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Familiarity with the Open Access Movement among Faculty Members of Golestan University of Medical Sciences, Iran

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ABSTRACT

Background and objectives: Free (open) access to scientific information has emerged as a new paradigm to resolve existing problems and to improve the scientific communication process. This study was conducted to evaluate the level of familiarity with the open access movement among faculty members of Golestan University of Medical Sciences, Iran.

Methods: A pre-made questionnaire was utilized in this analytical survey. Cronbach's α of 0.75 verified the reliability of the questionnaire. The study included 157 faculty members employed via non-probability randomized sampling and the Cochran's sample size formula. Descriptive statistics, Kolmogorov-Smirnov test, Tukey's test and Pearson correlation were used to analyze the data.

Results: Faculty members had little acquaintance with the open access to scientific information. The greatest level of familiarity was with ''open access journals'' (mean score: 2.42), while the lowest level of familiarity was with ''the open access movement'' (mean score: 3.07).

Conclusion: The faculty members of the Golestan University of Medical Sciences have relatively moderate level of familiarity (compared to other universities in the country) with the open access movement, but it is still far from ideal. Given the importance of free access to scientific information and its positive impact on the visibility and credibility of scientific products, it is essential to plan and take action to raise awareness and promote implementation of this movement among faculty members.

KEYWORDS: Open access movement, Faculty members, Golestan University of Medical Sciences

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INTRODUCTION

According to studies, scientific communication currently faces two barriers: pricing crisis and permission crisis. The price crisis means that libraries should pay substantial amount of money to gain access to the content of journals, while the permission crisis refers to the legal and technical barriers that limit the use of electronic journals (1). Currently, the access to many scientific databases is costly, which has become a major problem in developing countries, in a way that the access to scientific databases is either limited or stopped. The trend of progress also shows no sign of an improvement. Despite the daily increase in the cost of access to information databases, the budget of libraries and information centers is gradually decreasing due to the economic crisis in developing countries. Thus, without moving to new paradigms of access to scientific information, researchers will face numerous problems in acquiring required information in the following decade (2, 3). In recent years, the free (open) access to scientific information has emerged as a new paradigm to resolve the existing problems and to improve the scientific communication process. This movement facilitates free access to scientific information (4). In other words, it is a new model of scientific publishing that allows readers or their supporting institutions to gain access, upload, duplicate and distribute articles and research findings free of charge. Before addressing its barriers, the open access movement requires cultural promotion and institutionalization within the elements of scientific communication, one of the most important of which is information producers. As the most prominent elements of information production, faculty members are expected to have a greater share in the scientific communication process. Considering the fact that the establishment of scientific communication requires development of an attitude towards accepting the paradigm of open access to information, the purpose of this study was to evaluate familiarity of faculty members of Golestan University of Medical Sciences with the open access movement.

MATERIAL AND METHODS

This applied-analytical survey utilized a questionnaire designed by Abdekhoda et al. with confirmed validity and reliability (5). In addition to demographic information, the questionnaire included questions for assessing the viewpoints of faculty members on three dimensions of attitude, familiarity and barriers of the open access movement. The Likert scale was used to convert qualitative values in the questionnaire to quantitative values from 1 to 5 (1 for "strongly disagree" to 5 for "strongly agree''). The questionnaire was given to the subjects and data collected from the completed questionnaire were analyzed using SPSS software (version 16). The study population included 271 faculty members (instructor, assistant professor, associate professor, professor) working in the faculties and research centers of the Golestan University of Medical Sciences (Iran) in 2017. The subjects were selected via non-probability random sampling. The sample size was determined as 157 according to the Cochran's sample size formula:

$$\mathrm{n} = \frac{N\, z^2\, \mathrm{p}\,(1-p)}{d^2(\mathrm{N}-1) + z^2\mathrm{p}(1-\mathrm{p})}$$

RESULTS

Based on the demographic findings, 62.4% of the subjects were men and 37.6% were women. In terms of academic rank, majority of the subjects were assistant professor (58%) or instructor (28.5%), while only 1.9% of the subjects were professor.

The greatest level of familiarity was with free journals and subject-based archives. The lowest level of familiarity was with the open access movement and self-publishing (Table 1).

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Table 1. The level of familiarity with the open access to scientific information

Index	Extremely familiar		Very familiar		Moderately *familiar*		Slightly *familiar*		*not at all familiar*		No answer		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Mean	Standard Deviation
Open access movement	7	4.46	38	24.20	69	43.95	10	6.37	26	16.56	7	4.46	3.07	1.09
Self-publishing	4	2.55	20	12.74	102	64.97	18	11.46	7	4.46	6	3.82	3.03	0.73
Free journals	15	9.55	66	42.0	65	41.4	4	2.55	2	1.27	5	3.18	2.42	0.75
Subject-based archives	11	7.01	53	33.75	65	41.40	13	8.28	7	4.46	8	5.10	2.68	0.91

Most faculty members (43.31%) stated that they were not familiar with the publication of articles through a personal or corporate website, but would like to improve this in the future. However, 14% of the subjects claimed that they are familiar with publication via a personal or corporate website (Table 2).

