

**Open Access** **Original Research**

## **Internet addiction among Israeli -Palestinian college students in Israel: Its prevalence and relationship to selected demographic variables**

**QUTAIBA AGBARIA<sup>1</sup>, DANA BDIER<sup>2</sup>**

<sup>1</sup>Al-Qasmie College,  
Israel

<sup>2</sup>Aln-Najah National University, Nablus,  
Palestine

**For correspondance :**

Dr. Qutaiba Agbaria  
Al-Qasmie College

Email: [Qutaiba100psych@yahoo.com](mailto:Qutaiba100psych@yahoo.com)

**Abstract**

**Objectives:** The purpose of the current study is to examine the prevalence of internet addiction and its relationship with selected demographic variables among Arab college students in Israel. **Methods:** This study is based on the correlation between internet addiction and gender, socio-economic status, age, academic achievement, academic degree, and type of residence, and examines the direction and strength of the relationship between internet addiction and these variables. The sample consisted of 500 Israeli-Palestinian students in colleges. Participants' ages ranged from 19 to 35 ( $M = 26.8$ ,  $SD = 4.48$ ). They were chosen through convenience sampling from six colleges in Israel. **Results:** The findings indicate the sample had higher than average internet addiction. Moreover, significant relationships were found between internet addiction and gender, socio-economic status, age, academic achievement, and academic degree. There were no significant relationships between internet addiction and religion or residence. **Conclusion and Implications:** Most of the findings in this study align with previous studies, while some do not. Consistent with previous studies, this study found a significant negative correlation between academic achievement and internet addiction, higher levels of internet addiction among younger students in comparison to older students, high levels of internet addiction among males in comparison to females, high levels of internet addiction among first year students, and found no significant differences in internet addiction attributed to religion. However, contrary to prior studies, there was no significant relationship found between internet addiction and residence, and there was a significant difference in internet addiction attributed to socio-economic status with higher values associated with a low socio-economic status. There is a need for future studies to test the interaction of these variables in predicting internet addiction among students.

**Keywords:** Internet addiction, Demographic variables, Israeli Palestinian college students

### إدمان الإنترنت لدى الطلبة الجامعيين الفلسطينيين في إسرائيل: مدى إنتشاره وعلاقته ببعض المتغيرات الديمغرافية

**أهداف الدراسة:** هدفت الدراسة إلى فحص مستوى إدمان الإنترنت وعلاقته ببعض المتغيرات لدى الطلبة الجامعيين العرب في إسرائيل.

**الأدوات:** إستندت الدراسة الحالية إلى المنهج الإرتباطي، الذي يهتم بفحص إتجاه العلاقة وقوتها بين متغيرات الدراسة المختلفة. تكونت عينة الدراسة من 500 طالب وطالبة من الطلبة العرب في الجامعات الإسرائيلية، وقد مثلت الإناث منا نسبته 70% من عينة الدراسة، كما تراوحت أعمار المشاركين بالدراسة من 19-35 عاماً، (بوسط حسابي = 26.8، وإنحراف معياري = 4.48) وقد تم إختيارهم بالطريقة المتيسرة من ست كليات في إسرائيل.

**نتائج الدراسة:** أظهرت نتائج الدراسة أن درجة إدمان الإنترنت لدى أفراد الدراسة كانت أعلى من المتوسط، كما أظهرت نتائج الدراسة وجود علاقة إرتباطية دالة إحصائياً بين إدمان الإنترنت، والجنس، والحالة الإقتصادية والإجتماعية، والعمر، والتحصّل الأكاديمي، والدرجة العلمية، ولم تظهر نتائج الدراسة وجود علاقة إرتباطية دالة إحصائياً بين إدمان الإنترنت والدين، ومكان السكن.

**الخلاصة والتوصيات:** أظهرت نتائج الدراسة الحالية وجود علاقة إرتباطية دالة إحصائياً بين إدمان الإنترنت، وبعض المتغيرات الديمغرافية، كالجنس، والحالة الإقتصادية والإجتماعية، والعمر، والتحصّل الأكاديمي، والدرجة العلمية، كما لم تظهر النتائج علاقة إرتباطية بين الإدمان والدين، ومكان السكن. بناءً على تلك النتائج، توصي الدراسة بضرورة إجراء مزيد من الدراسات المستقبلية لدراسة التفاعل بين تلك المتغيرات ودرجة تنبؤها بإدمان الإنترنت لدى الطلبة الجامعيين.

Submitted: September 12, 2019

Revised: February 28, 2020

Accepted: April 5, 2020

## Introduction

Internet usage has continued to rise over the last ten years. Approximately 46% of the world's population is on the internet today, and the world's most developed countries already experience a prevalence of internet addiction over 23% in their populations (Mihajlov & Vejmelka, 2017). Research by Al-Shdayfat et al. (2016) investigated internet addiction among a sample of Jordanian adults, and found a significant number of participants (23.78%) were addicted.

Internet addiction is related to several different phenomena, including psychosocial stressors such as anxiety, depression, stress (Younes et al., 2016), suicide (Kurt, 2015), social loneliness, family emotional loneliness (Iskender, 2018), and school burnout (Salmela-Aro et al., 2017). The purpose of this study is to investigate the distribution of internet addiction and its relationship to various demographic variables such as socioeconomic status, gender, and academic performance among Israeli-Palestinian college students in Israel.

Previous research has examined the relationship between internet addiction and demographic variables such as gender, age, and socioeconomic status. One study revealed that male students are more addicted to the internet (Arya et al., 2018), whereas another noted that adults older than 39 and younger than 21 are generally less addicted to the internet than people between those ages (Ainin et al., 2017). A study comparing adolescents whose families have a high socioeconomic status and those whose families have a low socioeconomic status found that the children of families with a high socioeconomic status have a greater likelihood of becoming addicted to the internet (Kayri & Gunuc, 2016).

This study uses a set of predictive correlations, based on predictive statistical models. This contrasts with previous research examining associative relationships between variables without modeling, and differs from studies that examined each demographic variable separately, such as the role of socioeconomic status (Kayri & Gunuc, 2016), academic performance (Akhter, 2013), and gender (Chiu et al., 2013; Ha & Hwang, 2014).

