0.298, p < 0.000$), and the application of inconsistent discipline ($r = 0.506, p < 0.000$).

In examining parental internet addiction as an independent variable and its impact on parental involvement, positive parenting, poor mentoring and supervision, and use of either inconsistent discipline or corporal punishment, our results indicated negative correlations between parental internet dependence and poor mentoring and supervision ($r = -0.396, p < 0.000$), corporal punishment ($r = -0.459, p < 0.000$), and the use of the inconsistent discipline ($r = -0.451, p < 0.000$). Following the same data analysis, we detected positive correlations between parental involvement and positive parenting practices ($r = 0.672, p < 0.000$), but also with the family, school, and social competencies ($r = 0.411, p < 0.000$; $r = 0.345, p < 0.000$ and $r = 0.437, p < 0.000$ respectively) as well as with children's self-esteem ($r = 0.340, p < 0.000$). The use of positive parenting practices had a significant positive correlation with family ($r = 0.699, p < 0.000$), school ($r = 0.510, p < 0.000$), social competencies ($r = 0.566, p < 0.000$), and children's self-esteem ($r = 0.703, p < 0.000$). Our results indicated a negative correlation with the dimensions of poor mentoring and supervision ($r = -0.476, p < 0.000$), corporal punishment ($r = -0.538, p < 0.000$), and the use of inconsistent discipline ($r = -0.565, p < 0.000$). We also detected statistically significant positive correlations between poor parental mentoring and supervision and corporal punishment ($r = 0.303, p < 0.000$) and with the inconsistent use of discipline ($r = 0.321, p < 0.000$). On the other hand, poor mentoring and supervision had a significant negative correlation with family, school, and social competencies ($r = -0.356, p < 0.000$; $r = -0.412, p < 0.000$ and $r = -0.384, p < 0.000$ respectively) as well as with children's self-esteem ($r = -0.436, p < 0.000$). The parental use of corporal punishment displayed a significant positive correlation with the variable, inconsistent discipline ($r = 0.462, p < 0.000$) and a negative correlation with the variables family relations ($r = -0.491, p < 0.000$) and children's self-esteem ($r = -0.655, p < 0.000$). The inconsistent

use of parental discipline showed a statistically significant negative correlation with the variables family, school, and social competencies ($r=-0.373$ $p<0.000$; $r=-0.463$ $p<0.000$ and $r=-0.301$ $p<0.000$ respectively) as well as with children's self-esteem ($r=-0.340$ $p<0.000$).

The dimension of children's self-esteem has a significant positive correlation with the variables family relations ($r=0.570$ $p<0.000$), school performance ($r=0.834$ $p<0.000$), and social competencies ($r=0.729$ $p<0.000$). Family relations showed a significant positive correlation with school performance ($r=0.650$ $p<0.000$) and social competencies ($r=0.643$ $p<0.000$). Social competencies had a significant positive correlation with the variable school performance ($r=0.590$ $p<0.000$) (Table 4).

Table 4. Correlations between Internet Addiction, Parenting Practices, Children's self-esteem Family Relations, Social Competences and School Performance

| | I. A | I | P.P | P.M. | C.P | I.D. | C.S | F.R. | S.C | S.P |
|-------------------------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Internet addiction | - | -.418** | -.452** | .408** | .298** | .506** | -.344** | -.380** | -.382** | -.340** |
| Involvement | | - | .672** | -.396** | -.459** | -.451** | .340** | .411** | .437** | .345** |
| Positive parenting | | | - | -.476** | -.538** | -.565** | .703** | .699** | .556** | .510** |
| Poor mentoring | | | | - | .303** | .321** | -.436** | -.356** | -.384** | -.412** |
| Corporal Punishment | | | | | - | .462** | -.655** | -.491** | -0.016 | 0.033 |
| Inconsistent Discipline | | | | | | - | -.340** | -.373** | -.301** | -.463** |
| Children's self esteem | | | | | | | - | .570** | .729** | .834** |
| Family Relations | | | | | | | | - | .643** | .650** |
| Social Competences | | | | | | | | | - | .590** |
| School Performance | | | | | | | | | | - |

The multivariate regression model was statistically significant [$F(10,346) = 198.112$, $p<0,000$], thus interpreting 74% of the total variance ($r^2 = .741$, adjusted $r^2 = .740$). A mild level of internet addiction predicted higher levels of parental involvement ($\beta = 0.738$ $p < 0,000$), of the use of positive parenting practices ($\beta = 0.755$ $p < 0,000$), of better family relations, ($\beta = 0.765$ $p < 0,000$), of higher school performance ($\beta = 0.778$ $p < 0,000$), of higher social competencies, ($\beta = 0.790$ $p < 0,000$), as well as of higher children's self-esteem ($\beta = 1.112$ $p < 0,000$). On the other hand, a parental mild level of internet dependence predicted (negatively) parental poor mentoring and supervision ($\beta = -0.678$ $p < 0,000$), the application of inconsistent discipline ($\beta = -0.670$ $p < 0,000$), and more frequent use of corporal punishment ($\beta = -0.344$ $p < 0,01$).

