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ORIGINAL ARTICLE

Can Internet Anxiety Affect Electronic Journals Usage? A Cross-Sectional Study with Iranian Postgraduate Dental Students

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Abstract

Objective: To investigate internet anxiety among the dentistry students at Kerman University of Medical Sciences and its relationship with electronic journals use. **Material and Methods:** In this cross-sectional study, all 72 postgraduate dental assistants at Dentistry School of Kerman University of Medical Sciences were considered. Internet anxiety questionnaire included demographic questions and questions measuring online journals use and the barriers of using. The data then analyzed using independent t-test and linear regression, with significance level set at 5%. **Results:** The use of printed books was reported by 78.2% of the sample while the use of electronic books was 45.8%. The use of atlas was 28.9%, while the use of indexes and abstracts was 57.2. The participants used online journals mostly for research (30.8%) and education (27.7%). The most important advantages of online journals were fast access (25.1%) and easy use (19.9%). To get informed about online journals contents, they mostly used search engines and online databases (79%). The most important criterion was indexing in Web of Science (20.8%). A significant relationship between Internet anxiety and academic year was detected ($p<0.05$) also increase in internet use significantly increased Internet anxiety ($p=0.001$). We suggested increasing the knowledge and skill of dental students with online resources toward decreasing the level of their Internet anxiety. **Conclusion:** A reverse relationship was observed between the academic year and internet anxiety, in other words, senior students were more anxious than the junior ones. This study did not ask about computer literacy, other studies have reported a negative relationship between computer literacy, Internet literacy and internet anxiety, so it is suggested to increase the knowledge and skill of students with computer, internet and online resources.

Keywords: Computer Communication Networks; Internet; Periodical; Anxiety.

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Introduction

Internet has become a necessity of everyday life and presents a huge volume of information. It has also fundamentally changed the information search methods. Most of scientific information is electronically accessible and electronic resources have become popular as they bring information directly to the desktop through internet. Unique characteristics of Internet such as updated information, no time and place limitation, simplicity, low cost, anonymity of users has gained widespread acceptance [1].

Internet grows not only in size but also in complexity [2]. Although internet is widely used in education and students need to use it for various reasons, some students are reluctant and feel uncomfortable using it. Internet anxiety is the fear that an individual experience when using Internet [3]. According to some authors, an irrational anticipation of apprehension evoked by the thought of using internet, which may result in avoiding or minimizing internet usage is "Internet Anxiety"[4]. Four dimensions for internet anxiety were identified: internet terminology anxiety (because of jargons), net search anxiety (related to having problems limiting search results because of large amount of information), internet time delay anxiety (because of factors such as low connection speed) and general fear of internet failure (because of feeling that learning and navigating Internet does not match their capabilities) [3].

Internet anxiety has been proved to influence internet use [5-7]. On the other hand, libraries spend a lot of money to prepare electronic resources for the faculty and students, while internet anxiety can negatively influence internet use and consequently electronic journals. Some studies have reported the negative relationship between internet anxiety and internet use [7,8]. According to previous research, one student of 10 suffers from internet anxiety [9]. The relationship between internet identification, internet anxiety and internet use among 446 students (two universities in UK and one in Australia) was investigated. They found a significant and negative relationship between internet anxiety and internet use. There was also a significant and negative relationship between internet anxiety and internet identification. Males had a significantly higher internet identification score than females [7].

The internet anxiety among Iranian students at Ferdowsi and Birjand Universities was explored. Of 236 graduate students at Master levels, 82.1% had internet anxiety less than average. No significant difference among means internet anxiety score among female and male students as well as students from various disciplines were found [10]. Students at Shiraz University and Medical Shiraz University were studied for internet anxiety and it was demonstrated that the majority (73.8%) had internet anxiety lower than average. All the studies indicated that some people suffer from Internet anxiety and a positive relationship between internet anxiety and use has been proven [11].

Since journals are the main source of information, on the other hand, nowadays, about 96 percent of journals are in electronic format, so internet use is unavoidable, and since a positive relationship has been proven between internet anxiety and internet use, we investigated internet

anxiety among the dentistry students at Kerman University of Medical Sciences and its relationship with electronic journals use. The students at Dentistry school experience research and have to write a thesis to be graduated. On the other hand, school library spends much money to provide information resources needed. Most of the required journals are in the electronic format. The findings of this study give some information about the internet anxiety among the dentistry students and some solutions can be considered by the managers and librarians to lower the internet anxiety and to increase e-journals' use.