This is the first study to investigate internet addiction among Israeli-Palestinian students attending various universities and colleges in Israel. Previous research examining this phenomenon has tended to focus on Western (Chiu et al., 2013; Servidio, 2014) and East Asia populations (Gao, Qi, & Zhongli, 2012; Orsal, Orsal, Unsal, & Ozalp, 2013). The distinguishing characteristic of this research population is that the students are part of the Palestinian minority in Israel who spend time with Jewish students. These cultural exchanges re-formulate the identity of the students in different circles, while the marginalization and hybridism of the Israeli-Palestinian students stimulate their social activism to create a better

society, and academic breakthroughs empower students and enrich their personal tools (Arar, 2017).

In addition, students are exposed to diverse cultural value systems, which often challenge their traditional cultural values (Arar et al., 2013). Moreover, the Palestinian minority in Israel may be characterized as having little political representation and weakened social, economic, and educational infrastructure. The Palestinian minority has also been discriminated against in all aspects and areas of Israeli life (Hagar & Jabareen, 2015), as well as in employment opportunities available to them only after completion of their study (Abo-Rabia-Queder & Arar, 2011). In light of the unique properties of the Israeli-Palestinian minority population in Israel, the current study will focus on two points: the level of internet addiction among students, and the differences in internet addiction that are attributed to several demographic variables.

## Internet Addiction

Traditional concepts of "addiction" were viewed through a medical lens related to bodily and psychological dependence on a physical substance, but not through behavioral patterns. Recent research has argued addiction should include a broader range of behaviors (Leung, 2014). Technological addiction was first proposed by Griffiths (1996) as a subset of behavioral addiction.

To define internet addiction, some psychiatrists view it as a personal factor in which the compulsivity of using computers contributed to personal distress, including negative social, occupational, financial, or legal consequences (Shaw & Black, 2008). Others focused more on cognitive and behavioral aspects of the disorder, resulting from impairment due to subjective distress and interference in social or occupational functioning (Shaw & Black, 2008). By contrast, Young (1999) defined it broadly to cover a wide variety of behaviors and impulse control problems, as categorized by five specific subtypes: cyber-sexual addiction, cyber-relationship addiction, net compulsions, information overload, and computer addiction.

According to the DSM-V, internet addiction is conceptualized as a compulsive-impulsive spectrum disorder involving online and/or offline computer usage, and consists of at least three subtypes: excessive gaming, sexual preoccupations, and e-mail/text messaging (American Psychiatric Association, 2013). All of the variants share the following four components: (1) excessive use, often associated with a loss in sense of time or a neglect of basic drives, (2) withdrawal, including feelings of anger, tension, and/or depression when the computer is inaccessible, (3) tolerance, including the need for better computer equipment, more software, or more hours of use, and (4) negative repercussions, including

arguments, lying, poor achievement, social isolation, and fatigue (Block, 2008).

According to the cognitive-behavioral model, maladaptive cognition is viewed as a main cause of internet addiction and is broken down into two subtypes: perceptions about one's self, and perceptions about the world. Thoughts about the self are guided by a ruminative cognitive style. Individuals who ruminate tend to experience a higher degree of severity and duration for pathological internet use (PIU) (Widyanto & Griffiths, 2006). Studies have supported that rumination is likely to intensify or sustain problems, partly by interfering with instrumental behavior (i.e., taking action) and problem solving (Agbaria, Ronen, & Hammama, 2012). Other cognitive distortions include self-doubt, low self-efficacy, and negative self-appraisal (Widyanto & Griffiths, 2006).

The prevalence of internet addiction or problematic internet use around the world was as follows: in Europe, the prevalence has been reported to be between 1% and 9%; in the Middle East, between 1% and 12%; and in Asia, between 2% and 18% (Cao et al., 2011; Christakis, 2010; Christakis et al., 2011; Pontes et al., 2015).

Among US college students, the prevalence of internet addiction was estimated to be between 8% and 25% (Jelenchick et al., 2012). European internet addiction was estimated as follows: in Germany, an estimated 1.5 million people, or 3% of the German population, was estimated to be at risk of internet addiction; the rate of problematic internet use in Italian adolescents was 5.4%; the prevalence of borderline addictive internet use in Greek adolescents was 12.8%, while 10.4% of men were reported as showing signs of addictive internet use; and using the PIU scale among British students showed that 18.3% were considered to be pathological internet users (Weinstein & Lejoyeux, 2010).

Turning to eastern societies, internet addiction among Chinese adolescents was estimated at a rate of 2.4-10.6% (Wang et al., 2013). Among Taiwanese university freshmen, 17.9% were addicted to the internet (Tsai, 2009). Among Korean middle school students, 16% were potential at-risk users, and 3.1% were high-risk users (Seo et al., 2009). Though very few studies have been carried out in Egypt to address problematic internet use, one study of adolescents found a prevalence of 2.6% for problematic use and 18.2% for potential problematic use, while another showed a prevalence of only 0.8% (Desouky & Ibrahim, 2015).

Internet addiction results in neglect of family, social activities, and interests. It can also lead to poor academic performance in school and college, as well as impaired functioning at work (Murali & George, 2007). Internet addicts experience side effects such as disturbing feelings (e.g., depression) when not on the internet, spending excessive time and money while participating in

activities online, a growing tolerance to any effects that may be doing harm to him/her while online, and a strong sense of denial about having a problem (Yuen & Lavin, 2004).

According to various empirical studies, personality characteristics or traits and some demographics are correlated to internet addiction (Dhir et al., 2015; Ko et al., 2010; Wang et al., 2015; Xiuqin, 2010).

### **Internet addiction and demographic variables**

A comprehensive, systematic review of epidemiological research related to internet addiction over the last decade indicates that it is associated with several socio-demographic risk factors or variables, such as male and younger age (Arya et al., 2018; Cao et al., 2011; Ching et al., 2017; Islam & Hossin, 2016; Kuss & Lopez-Fernandez, 2016; Mei, 2016; Tsitsika, 2016; Wang et al., 2016; Xin et al., 2018). Cao et al. (2011) examined problematic internet use among Chinese adolescents and its relation to psychosomatic symptoms and life satisfaction. The study found that students with high family income are more likely to experience internet addiction. Similarly, Orsal et al. (2013) studied the evaluation of internet addiction and depression among university students and found internet addiction was significantly higher among students with high family income.