Parental moderate levels of internet addiction predicted negative parental involvement ($\beta = -0.456$ $p < 0,000$), the use of positive parenting practices ($\beta = -0.512$ $p < 0,000$), the deterioration

of family relations ($\beta = -0.580$ $p < 0,000$), school performance ($\beta = -0.364$ $p < 0,01$) and social competencies ($\beta = -0.445$ $p < 0,000$), as well as children's self-esteem ($\beta = -0.866$ $p < 0,000$). Furthermore, when parents displayed a moderate level of internet dependence, this predicted positively parental poor mentoring and supervision ($\beta = 0.442$ $p < 0,000$), parental application of inconsistent discipline ($\beta = 0.566$ $p < 0,000$), and more frequent use of corporal punishment ($\beta = 0.445$ $p < 0,000$). The model was statistically significant $F(10,346) = 220,440$, $p < 0,000$, interpreting 78% of the total variance ($r^2 = .783$, Adjusted $r^2 = .780$).

Severe parental dependence on the internet predicted negative parental involvement ($\beta = -0.588$ $p < 0,000$), parental use of positive parenting practices ($\beta = -0.600$ $p < 0,000$), the deterioration of family relations ($\beta = -0.668$ $p < 0,000$), school performance ($\beta = -0.389$ $p < 0,01$), social competencies ($\beta = -0.510$ $p < 0,000$), as well as children's self-esteem ($\beta = -1.220$ $p < 0,000$). At the same time, the parental severe internet dependence predicted positively the parental poor mentoring and supervision practices ($\beta = 0.490$ $p < 0,000$), the use of the inconsistent discipline ($\beta = 0.622$ $p < 0,000$), and more frequent application of corporal punishment ($\beta = 0.508$ $p < 0,000$). The model was statistically significant $F(10,346) = 230,780$, $p < 0,000$, interpreting 80% of the total variance ($r^2 = .805$, Adjusted $r^2 = .800$) (table 5).

Table 5. Regression Models predicting Internet Addiction*Parenting Practices*Family, School Performance, Social Competences and Children's self-esteem

| Dependent Variable | Mild level of Internet addiction | Moderate level of Internet addiction | Severe dependence upon the Internet |
|------------------------------|----------------------------------|--------------------------------------|-------------------------------------|
| Involvement | 0.738*** | -0.456*** | -0.588*** |
| Positive Parenting practices | 0.755*** | -0.512*** | -0.600*** |
| Poor Monitoring/ Supervision | -0.678*** | 0.442*** | 0.490*** |
| Inconsistent Discipline | -0.670*** | 0.566*** | 0.622*** |
| Corporal Punishment | -0.344** | 0.445** | 0.508** |
| Family Relations | 0.765*** | -0.580*** | -0.668*** |
| School Performance | 0.778*** | -0.364** | -0.389** |
| Social Competences | 0.790*** | -0.445*** | -0.510*** |
| Children's self-esteem | 1.112*** | -0.866*** | -1.220*** |
| F | 198.112 | 220.440 | 230.780 |
| BETA | 33.113 | 35.550 | 40.887 |
| Effect Size Adjusted R2 | 74% | 78% | 80% |

DISCUSSION

Our findings showed that 49.6% of the parents who participated in the survey were mild internet addicts, 47.1% were moderate addicts, and 3.4% were severe internet addicts. According to Malak (2018), the use of the Internet is becoming more and more popular among the global population. Internet dependence has become a social and public health problem, especially among adolescents and adults. Zhou et al. (2014) revealed that parents who are addicted to the internet not only set a bad example for their children but also ignore them and spend very little time with them.

In responding to the first research question, namely whether there are differences in internet use according to parental demographic characteristics (gender, age, educational level, residence, family income), our findings revealed that (a) the participating Cypriot men were significantly more moderately addicted to the internet than the women, (b) younger participants experienced significantly higher levels of severe internet addiction than the older population of our sample, (c) parents with lower education displayed higher moderate levels of addiction than those with higher education (d) parents with low income were significantly more severely addicted to the internet than those with higher family incomes. Analogous results supported by Minutillo et al. (2016), Anderson et al. (2017), but also Mei et al. (2016), and Tsitsika et al. (2014) revealed that females were less likely to engage in most addictive behaviors and that participants with lower income and younger participants tended to use the internet more than older and more affluent respondents. Findings by Yen et al. (2007) showed that parental education levels and family income correlated positively with problematic parental online dependence. Moreover, research findings showed that specific socio-demographic characteristics, such as gender, age, educational level, and family income, are closely associated with parental internet addiction (Tang et al., 2014; Alzayyat et al., 2015; Bakken et al., 2009). Their research revealed that males, younger adults, adults who faced financial difficulties, and adults with lower education had the highest prevalence of internet addiction.