Material and Methods

Study Design and Sample

This is a descriptive-analytical, cross-sectional study. All 72 postgraduate dental assistants at Dentistry School of Kerman University of Medical Sciences were considered. Non sampling was done.

Data Collection

Two questionnaires were anonymously distributed among the postgraduate dental students. Internet anxiety questionnaire consisted of 20 questions and its reliability (94%) and validity (96%) was measured previsouly [10]. The other questionnaire consisted of some demographic questions (sex, age, major, academic year) and 7 more questions measuring online journals use and the barriers of using. The period of using the journals was year.

Data Analysis

Data were analyzed using IBM SPSS Statistics for Windows Software, version 21 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to calculate the absolute and relative frequencies and mean. Independent t-test and Linear Regression were used, with significance level set at 5%.

Ethical Aspects

This research was approved by the Ethics Research Committee of the Kerman University of Medical Sciences.

Results

Seventy-two postgraduate assistants participated and the majority was female (61.2%). The mean of age was 28.8 (minimum 27 years and maximum 47 years). According to Table 1, 39.1% of the participants was at the third academic year.

Online journals' use is presented in Table 2. The use of printed books (very high or high) was reported by 78.2% of the sample while the use of electronic books (very high or high) was 45.8%. For journals, online journals were used more than printed journals.

Table 1. Distribution of the sample according to demographic characteristics.

Variables	N	%
Gender		
Female	44	61.1
Male	28	38.9
Total	72	100.0
Academic Year		
One	19	27.5
Two	17	24.6
Three	27	39.1
Four or More	6	8.7
Total	69	100.0
Subspecialty		
Endodontics	10	13.9
Prosthodontics	10	13.9
Restorative	8	11.1
Pediatrics	7	9.7
Orthodontics	11	15.3
Periodontics	6	8.3
Surgery	9	12.5
Oral Medicine	6	8.3
Dental Materials	3	4.2
Dental Public Health	2	2.8
Total	72	100.0

Table 2. Distribution of the sample according to the use of books and journals.

Information Resources	Use	N	%
Printed Books	Too High	23	33.3
	High	31	44.9
	Moderate	10	14.5
	Low	5	7.3
Electronic Books	Too High	15	21.5
	High	17	24.3
	Moderate	25	35.7
	Low	7	10.0
	Very Low	5	7.1
	Never	1	1.4
Printed Journals	Too High	7	10.3
	High	11	16.2
	Moderate	16	23.5
	Low	19	27.9
	Very Low	10	14.7
	Never	5	7.4
Electronic Journals	Too High	15	20.8
	High	23	31.9
	Moderate	19	26.4
	Low	8	11.1
	Very Low	6	8.3
	Never	1	1.5

Regarding other sources of information, the use of atlas (very high or high) was 28.9%, while the use of indexes and abstracts (very high or high) was 57.2 (Table 3).

Table 3. Distribution of the sample according to the use of information resources.

Information Resources	Use	N	%
Atlas	Too High	3	4.3
	High	17	24.6
	Moderate	12	17.4
	Low	21	30.4
	Very Low	15	21.7
	Never	1	1.4
Indexes and Abstracts	Too High	20	28.6
	High	20	28.6
	Moderate	9	12.9
	Low	11	15.7
	Very Low	8	11.4
	Never	2	2.8
Printed Theses	Too High	3	4.4
	High	6	8.8
	Moderate	15	22.1
	Low	23	33.8
	Very Low	11	16.2
	Never	10	14.7
Others	Very Low	2	28.6
	Never	5	71.4

The participants used online journals mostly for research (30.8%) and education (27.7%) (Table 4). The most important advantages of online journals were fast access (25.1%) and easy use (19.9%).

Table 4. Distribution of the sample according to reasons for use of online journals.