Many studies have examined the association between demographics such as resident location and internet addiction. For example, Kawa & Shafi (2015) found rural university students experienced more internet addiction and psychological distress as compared to urban university students. Moreover, Arya et al. (2018) also found students who reside in rural areas experience more internet addiction.

In the Arab world, Alhajjar (2014) studied the prevalence of internet addiction among nursing students at the Islamic University of Gaza. The results revealed that male nursing students displayed significantly higher internet addiction rates than female students. However, there were no significant differences among nursing students by year of study. Hamade (2009) also found male students were more addicted to the internet than female students.

Al-Gamal et al. (2016) investigated the prevalence of internet addiction among university students in Jordan. The results showed students who studied engineering have the highest rate of internet addiction. Anderson (2001) found that the students in hard sciences (e.g., chemistry, computer science, engineering, math, and physics majors), especially computer science, are more likely to be internet-dependent. The hard sciences group was also found to use the internet more hours per week than students in soft sciences, such as psychology, social sciences, sports science, law, and business (Niemz et al., 2005). Jafarkarimi

et al. (2016) investigated Facebook addiction among Malaysian students. The results indicated that religion does not show significant influence on the risk of Facebook addiction. No significant correlation was found between the year level of the students and their internet addiction (Mishra et al., 2014).

Ni et al. (2009) investigated the factors influencing internet addiction in a sample of freshmen university students in China. It was found that freshmen university students were more vulnerable to internet addiction than graduate students. Moreover, Al-Gamal et al. (2016) found students with a lower university year were more likely to experience high internet addiction.

Recently, several studies have found a relationship between academic performance and internet addiction among undergraduate university students (Ghulami et al., 2018). According to Akhter (2013), the academic problems resulting from internet addiction include missing classes (Ghulami et al., 2018), a decline in study habits (Gencer & Koc, 2012), a significant drop in grades (Sachitra, 2016), an increased risk of being placed on academic probation (Akin, 2012), and less integration in extra-curricular activities (Anderson, 2001). Similarly, most university students use social media mainly for socializing activities (Chen & Fu, 2009), and relatively few students use it for academic purposes (Asemah & Edegoh, 2013).

### Research Hypotheses

- There are significant differences in internet addiction by socio-economic status, academic year, and religion.
- There are significant differences in internet addiction by gender, residence, and academic degree.
- There is a significant correlation between internet addiction and age as well as internet addiction and academic achievement.

### Methodology

#### Research Design

The present study focuses on the relationship between variables, and examines the direction and strength of these relationships. This design depends on the selection of a representative sample in order for the research findings to be generalized to the total number of cases that have been examined.

#### Participants

The sample consisted of 500 Israeli-Palestinian college students, 70% females and 30% males. Participants' ages ranged from 19 to 35 ( $M = 26.8$ ,  $SD = 4.48$ ). They were chosen through convenience sampling from six colleges in Israel. Of the participants, 21.8% were

in their first year, 23.2% in their second year, 18.6% in their third year, 19.4% in their fourth year, with the remainder being beyond four years; 78% were engaged in undergraduate study and the remainder were in graduate studies. More than 22% were of low socio-economic status, 55% were of middle socio-economic status, and 23% were of high socio-economic status; 57% came from villages, while the rest came from cities; academic performance in college was ( $M = 77.45$ ,  $SD = 12.45$ ).

### Research tools

Demographic variables questionnaire: This instrument included the following variables: gender, age, socio-economic status, academic degree, religion, residence, and academic achievement.

Internet addiction questionnaire: The 20-item Internet Addiction Test (IAT) was developed by Young (2016). It measures characteristics and behaviors associated with excessive internet usage, including compulsivity, escapism, and dependency. Questions also assess problems related to personal, occupational, and social functioning stemming from internet use. Examinees responded to each statement with a number between 1 and 5 on a Likert scale continuum, indicating the extent to which they endorse that particular behavior. The IAT views internet addiction as an impulse-control disorder, where the term "internet" refers to all types of online activity. The IAT is the most widely used internet addiction scale in the world, and has been translated into several languages including English, Chinese, French, Italian, Turkish, and Korean (Young, 2006). In the current study, the scale was translated for Israeli-Palestinian participants and pilot tested by five Israeli-Palestinian professional experts in psychology, counseling, Israeli-Palestinian language, and education. They evaluated the clarity and relevance of the questions and the translation, which was accomplished with the help of the professional experts. After completion, the translated draft of the questionnaire was back-translated into English by an independent expert in translation. The translated version was then pilot tested among thirty students and refined further for clarity according to their comments. In this study, Cronbach's alpha was 0.83.

### Research Procedure

The study sample was obtained by convenience sampling at six colleges in Israel. The research was conducted throughout 2019 and lasted six months. After obtaining the needed clearances from universities and the ethical committee at Al-Qasemi College, a researcher (the first author) went into classrooms on a normal school day and explained the study's purpose, emphasizing that the questionnaires would remain anonymous. Students agreed

to participate at a rate of 90%.

**Statistical analysis**

Averages, standard deviations, and maximum and minimum values for internet addiction were calculated. To test the research hypotheses, a series of statistical tests were performed, including: (1) One-way ANOVA to test differences in internet addiction by socio-economic status, academic year, and religion, (2) t-test to test differences in internet addiction by gender (male or female), residence (rural or urban), and academic degree (undergraduate or graduate), and (3) Pearson correlation to test the relationship between internet addiction, academic achievement, and age.

**Results**

In order to answer the first research question about internet addiction levels among students, means and standard deviations were calculated for all questionnaire items (Table 1).