Table 2. Familiarity with publication of articles via a personal or corporate website

	Yes		No, but I will improve it in the future		No, I am not interested to do it		No answer		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Mean	Standard Deviation
Are you familiar with publishing articles via a personal or corporate website?	22	14.01	68	43.31	55	35.03	12	7.64	2.23	0.69

The majority of respondents (53.5%) were very familiar with the open access to scientific articles. The mean score of general familiarity with methods of open access to scientific articles was 2.22. In addition, the mean score of familiarity with open access databases was 2.23 (Table 3).

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Table 3. Level of familiarity with methods of open access to scientific articles

	Extremely		Moderately		Somewhat		Slightly		Not at all		No answer		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Mean	Standard Deviation
Familiarity with methods of open access to scientific articles	21	13.38	84	53.50	47	29.94	4	2.55	0	0	1	0.64	2.22	0.7
To what extent do you agree with self-publishing of your scientific articles?	35	22.29	72	45.86	34	21.66	14	8.92	0	0	2	1.27	2.17	0.88
To what extent do you agree with publishing of your articles in open access journals?	43	72.39	92	58.06	14	8.92	6	3.82	0	0	2	1.27	1.89	1.07
To what extent do you agree with access to your scientific artciles via subject-based archives ?	35	22.09	75	47.77	41	26.11	2	1.27	0	0	4	2.55	2.07	4.07
Familiarity with open acess databases	10	37.6	87	55.41	55	35.03	2	1.27	0	0	3	1.91	2.32	0.613

The results showed that 59.24% of the faculty members strongly agreed with the effect of open access on increased readership, while 0.64% of the subjects strongly disagreed with providing a printable copy of articles (Table 4).

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Table 4. Frequency distribution of faculty members' attitude towards the open access ovement

	Strongly agree		Agree		Neither agree or disagree		Disagree		Strongly disagree		No answer		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Mean	Standard Deviation
Free access to scholarly articles increases readership.	93	59.24	62	39.4	0	0	2	1.27	0	0	0	0	1.43	0.56
Free access to articles increases citation rate.	89	56.69	59	37.5	9	5.73	0	0	0	0	0	0	1.49	0.06
Free access to scholarly articles increases publication rate.	56	35.6	61	38.8	32	20.38	8	5.1	0	0	0	0	1.95	0.88
Free access to articles is associated with improved quality of articles.	53	33.76	48	30.57	51	32.48	6	3.82	0	0	0	0	2.05	0.89
Reading full text of articles on computer screen without any restrictions	81	51.59	49	31.21	9	5.73	9	5.73	1	0.64	8	5.1	166	0.89
Reading full text of articles on computer screen with restrictions	21	13.38	26	16.56	32	20.38	45	28.66	9	5.73	24	15.29	2.96	1.2
Reading full text of articles should not be possible under any circumstances	8	5.1	7	4.46	12	7.64	39	24.84	57	36.31	34	21.66	4.06	1.17
A copy of articles should be printable with no resitriction	58	36.94	59	37.58	21	13.38	0	0	0	0	16	10.19	1.8	0.84
A copy of articles should be printable with resitrictions	16	10.19	34	21.66	37	23.57	37	23.57	12	7.64	21	13.38	2.96	1.16
No copy of article should be printable	1	0.64	6	3.82	13	8.28	48	30.5v	54	34.3	35	22.2	4.21	0.88
Article should be unrestrictedly used by everyone for any purpose	22	14.10	28	17.83	26	16.56	65	41.4	10	6.37	6	3.82	3.09	1.21
Only a specific group should be allowed to use articles for teaching and research purposes	28	17.83	66	42.047	20	12.74	34	21.66	3	1.91	6	3.82	2.41	1.09
Use of articles should be limited to a specific organization or geographical area	6	3.82	2	1.27	10	6.37	114	72.16	21	13.38	4	2.55	3.39	0.77
To what extent do you agree with free online access to your article after publishing it in a print journal?	66	42.04	83	52.78	0	0	4	2.55	0	0	4	2.55	1.62	0.62

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The findings indicated that the increased price of scientific journals (mean score: 1.88) was the most important barrier, and ‘‘open access articles have fewer readers’’ (mean score: 1.93) was determined as the least important barrier (Table 5).

