

Information seeking anxiety among M.A. Students of Isfahan University of Medical Sciences

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ABSTRACT

Background: Information-seeking anxiety is a feeling caused by abundance of information or failure to properly interpret the information that can adversely affect the ability of individuals for seeking information and meeting their information needs. Therefore, it is necessary to investigate information-seeking anxiety, factors causing it, and methods for addressing and reducing this type of anxiety. The purpose of this study was to evaluate information-seeking anxiety in postgraduate students of Isfahan University of Medical Sciences. **Materials and Methods:** This study has been conducted using survey method. A total of 265 postgraduate students of Isfahan University of Medical Sciences were selected with the help of stratified random sampling. Data collection tool was a questionnaire designed for this purpose. The gathered data was analyzed using descriptive and inferential statistics. **Results:** The results indicated that the topic selection factor played a more prominent role in creating information seeking anxiety compared to other factors. Apart from students of school of medicine, information seeking anxiety was below average among the students. In addition, there was a significant difference between information seeking anxiety in students from different departments. Finally, female students had higher information seeking anxiety compared to male students. **Conclusion:** Although information seeking anxiety among students was lower than average in most cases, further reduction of anxiety could be achieved by facilitating access to information resources and library information services and increasing the quality of students' information literacy through training courses tailored to each discipline are necessary.

Key words: Information seeking anxiety, Isfahan University of Medical Sciences, students

INTRODUCTION

Anxiety is a psychological condition that is unavoidable due to the nature of human lives today. Controlled and mild anxiety is essential for a dynamic human society and human development.^[1] Anxiety, especially in learning and decision-making, has long been recognized as a factor in various stages of Information Seeking. As has been noted

in related literature, uncertainty and anxiety play key roles in different stages of the Information Seeking Process.^[2] Kuhlthau (1988) stated that anxiety is a natural feeling during the information seeking process which may appear in any one of the six stages of the research process (i.e., task initiation, research subject selection, pre-focus exploration, focus formulation, information gathering and search closure). She reported that feelings of anxiety and frustration were at their highest at the beginning of the search process when students suffered from confusion and lack of certainty.^[3] Information seeking anxiety is a feeling of abundance data or the inability to find or interpret them properly. Wurman states that

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information-seeking anxiety is the growing gap between what we can understand and what we think; we should be able to understand.^[4] This type of anxiety is influenced by six main factors including^[1] barriers related to the information resources such as resources constraints, resources abundance, availability of resources, novelty of resources, resource quality, resources relevance, familiarity with the resources and location of information resources;^[2] barriers related to computer and the Internet such as attitudes about the computers and Internet, the Internet and computer utilization skills and use of Internet resources;^[3] barriers related to library such as library buildings, attitudes toward the library, use the library services, interactions with librarians, physical conditions of the library (light, temperature, etc) library policies and rules and the library's OPAC.^[4] Barriers related to searching for information which relates to the users' sentiments in different stages of the process of information seeking.^[5] Technical barriers such as limited number of computers, Internet speed, rapid changes in the library technology and fear of damaging the equipment.^[6] Research subject selection barriers such as topic selection, keyword selection and beginning the process of searching for information. In a study conducted by Erfanmanesh on Iranian postgraduate students studying in Malaysia, the results showed that anxiety is a common complication among these students and 96.5% of the students have experienced anxiety. However the general level of anxiety was moderate. In addition, the most important factor in creating anxiety was the barriers in accessing information resources.^[5] Anxiety inducing factors can put pressure on individuals and can therefore directly influence the quantity and quality of their scientific production or even various other aspects of their personal life.^[6] Due to the various problems associated with the academic libraries in Iran as indicated by their users including dissatisfaction toward library and its services, being unable to ask for help from librarians and potential problems associated with the information seeking anxiety phenomenon, the main goal of the current study is to investigate the presence of Information seeking anxiety among the postgraduate students of Isfahan University of Medical Sciences. Also this study will try to determine the levels of anxiety present and investigate the difference in anxiety levels among various disciplines and genders. Khadivi's research^[1] states that information seeking anxiety is a major problem for students and can have negative effects on their ability to seek relevant information which shows the necessity of the current study. As a result, the purpose of this study is to determine anxiety level among postgraduate students and identifying the factors responsible for causing anxiety. So far, not many studies have investigated this topic especially in Iran. Much of the previous studies have been on the types of anxiety such as library anxiety or research anxiety. Some of which will be reviewed in the following section.