**Table 1**

*Means and Standard Deviations for internet addiction statements*

Statement	Mean	Standard deviation
1. How often do you find that you stay online longer than you intended?	3.62	1.12
2. How often do you neglect household chores to spend more time online?	3.87	0.98
3. How often do you prefer the excitement of the internet to intimacy with your partner?	3.51	1.23
4. How often do you form new relationships with fellow online users?	3.61	1.11
5. How often do others in your life complain to you about the amount of time you spend online?	3.69	1.10
6. How often do your grades or school work suffer because of the amount of time you spend online?	3.78	1.02
7. How often do you check your e-mail before something else that you need to do?	3.52	0.88
8. How often does your job performance or productivity suffer because of the internet?	3.41	1.23
9. How often do you become defensive or secretive when anyone asks you what you do online?	3.69	0.95

10. How often do you block out disturbing thoughts about your life with soothing thoughts of the internet?	3.52	1.07
11. How often do you find yourself anticipating when you will go online again?	3.78	1.04
12. How often do you fear that life without the internet would be boring, empty, and joyless?	3.48	1.15
13. How often do you snap, yell, or act annoyed if someone bothers you while you are online?	3.64	0.75
14. How often do you lose sleep due to late-night log-ins?	3.68	1.32
15. How often do you feel preoccupied with the internet when off-line, or fantasize about being online?	3.75	1.16
16. How often do you find yourself saying "just a few more minutes" when online?	3.68	1.01
17. How often do you try to cut down the amount of time you spend online and fail?	3.81	1.09
18. How often do you try to hide how long you've been online?	3.35	1.20
19. How often do you choose to spend more time online over going out with others?	3.67	1.21
20. How often do you feel depressed, moody or nervous when you are off-line, which goes away once you are back online?	3.74	1.24

Table 1 shows above average levels of internet addiction among students, with a general score of 3.64. To test the first research hypothesis, One-way ANOVA was used to test differences in internet addiction by socio-economic status, academic year, and religion (Table 2).

**Table 2**

*One-way ANOVA for internet addiction by academic year, socio-economic status, and religion (N=500)*

Variable	N	Mean	Standard deviation	F
Academic Year				
First year	109	3.90	.98	3.08**
Second year	116	3.78	.95	

	Third year	93	3.55	1.12	
	Fourth year	182	3.45	1.23	
Socio-economic status	Low	110	3.85	1.09	3.23**
	Medium	275	3.65	.98	
	High	115	3.42	.95	
Religion	Muslim	375	3.65	1.12	0.99
	Christian	75	3.58	1.32	
	Druze	50	3.61	1.14	

\*p<0.05, \*\*p<0.01

Table 2 reveals significant differences according to academic year with increased values among first year students. Post hoc comparisons indicated that first year is statistically significant with third year ( $p<0.01$ ) and with fourth year ( $p<0.01$ ), but not with second year ( $p>0.05$ ). Moreover, significant differences are shown for low socio economic status. Post hoc comparisons indicated that low socio economic status level is statistically significant with high level ( $p<0.01$ ) but not with medium level ( $p>0.05$ ). There were no significant differences attributed to religion.

To test the second research hypothesis, the t-test was used to determine differences in internet addiction by gender (male or female), residence (rural or urban), and academic degree (undergraduate or graduate) (Table 3).

**Table 3**

*T-test of mean internet addiction by gender, academic degree, and residence (N=500)*

Variable		N	Mean	Standard deviation	T
Gender	Male	150	3.83	.98	3.08**
	Female	350	3.56	.95	
Academic degree	Under graduate	390	3.70	1.09	3.23**
	Graduate	110	3.44	.98	
Residence	Village	285	3.68	1.23	1.02
	City	215	3.59	1.31	

\*p<0.05, \*\*p<0.01

Table 3 shows significant differences in internet addiction according to gender with increased values among males, and academic degree with increased values among undergraduate studies, but no significant differences according to residence.

To test the third research hypothesis, the Pearson correlation was used to test the relationship between internet addiction, academic achievement, and age (Table 4).

**Table 4**

*Correlations among study variables (N=500)*

\*p < 0.05, \*\*p < 0.01

	(1)	(2)	(3)
(1) Internet addiction	-		
(2) Age	-.34**	-	
(3) Academic achievement	-.42**	.11	-

Table 4 reveals negative correlations between internet addiction and age as well as internet addiction and academic achievement.

## Discussion

The purpose of the current study was to examine the prevalence of internet addiction and its relationship with selected demographic variables among Israeli-Palestinian college students in Israel. In addition to these findings demonstrating the sample had higher than average internet addiction, significant relationships were found between internet addiction and gender, socio-economic status, age, academic achievement, and academic degree. There were no significant relationships between internet addiction and religion or residence.

### Internet addiction levels

The descriptive statistics revealed above average levels of internet addiction among Israeli-Palestinian college students in Israel. These findings align with other numbers around the world, especially in non-western societies (Agbaria, 2020; Agbaria & Bdier, 2019a; Agbaria, & Bdier, 2019b). These levels of addictive behavior may indicate the presence of many risk factors, including psychological, sociological, and demographic variables. These results can be explained in part by the nature of the university life that Israeli-Palestinian students face as the minority and its psychological consequences on other life domains, which may reflect the complex challenges these students face. The current study, however, only deals with the contribution of demographic variables to internet addiction.

### Internet addiction and demographic variables

**Gender:** The results showed significant differences in internet addiction according to gender, with increased

values among males. Thus, the hypothesis was confirmed. These findings align with previous studies that found high levels of internet addiction among males in comparison to females (Arya et al., 2018; Cao et al., 2011; Ching et al., 2017; Islam & Hossin, 2016; Kuss & Lopez-Fernandez, 2016; Mei, 2016; Tsitsika, 2016; Wang et al., 2016; Xin et al., 2018).

According to Smith et al. (2013), this could be because males experience higher motivational drives than females in internet use, rendering them more likely to respond to reward values. Males also tend to use internet for games more than females. Another possible explanation relates to lower levels of self-control among males in comparison with females (Agbaria, 2013; Agbaria, 2014a, 2014b), with lower self-control correlated with more risky and addictive behaviors (Agbaria & Bdier, 2019; Agbaria et al., 2017). Another explanation may relate to the fact that female students who were married have more home responsibilities than male students, and as eastern women the social and family demands placed upon females leaves them with much less time for other leisure activities.

