

The Prevalence of Internet Addiction in Arab Countries: A Review

Background

DEFINITION

The study of internet addiction is a result of Dr. Ivan Goldberg's 1995 parody of the DSM-IV's criteria for pathological gambling. Although he and other mental health professionals were (and are still) staunchly against classifying internet use as an addiction,¹ Goldberg's satirical forum post was taken seriously by many people and subsequently researched. Dr. Kimberly Young, possibly the most extensive researcher of the subject, also started by modifying the criteria for compulsive gambling and has defined internet addiction as an impulse-control disorder that does not involve an intoxicant.²

Some investigators agree with this classification of internet addiction as an impulse control disorder.^{3,4} Others group internet addiction with substance addiction disorders alongside alcohol and drug abuse. Still others maintain that it is not an independent disease, merely a symptom of an underlying psychiatric disorder.⁵

You could argue that internet addiction falls under behavioral addiction.^{6,7} Some believe that the internet itself is merely a medium and cannot be considered the subject of addiction.⁸ This thinking seems to be in line with the existence of different types of internet addiction.

TYPES OF INTERNET ADDICTION

Young classifies internet addiction into cybersexual addiction, cyberrelational addiction, net compulsions, information overload, and computer addiction.

Internet Gaming Disorder is widely studied as an entity on its own,⁹⁻¹¹ and Starcevic brings up cyberchondria, cyberbullying, cybersuicide, and cybersex as separate addictions.¹² Other researchers simply diagnose "internet addiction" and record the most prevalent activities, such as general surfing, internet gaming, online shopping, social networking, streaming media, and pursuing pornography.¹³

DIAGNOSIS

While Young's Internet Addiction Test (IAT), a 20-question Likert-type questionnaire modified in 1998 from her original Diagnostic Questionnaire (DQ), seems to be the most commonly used, many other researchers have proposed their own criteria or modified existing criteria to fit their perceived needs.¹⁴⁻¹⁹ Other prominent diagnosis methods include

the Problematic Internet Use Questionnaire (PIUQ)²⁰ and the Revised Chen Internet Addiction Scale (CIAS-R).²¹

As there is no one accepted standard among the variety of diagnosis methods, and subjects can be addicted to different activities within the internet, it is difficult to determine the epidemiology of internet addiction.

RISK FACTORS

Since the majority of studies done on the subject are cross-sectional, we cannot with great confidence determine risk factors. It has, however, been shown that internet addicted individuals have a tendency towards introversion, fear of intimacy,²² lower emotional intelligence,²³ even lesser cognitive function.²⁴

Internet addiction is significantly correlated with depressive and anxiety disorders, as well as ADHD.²⁵ Overinvolved or overprotective parenting styles often leave children with no other outlet but the internet, leading to addiction.²⁶

One prospective study finds that internet addicted adolescents are twice as likely to engage in self-harm or suicidal behavior as their non-addicted peers.²⁷ Another shows that students showed a significant increase in depression, anxiety, hostility, interpersonal sensitivity, and psychoticism after one year of internet addiction.²⁸

PREVALENCE

Understandably, researchers who used different diagnostic methods report wildly varying prevalence rates. Even using Young's IAT with the unified cutoff score of ≥ 50 , results range from 8.9% in India²⁹ to 20.8% in Greece.³⁰

TREATMENT

The goal of treatment should not be to eliminate usage but to reduce it to a level that does not impair personal relationships or professional function. Symptoms of internet addiction, such as irritation and dysphoria when access is restricted and the inability to refrain from online activities even when it impairs real-life functioning, can be significantly reduced with cognitive behavioral therapy,³¹ and integrative therapy is even more effective.³² Internet addiction can also be treated with pharmacotherapy, although case studies are limited.³³ An intervention program containing self-regulation strategies can even prevent internet addiction.³⁴ Somewhat ironically, there are also internet addiction support groups in the form of online chat rooms.