Our *second research question* addressed how parental internet use may affect parenting practices (involvement, mentoring/supervision, positive parenting techniques, corporal punishment, inconsistent and negative discipline). Our findings showed that parents severely or moderately dependent on the internet showed less involvement and applied less favorable parenting practices, which was reflected in their offspring's poor monitoring and supervision. These parents also applied inconsistent disciplinary methods and more corporal punishments than parents who were only mildly addicted to the internet. Similar research findings were supported by Zhou et al. (2014), who stated that parents addicted to the internet tended to ignore their children spending very little time with them. Also, research findings revealed a negative correlation between internet addiction and parental involvement, between online dependence and positive parenting practices, but also with family relationships, school, social competencies, and children's self-esteem. On the other hand, internet addiction positively correlated with poor mentoring and supervision, corporal punishment, and inconsistent discipline. Various authors have associated problematic internet use with discontent within the family, low academic performance, and other high-risk behaviors (Chou & Lee, 2017; De Leo & Wulfert, 2013; Ko et al., 2008; Lam et al., 2009; Park et al., 2011; Gentile et al., 2011; Ko et al., 2007). Similar studies have shown that dysfunctional family relationships, in particular negative relationships between adolescents and their parents and negative parental attitudes, are associated with problematic internet behaviors (Yen et al., 2007; Park et al., 2008; Lin et al., 2009; Jang & Ji, 2012; Wu et al., 2013; Liu et al., 2013; Xu et al., 2014).

Our research shows that parental involvement is negatively associated with variables such as poor guidance and supervision, corporal punishment, and inconsistent discipline. Relevant studies have reported similar results, while they also determined that in children's and adolescents' psychosocial, cognitive, and emotional development, but also their academic achievements, parental behavior plays a crucial role (Bloomfield & Kendall, 2012; Hadjicharalambous & Dimitriou, 2020; Temiz, 2020; Stewart-Brown, 2008). According to Li et al. (2014), Internet addiction is negatively related to parents' support and positively associated with parents' negative control (e.g., harsh punishment, and discipline). On the other hand, parental involvement positively correlated with the dimensions of positive parenting practices, the children's self-esteem, family, school, and general social competencies. Our findings are supported by comparable results demonstrating that children who enjoyed high parental acceptance and, consequently, high parental involvement also had a high academic performance (Lo et al., 2021; Boon, 2007; Hadjicharalambous & Demetriou, 2020). In contrast, children with little or no support from emotionally distanced parents who rejected and neglected them had significantly lower academic performance (ibid). Positive parenting behaviors foster healthy child outcomes, including cognitive development and prosocial behavior (Hadjicharalambous, 2021; Jeong et al., 2019; O'Neal et al., 2017; Crnic & Ross, 2017; Brady-Smith et al., 2013; Fuligni et al., 2013; Hadjicharalambous & Demetriou, 2021).

Results indicated a negative correlation between poor mentoring and supervision, corporal punishment, and inconsistent discipline. Karaer & Akdemir (2019), and Goel et al. (2013), reported that family conflict and dissatisfaction, poor parental relationships, low parental involvement and supervision, and parental involvement and guidance are associated with internet addiction.

CONCLUSIONS

The increasing internet usage worldwide raises concerns about pathological internet use and addiction. To deal effectively with internet addiction, it is necessary to understand the factors and how individual characteristics, family relationships, psychosocial factors, and communication skills affect and are associated with pathological use. Dealing with and preventing internet addiction is a process that requires multifaceted efforts and collective work. The rapid increase in the number of internet users makes prevention necessary. The government must take measures and initiatives to prevent and raise public awareness through information programs to avoid internet addiction. Early intervention can play a crucial role in preventing more serious addictive behaviors in the future.

Moreover, maintaining a healthy relationship network and remaining socially active are crucial factors for psychological well-being and physical health and may decrease a person's need for internet dependence. In addition, the risk of online dependence is reduced when family

members share quality time together, such as having meaningful conversations, playing games or sports, or just having meals together as a family.

Trying to be role models to their children, parents can self-monitor and regulate screen time. For example, they can place their smart devices where they are not readily available, mute notifications, and engage more in technology-free activities, thus reducing their children's access or exposure to constant online activity. When parents regulate their internet use, they help their children towards their own controlled use. Correspondingly, if parents involve children in setting the rules for screen time, they achieve better results in regulating children's online behavior patterns. What's more, it may be helpful for family functioning if parents actively participate in children's activities like playing games together. Such involvement may help parents regulate their children's use, promote adaptive online activities, and reduce the use of other ones.

Limitations

The present study presents the following limitations. First, the literature review on parental Internet addiction is sparse. Second, we used only the reported measures and no observational measures. Even though observational measures of parental internet use and parenting practices are considered superior in criteria, they are also more complex, costly, and time-consuming for researchers and participants. Consequently, we assumed parents would provide honest responses as they knew the research was anonymous and confidential. Third, there is a need to further explore the relationship between parental internet behavior, particularly parental internet addiction. Fourth, only one-fifth of the participating parents were fathers (22%). Although typically, parents who participate in surveys on parenting are primarily mothers, the low participation of male respondents has to be recorded as a limitation.

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Conflict of interest

There is no conflict of interest among the authors of this paper.

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