Academic year: The findings showed significant differences in internet addiction attributed to academic year, with increased values among lower years. Thus, the hypothesis was confirmed. These findings align with previous studies that found high levels of internet addiction among first year students (Al-Gamal et al., 2016; Ni et al., 2009). This result might be explained in part because the first academic year often shows lower levels of social, personal, and academic adjustment, including a lack of interpersonal skills. Internet addicts tend to isolate themselves and engage in internet use as an alternative to a real-life relationship, or as a defense mechanism for the stressful situation of being a first year student that may cause an obsessive internet use as a way of finding temporal identity (Kandell, 1998; Whang & Chang, 2004).

Residence: The study found no significant differences in internet addiction according to residence (rural versus urban). Thus, the hypothesis was rejected. These findings contradict previous studies that found higher levels of internet addiction among rural students (Arya et al., 2018; Kawa & Shafi, 2015). This result can be explained by the fact that Israel is a very small country, where there is less of a rural-urban divide in Arab society.

Socio-economic status: The findings demonstrate significant differences in internet addiction attributed to socio-economic status, with increased values among low socio-economic status. Thus, the hypothesis was confirmed. These findings contradict previous studies that found higher levels of internet addiction related to higher socio-economic status (Cao et al., 2011; Orsal et al., 2013). This result can be explained by the fact that internet use is available virtually anytime and anywhere for most people

and is considered less expensive than other leisure activities.

Academic degree: The results showed significant differences in internet addiction attributed to academic degree, with increased values among undergraduate studies. Thus, the hypothesis was confirmed. There is a gap in the literature dealing with this variable. This result can be explained by the fact that graduate students tend to be older than undergraduate students, with the latter having more time and fewer responsibilities than the former, who tend to have work and other social obligations. Another explanation may relate to the maturity of graduate students, who are more likely to have greater self-awareness, a clearer vision of their future, and less of a need to try new things.

Religion: The results showed no significant differences in internet addiction attributed to religion. Thus, the hypothesis was rejected. These findings align with previous studies that found no significant correlation between internet addiction and religion (Ching et al., 2017). This result can be explained by the fact that university and college students are exposed to the same virtual world without distinction of gender, race, or religion, that globalization overlap any differences between religions, and that there is no religion explicitly forbidding internet use, thereby making it available for various religions without restriction.

Age: The results showed significant differences in internet addiction attributed to age, with increased values among younger students. Thus, the hypothesis was confirmed. These findings align with previous studies that found higher levels of internet addiction among younger students in comparison to older students (Arya et al., 2018; Cao et al., 2011; Ching et al., 2017; Islam & Hossin, 2016; Kuss & Lopez-Fernandez, 2016; Mei, 2016; Tsitsika, 2016; Xin et al., 2018; Wang et al., 2016). This result can be explained by the fact that younger students have more time for internet use, because most of them tend to have fewer work and family responsibilities. Another explanation may relate to the fact that most of them haven't yet achieved a mature identity, leading them to explore new roles and to try other options through social media networks and other internet uses.

Academic achievement: The study found a significant negative correlation between academic achievement and internet addiction. Thus, the hypothesis was confirmed. These findings align with previous studies that found a significant negative correlation between academic achievement and internet addiction (Akhter, 2013; Gencer & Koc, 2012; Ghulami et al., 2018; Sachitra, 2016). This result can be explained by the general assumption that more time spent on the internet means less time spent on planned and instrumental activities such as

friendships, studying, attending class, and homework obligations.

### Conclusion

In summary, the study revealed significant relationships between internet addiction and a number of demographic variables, including age, gender, academic achievement, socio-economic status, academic degree, and academic year. There were no significant correlations with religion or residence. Most of these findings align with previous studies, while some do not. There is a need for future studies to test the interaction of these variables in predicting internet addiction among students. Future studies should further test the interaction of residence and socio-economic status, as these findings were inconsistent with previous studies.

The results of this study should be interpreted in light of the following limitations: First, the study is based on a convenience sample consisting of one ethnic group. Further research is needed to obtain data on students of other ethnic groups.

Second, the research was conducted using a quantitative methodology and solely relied on questionnaires completed by the subjects themselves. In addition, the main research variable, internet addiction, was an internal personality component that could only be measured by self-reporting. Using questionnaires risks introducing biases into the findings, due to students' quest for social acceptance or because of their desire to express independent and eccentric opinions. It must be remembered that self-reported data may reflect no more than a tendency. It is therefore recommended to use additional research tools in future studies, such as questionnaires for both teachers and peers in addition to the students.

Finally, the study was conducted with relatively scarce data on the Israeli-Palestinian population of Israel, which makes it difficult to compare its findings to other studies. Follow-up studies could further elucidate these findings, give them greater precision, and make them clearer. Such studies may shed light on issues relevant to the present study, such as socio-economic status and academic achievement.

### Conflict of Interest

The authors declare that they have no conflict of interest.

### Funding. None

### Ethical Approval

All procedures performed in this study involving human participants were in accordance with the ethical standards

of University's Research Ethics Board, the American Psychological Association (APA, 2010) and with the 2013 Helsinki Declaration.

### Informed Consent

Informed consent was obtained from all participants.

### References

- Abo-Rabia-Queder, S., & Arar, K. (2011). Gender and higher education in different national spaces: Female Palestinians students attending Israeli and Jordanian universities. *Compare: A Journal of Comparative and International Education*, 41(3), 1-18. doi:10.1080/03057925.2010.545200
- Agbaria, Q. (2020). Internet addiction and aggression: The mediating roles of self-control and positive affect. *International Journal of Mental Health and Addiction*. DOI: 10.1007/s11469-019-00220-z
- Agbaria, Q. (2013). Depression among Israeli-Palestinian students in Israel: The contribution of religiosity, happiness, social support and self-control. *Sociology Study*, 3, 721-738.
- Agbaria, Q. (2014a). Depression among Muslim Israeli-Palestinian students: The contribution of spiritual, social and cognitive factors. *Psychology Research*, 4(6), 428-440. <https://doi.org/10.4236/ce.2014.52013>
- Agbaria, Q. (2014b). Religiosity, social support, self-control and happiness as moderating factors of physical violence among Arab adolescents in Israel. *Creative Education*, 5(2), 75-85. doi:10.4236/ce.2014.52013
- Agbaria, Q., & Bdier, D. (2019a). The role of self-control, social support and (positive and negative affects) in reducing test anxiety among Arab adolescents in Israel. *Child Indicators Research*. doi:10.1007/s12187-019-09669-9
- Agbaria, Q., & Bdier, D. (2019b). The prediction of big five personality traits and religiosity on internet addiction among Israeli-Palestinian Muslim college students in Israel. *Mental Health, Religion & Culture*. <https://doi.org/10.1080/13674676.2019.1699041>.
- Agbaria, Q., & Bdier, D. (2019c). The role of self-control and identity status as predictors of internet addiction among Israeli-Palestinian college students in Israel. *International Journal of Mental Health and Addiction*. Doi: 10.1007/s11469-019-00172-4.
- Agbaria, Q., Berte, D. Z., & Mahamid, F. A. (2017). Social support, self-control, religiousness and engagement in high risk-behaviors among adolescents.