Findings by Erfanmanesh showed that students of education and psychology in Iran suffer from library anxiety. Male students having higher anxiety levels compared to female students. Among the eight factors affecting anxiety in the students, accessibility of services, library literacy and

access to resources were the most important factors and library's building was the least important factor in affecting the students' level of anxiety.^[3]

The findings of the study by Akbari Bourang and Rezaian about computer anxiety among the students of University of Arak showed that these students suffered from low levels of computer anxiety. Also there was no significant difference between the computer anxiety scores of males and female students.^[7]

Nowkarizi and Narmanji studied Internet anxiety in information seeking among postgraduate students of University of Birjand and Ferdowsi University of Mashhad. The results showed that participants showed signs of Internet anxiety during the process of preparing their thesis research projects. However, most respondents had below average Internet anxiety scores. Also female students showed higher levels of anxiety compared to male students. But there was no significant difference between students in different academic fields.^[6]

Rafieimoghadam *et al.* in their study entitled "Evaluation of library anxiety among students of Islamic Azad University, North Tehran Branch in years 89–90" showed that library anxiety was higher in women compared to men. Also, the highest anxiety level was reported in the Faculty of Engineering and the Faculty of Chemistry, while the Faculty of Humanities and Faculty of Marine sciences and technology showed the lowest anxiety levels.^[8]

Findings by Bowers about library anxiety in Law students showed that Law students had moderate levels of library anxiety. In addition, there was no meaningful difference between the library anxiety levels of male and female students.^[9]

Lu and Adkins in their study showed that physical barriers were the lowest source of library anxiety while emotional barriers and library staff were the greatest sources of library anxiety. Also, no significant difference was observed between library anxiety levels of male and female students nor there was a meaningful difference between library anxiety of international graduate students in different educational levels.^[10]

The results of Erfanmanesh's study about information seeking anxiety in postgraduate students showed that 96.5% of the students suffered from some levels of anxiety (low, moderate, severe and very severe), while only 3.5% of the students showed no signs of information seeking anxiety. The most important sources of anxiety among students were barriers related to information resources while the barriers related to computers and Internet experience were the least important sources of anxiety.^[5]

Ejiwoye and Ayandare in their study entitled "Test Anxiety and Information Seeking Behaviour of Undergraduate

Students of the Federal University of Technology, Akure, Ondo State, Nigeria” showed that there was a high level of test anxiety among respondents and that the factors impeding the use of information resources included lack of time, lack of current and up to date information resources and erratic power supply to use electronic resources.^[11]

Findings by Erfanmanesh *et al.* about information seeking anxiety showed that about 96.5% of the students have various levels of anxiety. Furthermore, factors related to library were the most important and factors related to Internet, computers and electronic resources were the least important sources of anxiety in the students.^[12]

The abovementioned studies show that there are some studies about anxiety and its variants such as computer and Internet anxiety, library and research anxiety have been conducted in Iran and other countries which indicates the importance of stress and anxiety in people’s lives with each study citing different reasons for anxiety in different groups of people. Also some studies have investigated the affect of demographic characteristics on anxiety levels. Most studies in this field used survey method and concluded that there is some amount of anxiety in almost all participants but reached different conclusions about the impact of demographic characteristics on anxiety. Therefore, the aim of this study is to assess information seeking anxiety among postgraduate students of Isfahan University of Medical Sciences and identifying the factors influencing anxiety levels in order to propose methods for removing these factors.

MATERIALS AND METHODS

This is an applied study conducted using survey method. The study population consisted of postgraduate students of Isfahan University of Medical Sciences (859 students) 265 of whom were selected based on the stratified random sampling method and Cochran sample size. Data was gathered using information seeking anxiety questionnaire presented by Erfanmanesh.^[13] The questionnaire consisted of 47 questions on the basis of Likert five-point scale from strongly agree to strongly disagree. It investigate six factors of information seeking anxiety including barriers related to information resources, computer skills, facilities and equipment, emotions, technical limitations and research subject selection and their related keywords. Questionnaire’s validity was confirmed by medical librarians and specialists, and it reliability was confirmed using Cronbach’s alpha (0.94). Data was collected by direct visits to various Faculties within the university. The gathered data was analyzed using SPSS software using descriptive (mean) and inferential (one sample *t*-test, *t*-test and ANOVA) statistics.