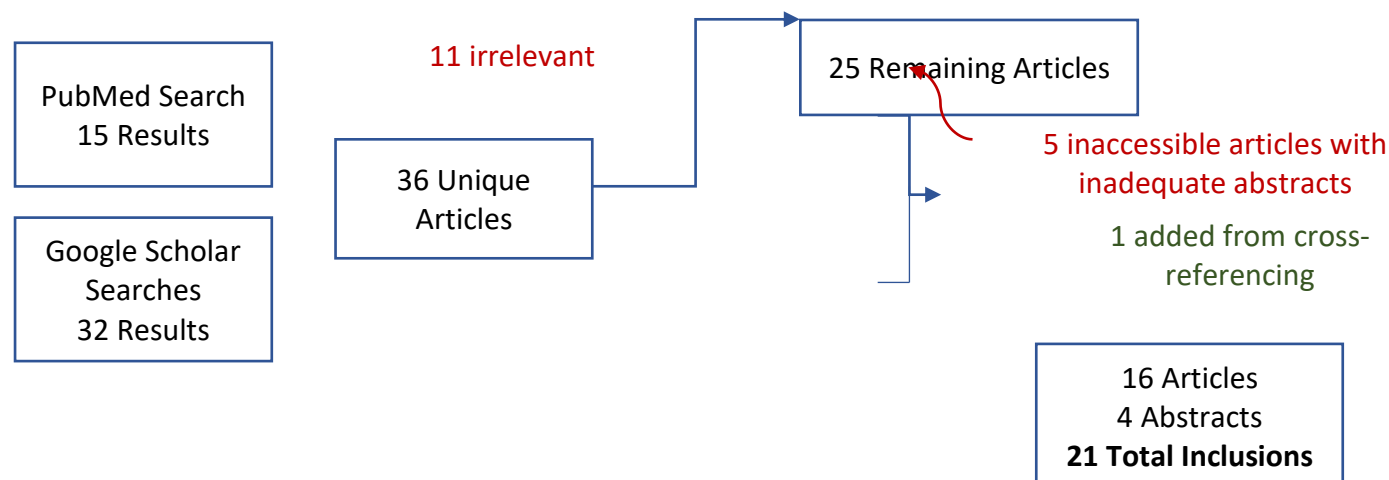
AIM

There are a few review articles comparing internet addiction rates across countries, but many of them do not differentiate between diagnosis methods. We aim, in this review, to compare the prevalence of internet addiction in Arab countries by diagnostic questionnaire used: Young's Internet Addiction Test (IAT).

Method

On April 17, 2018, we searched the PubMed and Google Scholar databases for articles studying any of the 22 Arab countries with *Internet Addiction*, *Excessive Internet*, *Pathological Internet*, *Internet Use Disorder*, *Internet Dependence*, or *Internet Dependency* in the title.

After removing duplicates, we had 36 articles, 11 of which did not report the prevalence and were deemed irrelevant. One was added from cross-referencing. This resulted in a total of 25 articles, of which 4 were inaccessible to us *and* did not report prevalence in the abstract.



PubMed Search (15 Results)

(Internet addiction[Title] OR Problematic Internet[title] OR Pathological Internet[title] OR Excessive internet[Title] OR Internet Dependence[title] OR Internet Use Disorder[title]) AND (Algeria OR Algerian OR Bahrain OR Bahraini OR Comoros OR Comorian OR Djibouti OR Djiboutian OR Egypt OR Egyptian OR Iraq OR Iraqi OR Jordan OR Jordanian OR Kuwait OR Kuwaiti OR Lebanon OR Lebanese OR Libya OR Libyan OR Mauritania OR Mauritanian OR Morocco OR Moroccan OR Oman OR Omani OR Palestine OR Palestinian OR Qatar OR Qatari OR Saudi OR Arab OR Arabian OR Gulf OR Somalia OR Somali OR Sudan OR Sudanese OR Syria OR Syrian OR Tunisia OR Tunisian OR UAE OR Emirati OR Yemen OR Yemeni)

Google Scholar Search (32 Results)

Because searching on Google Scholar is less flexible than on PubMed, we conducted a

similar, but narrower, search in twelve parts. The character limit caused us to search each title entry three times, breaking up the locations into both searches.