Table 5. Viewpoint of the faculty members on the barriers to the open access to scientific information

	Strongly agree		Agree		Neither agree or disagree		Disagree		Strongly disagree		No answer		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Mean	Standard Deviation
Pay-per-use service is a barrier to the access to electronic articles.	42	26.75	70	44.59	24	15.29	13	8.28	5	3.18	3	1.91	2.15	1.02
Site license is a limiting factor for access to electronic articles.	19	12.1	82	52.2۳	36	29.9	15	9.55	0	0	5	3.18	2.31	0.81
Subscriptions are barriers to the access to electronic articles.	32	20.3	73	46.6	33	21.02	16	10.19	0	0	3	1.91	2.21	0.89
Increased price of scientific journals reduces access to scientific findings.	37	23.57	99	63.06	18	11.46	0	0	0	0	3	1.91	1.88	0.58
The peer-review process decelerate the access to scientific findings.	13	8.2	15	23.48	32	20.38	55	35.05	0	1.27	4	2.55	2.88	1.03
Currently, it is difficult to access eletronic journal articles.	7	4.4	63	40.13	25	15.92	51	23.48	6	3.82	5	3.18	2.91	1.04
Assigning copyright to the publisher limits the access to scholarly articles.	15	9.55	63	40.13	49	31.21	15	9.55	5	3.18	10	6.37	2.54	0.93
The right to authorship is an economic resource for the publisher.	14	8.92	66	42.04	55	35.03	12	7.64	3	1.19	7	4.46	2.49	0.84
Utilizing open access lowers the scientific credibility of my work .	12	7.64	8	5.1	29	18.47	91	57.96	12	7.64	5	3.18	3.55	0.99
Publishing in open access journals negatively affects my academic rank.	12	7.64	4	2.55	26	16.5	91	57.96	19	12.1	5	3.18	3.66	1
Open access articles have fewer readers.	5	3.18	7	4.46	18	11.46	95	60.15	27	17.2	5	3.18	3.87	0.87
Open access articles are poorly-reviewed.	7	4.46	19	12.1	37	23.57	58	36.94	31	19.57	5	3.18	3.57	1

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DISCUSSION

Based on the findings, the highest and lowest level of familiarity was with free journals (mean score: 2.42) and self-publishing (mean score: 3.03), respectively. This indicates that open access journals are known as the first and most important place of knowledge transfer among faculty members. However, they are not familiar enough with other dimensions of open access such as self-archiving (that requires individual effort) or the basic principles of information technology. These results are consistent with results of Zavareghi (2009), Ojagh and Kousha (2010) and Ghazi mirsaeed et al. (2016) (6-8) but inconsistent with findings of Fahimnia and Montazeri (2014) (9). This contradiction may be related to the difference in the fields studied. Fahimnia and Montazeri studied faculty members of library and information sciences, and due to the expertise of these individuals in self-archiving such result is expected. Despite a relatively good overall score (2.23), 35% of the subjects lacked familiarity with or interest in publishing articles through personal websites. This indicates that the faculty members are unaware of the benefits of such media in increasing visibility and citation rates, which could be due to lack of sufficient information and training. These results are in line with the results of Abdekhoda et al. (10).

Faculty members had an accepting perspective towards popularization and expansion of open access to scientific information since 90% of them agreed or strongly agreed with the idea and no one disagreed. These results are consistent with the results of Ghane (2006) (11) but inconsistent with the result of Sotudeh et al. (2010) who assessed researchers in the field of medical sciences (12).

Moreover, 65% of the subjects were familiar of extremely familiar with open access databases, which is relatively acceptable. This could be due to the faculty members' frequent need to obtain articles from such databases for educational and research purposes.

Furthermore, the Ministry of Health has repeatedly emphasized on using these databases for research purposes. These results are in line with findings of Ghazi mirsaeed et al. and Abdekhoda et al. (8, 10).

The faculty members had acceptable familiarity (mean score: 2.22) with methods of open access to articles, which is similar to the findings of Abdekhoda et al. and Ghane (10, 11). Regarding the attitude towards the open access movement, most faculty members believed that the movement has a positive impact on readership and citation rate, which is in line with the results of Abdekhoda et al. and Davis et al. (10, 13). However, they were most opposed to the idea "no copy of the article should be printable" (mean score: 4.22), reflecting the very positive attitude of the faculty members towards concepts of the open access movement. These results are in agreement with findings of other studies (2, 10, 14).

According to the faculty members, the most important barrier to open access is ‘‘increased price of scientific journals reduces access to scientific findings’’ (mean score: 1.88) and the least important barrier is ‘‘open access articles have fewer readers’’ (mean score: 1.93). These results denote the fact that faculty members consider economic and financial issues associated with preparation and publication of articles as the most important barrier to open access. This is in line with findings of some previous studies (1, 5, 11, 15). Some studies had a different explanation for the barriers to the open access movement (2, 9). Contrary to the above findings, Singson et al. and Rodriguez concluded that their study populations still have concerns regarding the credibility of open access journals (14, 16).

CONCLUSION

Our results show that the faculty members of the Golestan University of Medical Sciences have relatively moderate level of familiarity

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(compared to other universities in the country) with the open access movement, but it is still far from ideal. Given the importance of free access to scientific information and its variables including publishing in open access journals, self-archiving, subject-based archives, etc., as well as its positive impact on the visibility and credibility of scientific products, it is essential to plan and take action to further familiarize faculty members with this movement.

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