RESULTS

Based on the results, 76.6% of the respondents (206 individual) were female while 23.4% were male. Also 18.1% of the respondents studied in the school of Public Health,

25.7% in the School of Nursing and Midwifery, 24.5% in the School of Medicine, 7.5% in the School of Nutrition and Food Sciences, 3.8% in the School of Pharmacy, 9.8% in the School of Rehabilitation Sciences and 10.6% in the School of Management and Medical Information.

The results of one sample *t*-test on six factors in creating anxiety indicate show the influence of each factor [Table 1]. As can be seen in table 1, the anxiety caused due to access to information resources and subject selection is higher than average while other factors show less than average anxiety scores. Also the influence of access to information with a mean score of means of 3.21 is the highest while the anxiety score of computer and the Internet skills factor with a mean of 2.63 is lowest on the information seeking anxiety of the students.

Table 2 shows the results of one sample *t*-test of information seeking anxiety scores of students in various schools within the university. As can be seen, except school of medicine, students at other schools have lower than average information seeking anxiety scores. Accordingly, students of school of medicine with a mean score of 3.19 have the highest and students of the school of Management and Medical Information with an average score of 2.37 have the lowest information anxiety seeking scores. In addition, the mean score of information seeking anxiety among all students is 2.73.

Table 3 shows the results of the ANOVA test for comparing the information seeking anxiety scores of students from different schools. As can be seen, according to the results (*P* value <0.05), there is a statistically significant difference between anxiety scores of different schools. Table 4 shows the results of the follow-up Tukey’s test which shows that the difference is between the average scores of schools of Health and Nursing, schools of medicine and nursing and schools of Nursing, Management and Rehabilitation.

Table 5 shows the results of *t*-test for comparing the anxiety levels of students based on their gender. As can be seen according to obtained results (*P* value <0.05), there is a statistically significant differences in anxiety levels between the two groups are seeking. In other words, the anxiety score of female students is significantly higher than male students.

DISCUSSION

Anxiety, as one the most common mental disorders among students and academia has a direct relationship to incompetence, poor mental health, and unpleasant emotions. In addition, anxiety can lead to negative feelings, worrying and troubled behaviors.^[14] Anxiety is a normal emotion associated with the information seeking process and may occur at any stage of the process.^[15] Information seeking anxiety can be a barrier for obtaining and using information for academic purposes. Every aspect of information seeking behavior of individuals can be a predictable source of information seeking anxiety.^[16]

Table 1: One sample t-test for determining students' information seeking anxiety based on different anxiety factors

Criterion score: 3					
Information seeking anxiety factors	Mean	df	T	Mean difference	P
Access to information resources	3.21	264	4.217	0.21	0.000
Computer and Internet skills	2.63	264	-6.68	-0.37	0.000
Library facilities	2.76	264	-5.17	-0.24	0.000
Emotions during information seeking	2.84	264	-2.82	-0.16	0.005
Technical limitations	2.75	264	-4.32	-0.25	0.000
Subject selection	3.12	264	2.31	0.12	0.022
Information seeking anxiety	2.73	264	-6.152	-0.27	0.000

Table 2: One-sample t-test for determining the level of information seeking anxiety among students of various schools within the university

Criterion score: 3					
School	Number	Mean	df	T	P
Health	48	2.42	47	-5.471	0.000
Nursing and midwifery	68	3.19	67	2.367	0.021
Medicine	65	2.65	64	-3.957	0.000
Nutrition and food science	20	2.86	19	-0.957	0.352
pharmaceutics	10	2.63	9	-3.323	0.009
Rehabilitation science	26	2.55	25	-4.379	0.000
Management and medical information	28	2.37	27	-5.716	0.000
Total	265	2.73	264	-6.152	0.000