Locations: Algeria OR Algerian OR Bahrain OR Bahraini OR Comoros OR Comorian OR Djibouti OR Djiboutian OR Egypt OR Egyptian OR Iraq OR Iraqi OR Jordan OR Jordanian OR Kuwait OR Kuwaiti OR Lebanon OR Lebanese OR Libya OR Libyan OR Mauritania OR Mauritanian OR Morocco OR Moroccan OR Oman OR Omani OR Palestine OR Palestinian OR Qatar OR Qatari OR Saudi OR Arab OR Arabian OR Gulf OR Somalia OR Somalian OR Sudan OR Sudanese OR Syria OR Syrian OR Tunisia OR Tunisian OR UAE OR Emirati OR Yemen OR Yemeni

Results

Studies Using Translated Versions of Young’s Internet Addiction Test (IAT)

Young’s IAT (see [Table 1](#)) is a diagnostic questionnaire with possible results of 0 to 100. A score of 50-79 represents “occasional or frequent internet problems,” also called *moderate addiction*, and 80-100 means “significant problems,” also called *severe addiction*. Most researchers merge both categories and simply report those with scores of 50-100 as internet addicted. Some (shown at the bottom of the table) choose different cutoff points.

Country, Year	Study Population	Score	Related Factors
Saudi Arabia, 2018 ³⁵	306 respondents selected at random in Saudi Arabia	≥50: 59%	• Higher education
Jordan, 2017 ³⁶	720 high school students selected by random cluster sampling with 99% response	≥50: 6.3%	• Female • Anxiety/Depression • Mother with higher education
Saudi Arabia, 2016 ³⁷	A convenience sample of 147 nursing students in one university	50-79: 38.4% ≥80: 2.1% ≥50: 40.5%	• Depression
Lebanon, 2015 ³⁸	780 healthcare university students selected by random stratified sampling with 77% response	≥50: 16.8%	• Male • Smoking • Anxiety, depression, stress • Low self-esteem
Jordan, 2014 ^{39,40}	650 undergraduate students selected by systematic random sampling from six universities with 90% response	≥50: 40%	• Younger age • Depression, stress • Less family support • Using avoidance as a coping strategy

Country, Year	Study Population	Score	Related Factors
Palestine, 2013 ⁴¹	All 320 nursing students at one university with 73.75% response	≥50: 52.5%	• Male
Tunisia, 2013 ⁴²	580 college students with 96% response recruited by dividing all colleges into 5 fields and approaching a convenience sample from 1 college in each field	≥50: 54%	• Smoking • Younger age • Low parental education • Illicit drug use
Egypt, 2012 ⁴³	620 students from four high schools selected by random sampling with 98% response	≥50: 20.8%	• Male • Bad family relationship • Nonworking mother • No physical activity
Egypt, 2011 ⁴⁴	All 539 students from 16 classes in four high schools were encouraged to participate with 92.9% response	50-79: 22.2% ≥80: 0.8% ≥50: 23%	• Social and specific phobias • Oppositional defiant disorder • Generalized anxiety disorder • ADHD
Qatar, 2010 ⁴⁵	3000 students aged 12-25 selected by stratified random sampling with 76.6% response	≥50: 17.6%	• Male • Nonworking mother • Depression • No physical activity
Kuwait, 2009 ⁴⁶	215 students randomly selected from one college with 94.8% response	≥50: 31.8%	• Male
Egypt, 2014 ⁴⁷	1906 students chosen by multistage random sampling from one university with 86.9% response	>40: 45.4%	• Male • Scientific college
Lebanon, 2011 ⁴⁸	817 students who responded to a survey intended for all private and public secondary schools	>40: 39.1%	• Younger age • The first language is English (rather than French)
Tunisia, 2011 ⁴⁹	All 1,330 students in the second and third grades of two secondary schools with 74% response	≥70: 11.6%	• Male • Mood and behavioral disorders
Egypt, 2015 ⁵⁰	861 Egyptian and Malaysian 4 th year medical students from one university	>80: 2.7%	• More frequent adverse health effects

Studies Using Other Diagnostic Methods

Studies with an asterisk (*) were not fully available to us and only the abstracts were analyzed.