Reasons for Use	Categories	N	%
Professional	Education	36	27.7
	Research	40	30.8
	Treatment	24	18.5
	Updating Professional Information	29	22.3
	Others	1	0.8
Journals Use	Printed	7	9.7
	Electronic	65	90.3
Reasons	Easy Use	38	19.9
	Fast Access	48	25.1
	Portable	20	10.5
	Fast Browsing	24	12.6
	Better Durability of Information	13	6.8
	Best Quality	12	6.3
	Most Updated	35	18.3
	The Possibility of Underlying and Highlighting	1	0.5

To get informed about online journals contents, they mostly used search engines and online databases (79%). The most important criterion was indexing in Web of Science/Journal Citation Reports (JCR) (20.8%). The most common frequency of use was weekly (47.2%), while one of the respondents used online journals annually. All had access to online journals and a large number of the respondents declared that they usually had access to online journals (54.2%). Although online

journals were used more than printed form but 56.9% preferred to print papers for reading. More than half of the respondents preferred to have access to these online journals at home (59.1%). The most important barriers to online journals were limit access to online journals (46.5%) and low-speed Internet access (42.6).

Table 5. Criteria for selecting eletronic journals.

Content	Use	N	%
How to Get Informed of the E-Journals' Contents	Alert	4	4.9
	Searching Databases and Engines	64	79.0
	Journals' Websites	13	16.1
Criteria for Selecting an E-Journal	Persian Scientific Journals (PSJ)	2	2.8
	English Scientific Journals (ESJ)	2	2.8
	Journals in Web of Science/JCR (JCR)	15	20.8
	PSJ + ESJ + JCR	50	69.4
	ESJ + JCR	1	1.4
	PSJ + JCR	2	2.8
Extent of E-Journals' Use	Daily	13	18.1
	Weekly	34	47.2
	Monthly	20	27.8
	Yearly	1	1.4
	Rarely	4	5.6
Extent of E-Journals' Access	Always	11	15.3
	Often	39	54.2
	Sometimes	17	23.6
	Rarely	5	6.9
Preferred Method to Read the Papers in E-Journals	Printing	41	56.9
	Monitor Reading	31	43.1
Place to Have Access to E-Journals	Workplace	8	11.3
	Home	42	59.1
	Workplace and Home	21	29.6
Problems with E-Journals	Low Speed of Internet	43	42.6
	Low Skill on Internet	11	10.9
	Limited Access to E-Journals	47	46.5

Table 6 indicates the internet anxiety among the respondents. A total of 34.7% of the participants stated that they felt calm when they thought about the internet.

Table 6. The respondents reply to Internet Anxiety Scale.

Questions		Strongly Disagree	Disagree	Agree	Strongly Agree
I feel calm when I think about the Internet	N	10	26	25	10
	%	13.9	36.1	34.7	13.9
I feel secure when I work with the Internet	N	13	23	29	4
	%	18.1	31.9	40.3	5.6
I am tense when I work with the Internet	N	29	18	6	2
	%	40.3	25	8.3	2.8
I feel strained when the Internet doesn't do what I want	N	7	17	27	19
	%	9.7	23.6	37.5	26.4
I feel at ease when I am given an Internet-related assignment	N	5	34	22	8
	%	6.9	47.2	30.6	11.1
I feel upset when I am given an Internet-related assignment	N	29	24	6	2
	%	40.3	33.3	8.3	2.8
I am presently worried about the possible Internet assignments for this class	N	23	28	11	2
	%	31.9	38.9	15.3	2.8

I am satisfied when I think about an Internet-related assignment	N	11	25	27	7
	%	15.3	34.7	37.5	9.7
I feel frightened when I think I will need to work with the Internet	N	39	15	4	1
	%	54.2	20.8	5.6	1.4
I feel comfortable when I think about doing Internet assignments	N	11	25	29	4
	%	15.3	34.7	40.3	5.6
I feel self-confident when I think about working with the Internet	N	12	21	31	8
	%	16.7	29.2	43.1	11.1
I feel nervous when I think about working with the Internet	N	28	23	5	0
	%	38.9	31.9	6.9	0
I am jittery when I am on the Internet	N	37	15	4	1
	%	51.4	20.8	5.6	1.4
I feel indecisive when I need to get an answer or information from the Internet	N	20	28	9	1
	%	27.8	38.9	12.5	1.4
I am relaxed when I transmit information over the Internet	N	5	11	44	10
	%	6.9	15.3	61.1	13.9
I feel content when I finish using the Internet	N	2	11	39	20
	%	2.8	15.3	54.2	27.8
I am worried when I finish using the Internet	N	41	13	3	-
	%	56.9	18.1	4.2	-
I feel confused when I try to think through the information I need in order to access information on the Internet	N	26	25	8	-
	%	36.1	34.7	11.1	-
I feel steady when I get ready to use the Internet	N	11	23	33	5
	%	15.3	31.9	45.8	6.9
I feel pleasant when I think about the Internet	N	11	24	31	6
	%	15.3	33.3	43.1	8.3