- The International Journal of Indian Psychology*, 4(4), 13-33. doi:10.25215/0404.142.
- Agbaria, Q., Ronen, T., & Hamama, L. (2012). The link between developmental components (Age and Gender), need to belong and resources of self-control and feelings of happiness, and frequency of symptoms among Arab adolescents in Israel. *children and youth services review*, 34, 10, 2018-2027.
- Ainin, S., Jaafar, N., Ashraf, M., & Parveen, F. (2017). Exploring the role of demographics and psychological variables in Internet addiction. *Social Science Computer Review*, 35(6), 770-780.
- Akhter, N. (2013). Relationship between Internet addiction and academic performance among university undergraduates. *Educational Research and Reviews*, 8(19), 1793-1796. doi:10.5897/ERR2013.1539
- Akin, A. (2012). The relationships between Internet addiction, subjective vitality, and subjective happiness. *Cyber-psychology, Behavior, and Social Networking*, 15(8), 404-410. https://doi.org/10.1089/cyber.2011.0609
- Al-Gamal, E., Alzayyat, A., & Ahmad, M. M. (2016). Prevalence of Internet addiction and its association with psychological distress and coping strategies among university students in Jordan. *Perspectives in Psychiatric Care*, 52(1), 49-61. https://doi.org/10.1111/ppc.12102
- Alhajjar, B. (2014). Internet addiction and psychological morbidity among nursing students in Gaza-Palestine. *American Journal of Applied Psychology*, 3(4), 99-103.
- Al-Shdayfat, N., Hawi, N., Hamadneh, S., Albniyan, F., Alzyoud, S., & Logue, T. (2016). Internet addiction among school adolescents in Northeastern Jordan. *World Journal of Medical Sciences*, 13(4), 218-224. doi:10.5829/idosi.wjms.2016.218.224
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5)*. American Psychiatric Publications.
- Anderson, K. J. (2001). Internet use among college students: An exploratory study. *Journal of American College Health*, 50(1), 21-26. https://doi.org/10.1080/07448480109595707
- Arar, K. (2017). Academic spheres, students' identity formation, and social activism among Palestinian Arab students in Israeli campuses. *Journal of Diversity in Higher Education*, 10(4), 366-380. doi:10.1037/dhe0000051
- Arar, K., Masry-Harzalla, A., & Haj-Yehia, K. (2013). Higher education for Palestinian Muslim female students in Israel and Jordan: Migration and identity formation. *Cambridge Journal of Education*, 43(1), 51-67. doi:10.1080/0305764x.2012.749391
- Arya, V., Singh, H., & Malhotra, A. K. (2018). Prevalence of Internet addiction and its association with socio-demographic factors among MBBS students at medical college, Jhansi, Uttar Pradesh. *International Journal of Community Medicine and Public Health*, 5(5), 1980-1983. http://dx.doi.org/10.18203/2394-6040.ijcmph20181709
- Asemah, E. S., & Edegoh, L. O. N. (2013). Influence of social media on the academic performance of the undergraduate students of Kogi state university, Anyigba, Nigeria. *Journal of Research and Contemporary Issues*, 7.
- Block, J. J. (2008). Issues for DSM-V: Internet addiction [Editorial]. *American Journal of Psychiatry*, 165(3), 306-307.
- Cao, H., Sun, Y., Wan, Y., Hao, J., & Tao, F. (2011). Problematic Internet use in Chinese adolescents and its relation to psychosomatic symptoms and life satisfaction. *BMC Public Health*, 11(1), 802. https://doi.org/10.1186/1471-2458-11-802.
- Chen, S. Y., & Fu, Y. C. (2009). Internet use and academic achievement: Gender differences in early adolescence. *Adolescence*, 44(176), 797-812.
- Ching, S. M., Awang, H., Ramachandran, V., Lim, S., Sulaiman, W., Foo, Y. & Hoo, F. (2017). Prevalence and factors associated with internet addiction among medical students-A cross-sectional study in Malaysia. *Medicine Journal of Malaysia*, 72(1), 7-11.
- Chiu, S. L., Hong, F., & Chiu, S. L. (2013). An analysis on the correlation and gender difference between college students' Internet addiction and mobile phone addiction in Taiwan. *ISRN Addiction*, 2013, 1-10. doi:10.1155/2013/360607
- Christakis, D. A. (2010). Internet addiction: A 21st century epidemic? *BMC Medicine*, 8(1), 61. https://doi.org/10.1186/1741-7015-8-61
- Christakis, D. A., Moreno, M. M., Jelenchick, L., Myaing, M. T., & Zhou, C. (2011). Problematic Internet usage in US college students: A pilot study. *BMC Medicine*, 9(1), 77. https://doi.org/10.1186/1741-7015-9-77
- Desouky, D. A., & Ibrahim, R. A. (2015). Internet addiction and psychological morbidity among Menoufia university students, Egypt. *American Journal of Public Health Research*, 3(5), 192-8. doi:10.12691/ajphr-3-5-3
- Dhir, A., Chen, S., & Nieminen, M. (2015). Predicting adolescent Internet addiction: The roles of demographics, technology accessibility,