Country, Year	Study Population	Diagnosis	Addiction	Related Factors
*Tunisia, 2018 ⁵¹	60 medical students at one university	Young DQ	Addicted: 23.6%	• A self-perception of excessive Facebook use
*Tunisia, 2009 ⁵²	600 urban secondary school students with 97.8% response	Young DQ	Addicted: 18%	Not reported
*Algeria, 2016	187 students from one university	Orman	Addicted: 59.3%	• Stress
*Algeria, 2014 ⁵³	532 university students	Orman	Medium risk: 32.6% High risk: 26.7%	• Stress • Tobacco consumption • Less practicing of sports
*Algeria, 2012 ⁵⁴	345 students	ISS ⁵⁵	At risk: 23%	Not reported in abstract
Jordan, 2015 ⁵⁶	600 high school students	Other	At risk: 61.7% Addicted: 8.5%	• Social problems • Cognitive difficulties • Anxiety/depression • Aggression and misconduct

Prevalence

Fifteen of the twenty-one articles studied used Young's Internet Addiction Test for diagnosis, with four of them using arbitrary cutoff points of their own choosing. The remaining six used Young's DQ, Orman's Internet Addiction Scale, Van Deursen's Internet Skills Scale, and one Jordanian researcher used a questionnaire of his own devising.

The studies using IAT with standardized scoring reported addiction rates ranging from an outlier of 6.3% in Jordanian high school students to 59% of randomly selected individuals in Saudi Arabia, with a median addiction rate of 32% in college students in Kuwait.

Prevalence was lowest among high school students, with rates of 6% in Jordan, 21 and 23% in Egypt, and 18% in a sample of students aged 12 to 25 in Qatar. College and university

students showed higher addiction rates: 17% of Lebanese healthcare students were addicted, 32% of college students in Kuwait, 40% in Jordan, 41% in Saudi Arabia, 53% in Palestine, and 54% in Tunisia. The highest percentage, 59%, was taken from a random sample in Saudi Arabia.

Those who used a cutoff score of 40, rather than 50, to diagnose internet addiction found rates of 39.1% in a convenience sample of high school students in Lebanon and 45.4% in Egyptian university students.

Related Factors

Seven of the articles found that males were significantly more addicted than females, while only one with opposite result. Some found no correlation between sex and internet addiction.

In six studies, internet addiction was found to be significantly related to depression. Four showed significant relationships with anxiety and stress.

Three studies found a significant relationship between internet addiction and a nonworking mother or low parental education, while one found that internet addiction was significantly related to a mother with higher education. Two showed that bad familial relationships were significantly related to internet addiction.

Three showed that the younger aged members of the group were correlated with addiction, while one showed that internet addiction was correlated with higher education in general and another with scientific colleges specifically.

Other significantly related factors include less physical activity, smoking or tobacco use, social phobia or social problems, low self-esteem, ADHD, mood or behavioral disorders, cognitive difficulties, having a phobia, using illegal drugs, using avoidance as a coping mechanism, and getting sick more frequently.

Discussion

The current research on internet addiction in Arab countries shows a prevalence of 6-23% addiction in high school students and 17-54% in college students.

Using the same test and cutoff point (≥ 50), this is consistent with high school prevalence rates of 8.7% in India,⁵⁷ 18.2% in Turkey,⁵⁸ 18.7% in Italy,⁵⁹ 23.7% in Japan,⁶⁰ and 26.4% in China.⁶¹

It is also consistent with college student prevalence rates of 21.6% in Korea⁶² and 35.4% in Nepal,⁶³ but Arab college students seem to be more addicted than their peers in India, China,

and Thailand, where college student internet addiction prevalence rates of 8.9%, 6.44%, and 5.9%, respectively, were found.^{29,64,65}

In cross-sectional studies included in this review, internet addiction is most often correlated with being male, depression, anxiety, and stress. We have also found correlations with ADHD, parental education, and low self-esteem. As mentioned previously,^{22-26,66} these findings are consistent with many other studies.⁶⁷⁻⁶⁹

Although Internet addiction is negatively correlated with self-esteem, it has been found by one study to also be positively correlated with narcissism.⁶⁶ This is plausible because the virtual world of the internet is a comfortable place for those with low real-life social skills who prefer to engage in online social media. Social media, in turn, encourages self-promotion through text, image, or video posts where users are completely in control of what others can see. This encourages narcissistic views of one's online persona while disregarding their real-life character.