A total of 63.9% of the participants had moderate Internet anxiety, 29.2% low Internet anxiety and 2.8% had high Internet anxiety. The mean of Internet anxiety was lower (69.1) among females than males (72). No significant relationship was found between Internet anxiety and gender ($p>0.05$). There was no significant relationship between Internet anxiety and major ($p>0.05$). Linear regression indicated a significant relationship between Internet anxiety and academic year, so that as academic year increased, Internet anxiety also increased ($p<0.05$). Every one academic year increased, Internet anxiety increased 2.9 scores. Increase in Internet use significantly increased Internet anxiety ($p=0.000$).

Discussion

Internet anxiety was investigated among postgraduate dental assistants when using online journals. The mean of internet anxiety was about 70, while other studies revealed lower values [10,11]. These two studies [5,11] focused on internet anxiety among postgraduate students. Postgraduate students are more engaged in research and maybe that's why they had less anxiety. Internet anxiety was lower among undergraduate dentistry students at Kerman University of Medical Sciences [12].

A previous study showed that most of the students had Internet time delay anxiety, while 3 other forms of internet anxiety were seldom observed [13]. The rate of internet use and the major had important role in predicting internet anxiety [14]. A previous study compared first and second generation Digital Natives' attitudes towards and use of the Internet. The sample of first generation

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consisted of 558 students born after 1980 and surveyed in 2002. The sample of second generation consisted of a sample of 458 students born after 1993 and surveyed in 2012. Second generation had more positive attitudes towards the Internet and higher scores on the Internet Identification scale than the other group. They were less anxious with the Internet compared with first generation [15].

A previous research conducted to explore the Internet anxiety of 136 Taiwan high school and vocational high school teachers. He identified four aspects of Internet anxiety: Internet use, hardware construction, management of students' Internet-use, and learning computer-related skills and knowledge. Among these, respondents ranked anxiety over managing students' Internet-use as the highest problem. He also found out that female teachers had significantly higher Internet anxiety than did male teachers, and teachers' subject areas contributed significantly to the level of Internet anxiety. Computer-use hours per week and Internet-use hours per week has significant correlation with all four aspects of anxiety [5]. The research studied the nature of the relationship between library anxiety and internet anxiety among graduate students of the University of Pittsburgh. According to the results, library anxiety and internet anxiety existed among the subjects of this study. Internet use frequency and major were significant in predicting internet anxiety [14].

There is a negative relationship between internet anxiety and age, perhaps that's why the dentistry undergraduate students at the Kerman University of Medical Sciences showed lower anxiety than the postgraduates. Internet anxiety is influenced by some personality characteristics. Mihmanchi et al found that of the five personality traits, neuroticism and consciousness could predict the probability of internetanxiety [1]. The besides personality characteristics, beliefs and society supports affects internet anxiety. They concluded that providing useful resources and a supportive interface may decrease internet anxiety among the users [16].

The most used resources were printed books. It shows the students prefer printed textbooks yet. But online journals were used more than printed counterparts. This finding matches with a study [17]. The most important factor for using online journals was ease of use and speed of access. This study indicated no difference between two genders; it means internet anxiety was not significantly different between females and males. While previous studies showed that the females had more internet anxiety than males [5,13,11,18]. In one study also found no significant difference between female postgraduate students and males [10].

According to the findings, spending more time on internet had a negative relationship with internet anxiety, in a study also reported that those who used internet more, had less internet anxiety [5]. Internet anxiety was not significantly different among majors, but it was significantly different among majors in other studies [10, 11].

Conclusion

A reverse relationship was observed between the academic year and internet anxiety, in other words, senior students were more anxious than the junior ones. Maybe the senior students are stressed for doing thesis and publishing papers, so they are more anxious than juniors. This study

did not ask about computer literacy, other studies have reported a negative relationship between computer literacy, internet literacy and internet anxiety, so it is suggested to increase the knowledge and skill of students with computer, internet and online resources.

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Conflict of Interest: The authors declare no conflicts of interest.

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