- unwillingness to communicate and sought Internet gratifications. *Computers in Human Behavior*, *51*, 24-33.  
<https://doi.org/10.1016/j.chb.2015.04.056>
- Gao, L. J., Qi, F., & Zhongli, Q. (2012). Study on type D personality and family environments of adolescents with internet addiction disorder. *Journal of Qiqihar University of Medicine*, *33*(15), 1998–1999.
- Gencer, S. L., & Koc, M. (2012). Internet abuse among teenagers and its relations to internet usage patterns and demographics. *Journal of Educational Technology & Society*, *15*(2), 25-36.
- Ghulami, H. R., Hamid, M. R. A., Ibrahim, M. R., Hikmat, A., & Aziz, H. (2018). Relationship between Internet addictions and academic performance among Afghan universities students. *International Journal of Innovative Research and Scientific Studies (IJIRSS)*, *1*(4), 63-72.
- Griffiths, M. D. (1996). Gambling on the internet: A brief note. *Journal of Gambling Studies*, *12*, 471–473.  
 doi:10.1007/BF01539190
- Hagar, T., & Jabareen, Y. (2015). From marginalization to integration: Arab-Palestinians in Israeli academia. *International Journal of Inclusive Education*, *20*(5), 455-473.  
 doi:10.1080/13603116.2015.1090488
- Hamade, S. N. (2009). Internet addiction among university students in Kuwait. *Domes*, *18*(2), 4.
- Ha, Y. M., & Hwang, W. J. (2014). Gender differences in Internet addiction associated with psychological health indicators among adolescents using a national web-based survey. *International Journal of Mental Health and Addiction*, *12*(5), 660-669.  
<https://doi.org/10.1007/s11469-014-9500-7>
- Iskender, M. (2018). Investigation of the effects of social self-confidence, social loneliness and family emotional loneliness variables on Internet addiction. *Malaysian Online Journal of Educational Technology*, *6*(3), 1-10.  
 doi:10.17220/mojet.2018.03.001
- Islam, M. A., & Hossin, M. Z. (2016). Prevalence and risk factors of problematic internet use and the associated psychological distress among graduate students of Bangladesh. *Asian Journal of Gambling Issues and Public Health*, *6*(1), 11.  
<https://doi.org/10.1186/s40405-016-0020-1>
- Jafarkarimi, H., Sim, A. T. H., Saadatdoost, R., & Hee, J. M. (2016). Facebook addiction among Malaysian students. *International Journal of Information and Education Technology*, *6*(6), 465.  
 doi:10.7763/IJiet.2016.V6.733
- Jelenchick, L. A., Becker, T., & Moreno, M. A. (2012). Assessing the psychometric properties of the Internet Addiction Test (IAT) in US college students. *Psychiatry Research*, *196*(2-3), 296-301.  
<https://doi.org/10.1016/j.psychres.2011.09.007>
- Kandell, J. J. (1998). Internet addiction on campus: The vulnerability of college students. *Cyber-Psychology & Behavior*, *1*(1), 11-17.  
<https://doi.org/10.1089/cpb.1998.1.11>
- Kawa, M. H., & Shafi, H. (2015). Evaluation of Internet addiction and psychological distress among university students. *International Journal of Modern Social Sciences*, *4*(1), 29-41.
- Kayri, M., Gunuc, S. (2016). Comparing Internet addiction in students with high and low socio-economic status levels. *Addict: The Turkish Journal on Addictions*, *3*(2), 177-183.  
 doi:10.15805/addicta.2016.3.0110
- Ko, C. H., Hsiao, S., Liu, G. C., Yen, J. Y., Yang, M. J., & Yen, C. F. (2010). The characteristics of decision making, potential to take risks, and personality of college students with Internet addiction. *Psychiatry Research*, *175*(1-2), 121-125.  
<https://doi.org/10.1016/j.psychres.2008.10.004>
- Kurt, D. G. (2015). Suicide risk in college students: The effects of Internet addiction and drug use. *Educational Sciences: Theory & Practice*, *15*(4), 841-848. doi:10.12738/estp.2015.4.2639
- Kuss, D. J., & Lopez-Fernandez, O. (2016). Internet addiction and problematic Internet use: A systematic review of clinical research. *World Journal of Psychiatry*, *6*(1), 143.  
 doi:10.5498/wjp.v6.i1.143
- Leung, L. (2014). Predicting Internet risks: A longitudinal panel study of gratifications-sought, Internet addiction symptoms, and social media use among children and adolescents. *Health Psychology and Behavioral Medicine: An Open Access Journal*, *2*(1), 424-439.  
<https://doi.org/10.1080/21642850.2014.902316>
- Mei, S., Yau, Y. H., Chai, J., Guo, J., & Potenza, M. N. (2016). Problematic Internet use, well-being, self-esteem and self-control: Data from a high-school survey in China. *Addictive Behaviors*, *61*, 74-79.  
<https://doi.org/10.1016/j.addbeh.2016.05.009>
- Mihajlov, M. & Vejmelka, L. (2017). Internet addiction: A review of the first twenty years. *Psychiatria Danubina*, *29*(3), 260-272.  
 doi:10.24869/psyd.2017.260
- Mishra, S., Draus, P., Goreva, N., Leone, G., & Caputo, D. (2014). The impact of Internet addiction on university students and its effect on subsequent