Table 3: ANOVA test results for comparing the score of information seeking anxiety in various schools within the university

Source of changes	Sum of squares	Degree of freedom	Average squares	F	P
Intergroup	24.249	6	0.000	9.299	0.000
Intragroup	112.126	258	0.435		
Total	136.375	264			

Regarding barriers in access to information resources, the most important cause of anxiety are lack of familiarity with information resources and the lack of reliable information resources and the quality of retrieved information while the least important causes of anxiety were judging the relevance of retrieved information and the quality of information. According to Erfanmanesh study,^[5] this factor had the largest influence while according to another study by Erfanmanesh^[3] this factor had the least amount of influence.^[9] This factor has been investigated in the study by Bowers while access to information resources has been investigated in the study by Rafieimoghadam *et al.*^[8] whose results showed that the mean anxiety score of students is higher in closed shelf library system compared to open shelves system. Also the study by Ejiwoye and Ayandare^[11] shows that lack of access to current and up to date information resources can be a barrier and a source of anxiety.

In regards to barriers related to computer and Internet skills, the results showed that anxiety was caused due to insufficient Internet and computer skills for seeking information and being uncomfortable in using electronic resources. In contrast, the lowest amount of anxiety was caused by the

role of computers in information seeking process and feeling uncomfortable in searching for online information. Several studies have shown a inverse relationship between experience with computers and Internet and anxiety including studies by Erfanamensh^[5] and Rafieimoghadam.^[8] The study by Erfanmanesh^[5] showed only a low influence on anxiety. The study by Rafieimoghadam *et al.*^[8] showed that familiarity with computers had no relationship to anxiety and people with varying levels of computer skills had similar anxiety levels. Finally, another study by Erfanmanesh *et al.*^[12] showed that computer skills have the least amount of effect on anxiety.

In the third dimension, The most amount of anxiety was caused by lack of sufficient services for postgraduate students and lack of opportunity for librarians to help in the information seeking process, while insufficient light and inappropriate buildings were the least influential sources of anxiety. Some studies including the studies by Bowers^[9] Erfanmanesh^[5] and Rafieimoghadam,^[8] Erfanmanesh,^[3] Lu and Adkins^[10] mention this factor as a cause of anxiety, while the study by Erfanmanesh *et al.*^[12] reporting that this factor has the most influence on creating anxiety.

In the fourth dimension, findings showed that the highest level of anxiety was caused by the fear of being unable to obtain necessary information and at a timely fashion. On the other hand, the lowest level of anxiety was caused by negative emotions such as anxiety and frustration during seeking information and anxiety from the beginning to the end of the information seeking process. This results are similar to those reported in the studies by Bowers,^[9] Le and Adkins,^[10] and Erfanmanesh.^[5]

In the dimension of technical limitations, the findings showed that the highest level of anxiety was related to the mechanical issues (without thinking) and computer errors. On the other hand, the lowest level of anxiety was related to the fear factor for damaging computer systems due to human errors and fear of damage to computers and other hardware. These factors were the second most influential cause of anxiety in the Erfanmanesh's study^[5] while according to In Lu and Adkins's study,^[10] this factor was least effective. Bowers^[9] In his study showed that the effect of this factors on anxiety of the students is related to accessibility and ease of use of the technology. Finally, Erfanmanesh^[3] reported that this factor has a minimal effect on anxiety levels.

The sixth and final dimension is related to research subject selection and choosing Keywords. In this regard, the results showed that the highest level of anxiety is caused by selecting the general topic and investigating the general topic for more information. In contrast, the lowest level of anxiety is caused by gathering information related to a particular topic and uncertainly about the starting point of information seeking process. This factor was mentioned in the study carried out by Erfanmanesh.^[5] In this study, 80% of respondents reporting varying levels of anxiety due to this factor that makes it the third most important factor on creating anxiety.