Since internet addiction does not have the gravity of other disorders, most studies were simply cross-sectional. There are, however, a few prospective studies that found internet addiction to increase students' risk of depression, anxiety, and engaging in self-harm or suicide.^{27,28}

One limitation of our review is that we only searched two databases, PubMed and Google Scholar. But the true limitations of studying the prevalence of internet addiction lies within the analyzed research: primarily, researchers are not consistent in their diagnostic methods.

Additionally, some of the researchers confused between young's two internet addiction diagnostic methods; one article claimed to be using Young's Internet Addiction Test (IAT) then proceeded to describe an 8-item questionnaire where a score of ≥ 5 "yes" answers is diagnostic of addiction. This is Young's Diagnostic Questionnaire (DQ).

Thanks to the scarcity of Arab research on the subject, we were able to analyze all available studies for inclusion in this review.

Conclusion

Internet addiction, in its extreme form, can cause deterioration of real-life relationships, loss of opportunities, impairment in school or work functionality, and plummeting self-esteem. It is unclear whether the affected individuals would be better off without using the internet, or if it is simply the safest manifestation of their addictive tendencies.

We believe future studies in the region should focus on whether internet addiction is detrimental to physical or mental health; for that, more experimental or cohort designs are in order.

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Appendix

Table 1: Young's 1998 Internet Addiction Test (IAT)

0: does not apply, 1: rarely, 2: occasionally, 3: frequently, 4: often, 5: always.

Scoring: 20-49: average, 50-79: occasional or frequent internet problems, 80-100: significant problems.

Question		Scale					
1	How often do you find that you stay on-line longer than you intended?	1	2	3	4	5	0
2	How often do you neglect household chores to spend more time on-line?	1	2	3	4	5	0
3	How often do you prefer the excitement of the Internet to intimacy with your partner?	1	2	3	4	5	0
4	How often do you form new relationships with fellow on-line users?	1	2	3	4	5	0
5	How often do others in your life complain to you about the amount of time you spend on-line?	1	2	3	4	5	0
6	How often do your grades or school work suffers because of the amount of time you spend on-line?	1	2	3	4	5	0
7	How often do you check your email before something else that you need to do?	1	2	3	4	5	0
8	How often does your job performance or productivity suffer because of the Internet?	1	2	3	4	5	0
9	How often do you become defensive or secretive when anyone asks you what you do on-line?	1	2	3	4	5	0
10	How often do you block out disturbing thoughts about your life with soothing thoughts of the Internet?	1	2	3	4	5	0
11	How often do you find yourself anticipating when you will go on-line again?	1	2	3	4	5	0
12	How often do you fear that life without the Internet would be boring, empty, and joyless?	1	2	3	4	5	0
13	How often do you snap, yell, or act annoyed if someone bothers you while you are on-line?	1	2	3	4	5	0
14	How often do you lose sleep due to late-night log-ins?	1	2	3	4	5	0
15	How often do you feel preoccupied with the Internet when off-line, or fantasize about being on-line?	1	2	3	4	5	0
16	How often do you find yourself saying "just a few more minutes" when online?	1	2	3	4	5	0
17	How often do you try to cut down the amount of time you spend on-line and fail?	1	2	3	4	5	0
18	How often do you try to hide how long you've been on-line?	1	2	3	4	5	0
19	How often do you choose to spend more time on-line over going out with others?	1	2	3	4	5	0
20	How often do you feel depressed, moody or nervous when you are off-line, which goes away once you are back on-line?	1	2	3	4	5	0