- academic success: A survey based study. *Issues in Information Systems*, 15(1), 344-352.
- Murali, V., & George, S. (2007). Lost online: An overview of Internet addiction. *Advances in Psychiatric Treatment*, 13(1), 24-30. <https://doi.org/10.1192/apt.bp.106.002907>
- Niemz, K., Griffiths, M., & Banyard, P. (2005). Prevalence of pathological Internet use among university students and correlations with self-esteem, the General Health Questionnaire (GHQ), and disinhibition. *CyberPsychology & Behavior*, 8(6), 562-570. <https://doi.org/10.1089/cpb.2005.8.562>
- Ni, X., Yan, H., Chen, S., & Liu, Z. (2009). Factors influencing Internet addiction in a sample of freshmen university students in China. *CyberPsychology & Behavior*, 12(3), 327-330. doi:10.1089/cpb.2008.0321
- Orsal, O., Orsal, O., Unsal, A., & Ozalp, S. S. (2013). Evaluation of Internet addiction and depression among university students. *Procedia-Social and Behavioral Sciences*, 82, 445-454. <https://doi.org/10.1016/j.sbspro.2013.06.291>
- Pontes, H. M., Kuss, D. J., & Griffiths, M. D. (2015). Clinical psychology of Internet addiction: A review of its conceptualization, prevalence, neuronal processes, and implications for treatment. *Neuroscience & Neuroeconomics*, 4, 11-23. <http://dx.doi.org/10.2147/NAN.S60982>
- Sachitra, K. M. V. (2016). Internet addiction, academic performance and university students. *Journal of Global Research in Education and Social Science*. 3(4), 179-186
- Salmela-Aro, K., Upadyaya, K., Hakkarainen, K., Lonka, K., & Alho, K. (2017). The dark side of Internet use: Two longitudinal studies of excessive Internet use, depressive symptoms, school burnout and engagement among Finnish early and late adolescents. *Journal of Youth and Adolescence*, 46(2), 343-357. doi:10.1007/s10964-016-0494-2
- Seo, M., Kang, H. S., & Yom, Y. H. (2009). Internet addiction and interpersonal problems in Korean adolescents. *CIN: Computers, Informatics, Nursing*, 27(4), 226-233. doi:10.1097/NCN.0b013e3181a91b3f
- Servidio, R. (2014). Exploring the effects of demographic factors, Internet usage and personality traits on Internet addiction in a sample of Italian university students. *Computers in Human Behavior*, 35, 85-92. doi:10.1016/j.chb.2014.02.024
- Shaw, M., & Black, D. W. (2008). Internet addiction. *CNS Drugs*, 22(5), 353-365. <https://doi.org/10.2165/00023210-200822050-00001>
- Smith, A. R., Chein, J., & Steinberg, L. (2013). Impact of socio-emotional context, brain development, and pubertal maturation on adolescent risk-taking. *Hormones and Behavior*, 64(2), 323-332. <https://doi.org/10.1016/j.yhbeh.2013.03.006>
- Tsai, H. F., Cheng, S. H., Yeh, T. L., Shih, C. C., Chen, K. C., Yang, Y. C., & Yang, Y. K. (2009). The risk factors of Internet addiction—A survey of university freshmen. *Psychiatry Research*, 167(3), 294-299. <https://doi.org/10.1016/j.psychres.2008.01.015>
- Tsitsika, A. K., Andrie, E. K., Psaltopoulou, T., Tzavara, C. K., Sergentanis, T. N., Ntanasis-Stathopoulos, I., & Tsolia, M. (2016). Association between problematic Internet use, socio-demographic variables and obesity among European adolescents. *The European Journal of Public Health*, 26(4), 617-622. <https://doi.org/10.1093/eurpub/ckw028>
- Wang, C. W., Ho, R. T., Chan, C. L., & Tse, S. (2015). Exploring personality characteristics of Chinese adolescents with internet-related addictive behaviors: Trait differences for gaming addiction and social networking addiction. *Addictive Behaviors*, 42, 32-35. <https://doi.org/10.1016/j.addbeh.2014.10.039>
- Wang, L., Luo, J., Bai, Y., Kong, J., Luo, J., Gao, W., & Sun, X. (2013). Internet addiction of adolescents in China: Prevalence, predictors, and association with well-being. *Addiction Research & Theory*, 21(1), 62-69. <https://doi.org/10.3109/16066359.2012.690053>
- Wang, Y., Wu, A. M., & Lau, J. T. (2016). The health belief model and number of peers with internet addiction as inter-related factors of Internet addiction among secondary school students in Hong Kong. *BMC Public Health*, 16(1), 272. <https://doi.org/10.1186/s12889-016-2947-7>
- Weinstein, A., & Lejoyeux, M. (2010). Internet addiction or excessive Internet use. *The American Journal of Drug and Alcohol Abuse*, 36(5), 277-283. doi:10.3109/00952990.2010.491880
- Whang, L. S. M., & Chang, G. (2004). Lifestyles of virtual world residents: Living in the on-line game "Lineage". *Cyber-Psychology & Behavior*, 7(5), 592-600. <https://doi.org/10.1089/cpb.2004.7.592>
- Widyanto, L., & Griffiths, M. (2006). 'Internet addiction': A critical review. *International Journal of Mental Health and Addiction*, 4(1), 31-51. doi:10.1007/s11469-006-9009-9
- Xin, M., Xing, J., Pengfei, W., Houru, L., Mengcheng, W., & Hong, Z. (2018). Online activities, prevalence of Internet addiction and risk factors related to family and school among adolescents in

- China. *Addictive Behaviors Reports*, 7, 14-18. <https://doi.org/10.1016/j.abrep.2017.10.003>
- Xiuqin, H., Zhang, H., Li, M., Wang, J., Zhang, Y., & Tao, R. (2010). Mental health, personality, and parental rearing styles of adolescents with Internet addiction disorder. *Cyber-psychology, Behavior, and Social Networking*, 13(4), 401-406. <https://doi.org/10.1089/cyber.2009.0222>
- Younes, F., Halawi, G., Jabbour, H., El-Osta, N., Karam, L., Hajj, A., & Khabbaz, L. R. (2016). Internet addiction and relationships with insomnia, anxiety, depression, stress and self-esteem in university students: A cross-sectional designed study. *PLOS ONE*, 11(9), 1-13. doi:10.1371/journal.pone.0161126
- Young, K. (2016). *Internet addiction test (IAT)*. Stoelting.
- Young, B. (2006). A study on the effect of Internet use and social capital on the academic performance. *Journal of Development and Society*, 35(1): 107-123.
- Young, K. S. (1999). Internet addiction: Evaluation and treatment. *BMJ*, 319, 9910351. <https://doi.org/10.1136/sbmj.9910351>
- Yuen, C. N., & Lavin, M. J. (2004). Internet dependence in the collegiate population: The role of shyness. *Cyber Psychology & Behavior*, 7(4), 379-383. <https://doi.org/10.1089/cpb.2004.7.379>