Table 4: Follow-up Tukey test for determining the source of difference between various schools

Faculties	Average difference	P
Health and medicine	-0.2323	0.514
Health and nursing	-0.7706	0.000
Health and nutrition	-0.4348	0.172
Health and rehabilitation	-0.1330	0.982
Health and pharmaceutics	-0.2076	0.971
Health and management	0.0483	1
Medicine and nursery	-0.5383	0.000
Medicine and nutrition	-0.2025	0.893
Medicine and rehabilitation	0.0993	0.995
Medicine and pharmaceutics	0.0246	1.000
Medicine and management	0.2806	0.493
Nursery and nutrition	0.3358	0.416
Nursery and rehabilitation	0.6376	0.100
Nursery and pharmaceutics	0.6529	0.156
Nursery and management	0.8190	0.000
Nutrition and rehabilitation	0.3018	0.721
Nutrition and pharmaceutics	0.2271	0.974
Nutrition and management	0.4831	0.162
Rehabilitation and pharmaceutics	0.0747	1.000
Rehabilitation and management	0.1813	0.951
Pharmaceutics and management	0.2560	0.941

Table 5: The anxiety score of participants based on gender

Gender	Sample size	Average	Standard deviation	T	Degree of freedom	P
Female	203	2.8	0.70223	3.075	263	0.003
Male	62	2.48	0.72298			

Regarding the relationship between demographic characteristics of students and their anxiety scores; findings showed that except the sixth factor, i.e., anxiety caused by the limitations in research subject selection, which had above average anxiety scores, other factors showed lower than average anxiety levels. This result is not similar to the results reported by Erfanmanesh.^[3] He reported that lack of library literacy and access to information resources are the most important causes of anxiety, While Limitations associated with library buildings and facilities being the least important causes of anxiety. These results are also different from those reported in Lu and Adkins's study^[10] which reported mechanical barriers as the lowest source of anxiety and emotional barriers and library staff as the greatest sources of anxiety. The results are also different from that of Erfanmanesh *et al.*,^[12] who reported that factors associated with the library are the most important source of anxiety and factors related to Internet, Computer and electronic resources are the least important sources of anxiety.

The reason behind this difference can be due to the fact that students in IUMS need to select novel topic that at the same time have enough background studies available in order to have an easier time during their studies and also have their results accepted by credible journals. The results also show a significant difference between the information seeking anxiety of male and female students. In other words, information seeking anxiety of female students is significantly higher than male students. This result is different with the results reported by Erfanmanesh,^[3] Akbari Bourang and Rezaian.^[7] Bowers,^[9] and Lu and Adkins.^[10] All mentioned studies reported no difference in anxiety levels of both genders. The study by Erfanmanesh^[3] showed higher anxiety levels in men compared to women. On the other hand, this result is similar to those reported by Nowkarizi *et al.*^[6] and Rafieimoghadam *et al.*^[8]

There are also significant differences between the anxiety levels of students from different schools. The most significant differences being between the students of Health and Nursing schools, Nursing and Medical schools, Nursing and Rehabilitation as well as Nursing and Management schools. This result showed that different disciplines have different levels of information seeking anxiety. Also, medical students had the highest anxiety level and the students of management had the least amount of anxiety. This finding are inconsistent with the study findings presented by Nowkarizi *et al.*^[6] but they are in line with the Rafieimoghadam's findings.^[8]

CONCLUSION

The present study was designed to investigate information seeking anxiety in postgraduate students of Isfahan University

of Medical Sciences. The results showed that due to different training workshops available to students in this university, the information seeking anxiety is lower than average. Among the six factors related to information seeking anxiety, the most important source of anxiety was research subject selection, while the least important source of anxiety was Internet and computer skills. In addition, students in the school of Medicine had higher anxiety levels compared to students of other schools. Given the fact that research subject selection is one of the most important and yet most difficult phase of education and due to busy schedule of faculty members in school of Medicine and emphasis on clinical studies, students in this school receive less help about research subject selection, which needs to be remedied using various workshops. Based on the results of this study, the information seeking anxiety was higher in women compared to men. This result can be to higher general anxiety in women. Therefore, in order to effectively reduce anxiety, one must consider the initial general anxiety of students. Despite the below average mean of anxiety among students, a two credit course about information literacy can be useful in reducing the anxiety of students and improving their knowledge regarding library resources and services. Also, in order to reduce the general anxiety of female students, other than reducing their general anxiety, the help of experienced information consultants, preferably female, needs to be employed in the library.

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Conflicts of interest

There are no conflicts of interest.

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