Original Article

The rate commitment to ISO 214 standard among the persian abstracts of approved research projects at school of health management and medical informatics, Isfahan University of Medical Sciences, Isfahan, Iran

Ahmad Papi, Davoud Khalaji, Hasan Ashrafi Rizi, Ahmad Shabani[1], Akbar Hassanzadeh[2]

Department of Medical Library and Information Sciences, School of Health Management and Medical Information, [2]Department of Epidemiology and Biostatistics, School of Health, Isfahan University of Medical Sciences, [1]Department of Library and Information Sciences, School of Psychology and Educational Sciences, Isfahan University, Isfahan, Iran

ABSTRACT

Introduction: Commitment to abstracting standards has a very significant role in information retrieval. The present research aimed to evaluate the rate of Commitment to ISO 214 Standard among the Persian abstracts of approved research projects at School of Health Management and Medical Informatics, Isfahan University of Medical Sciences, Isfahan, Iran. **Materials and Methods**: This descriptive study used a researcher-made checklist to collect data, which was then analyzed through content analysis. The studied population consisted of 227 approved research projects in the School of Health Management and Medical Informatics, Isfahan University of Medical Sciences during 2001-2010. The validity of the checklist was measured by face and content validity. Data was collected through direct observations. Statistical analyzes including descriptive (frequency distribution and percent) and inferential statistics (Chi-square test) were performed in SPSS-16. **Results**: The highest and lowest commitment rates to ISO 214 standard were in using third person pronouns (100%) and using active verbs (34/4%), respectively. In addition, the highest commitment rates to ISO 214 standard (100%) related to mentioning third person pronouns, starting the abstract with a sentence to explain the subject of the research, abstract placement, and including keyword in 2009. On the other hand, during 2001-2003, the lowest commitment rate was observed in reporting research findings (16/7%). Moreover, various educational groups differed significantly only in commitment to study goals, providing research findings, and abstaining from using abbreviations, signs, and acronyms. Furthermore, educational level of the corresponding author was significantly related with extracting the keywords from the text. Other factors of ISO 214 standard did not have significant relations with the educational level of the corresponding author. **Conclusions**: In general, a desirable rate of commitment to ISO 214 standard was observed among the Persian abstracts of approved research projects at the School of Health Management and Medical Informatics of Isfahan University of Medical Sciences. However, commitment rates differed between years. In addition, commitment to ISO 214 standard was not significantly related with educational group and level.

Key words: Abstracts, research design, universities, ISO 214

Address for correspondence: Mr. Davoud Khalaji, MSc.,
Department of Medical Library and Information Sciences,
School of Health Management and Medical Information
Isfahan University of medical science, Isfahan, Iran.
E-mail: davoud_khalaji10@yahoo.com

This article may be cited as: Papi A, Khalaji D, Rizi HA, Shabani A, Hassanzadeh A. The rate commitment to ISO 214 standard among the persian abstracts of approved research projects at school of health management and medical informatics, Isfahan University of Medical Sciences, Isfahan, Iran. J Edu Health Promot 2014;3:36.

INTRODUCTION

With ever-increasing growth of scientific products, studying full text of all researches has become impossible. In this case, abstracts can decrease time and energy consumption in studying of produced information.[1] If document starts to clear title and proper abstract, identification of it and deciding about using from it will was the more simple for users.[2] Namely abstract helps the users in deciding for selection of a document[3] and also understanding of subject and range it.[4] Therefore also causes of economizing the reader's time.[3] Since abstracts of articles are used in indexing and abstracting services, uniformity must be accomplished in structure of abstracts by using standards.[5] standard in nowadays current expression means scale for measurement, model, and object sample and applies for determining quality and quantity, and everything that includes official specification.[6] One of standards is ISO 214 standard.[7] International Organization for Standardization (ISO) has published this standard for providing abstract from kinds of information resources in year 1976. This standard consists in study goals, methodology, providing research findings, mentioning results research, mentioning main and real information of text in abstract, using active verbs, mentioning third person pronouns, abstaining from using abbreviations, signs, and acronyms, extracting the keywords from the text, starting the abstract with a sentence to explain the subject of the research, length (the number of words) of abstract, abstract placement, including keyword.[2]

Abstract from view of providing method includes manual abstract and auto- abstract. Manual abstract is provided by human force on previous policies. These policies may be quantitative (number of abstract words) or on the basis of locating style of abstract elements.[8] Auto-abstract is provided by machine. Automatic abstracting or extraction is on the basis of frequency criteria of document's sentences.[9]

This research brought about more than effective medical researches and improvement on quality of abstracts. Progress of methods of scientific abstracting with standardization caused for promotion of medical sciences fields.

MATERIALS AND METHODS

This research uses the descriptive method of content analysis type to access the studied population, which consisted of 227 approved research projects in this school from 2001- 2010. After calculating and dividing the approved research projects at School of Health Management and Medical Informatics, Isfahan University of Medical Sciences in terms of different educational groups of this School, 124 projects pertaining to educational group of health services management, 36 projects pertaining to educational group of medical records, 29 projects pertaining to educational group of medical informatics, and 38 projects pertaining to other groups were obtained. For providing the required standards and the study of the rate commitment to ISO 214 standard among the Persian abstracts of approved research projects at School of Health Management and Medical Informatics, Isfahan University of Medical Sciences, Persian text

of this standard had been translated by Mrs. Sadiqbehzadi and Moulavi[10] was studied and validity of checklist were evaluated and confirmed by supervisors, advisors and experts of library and information sciences field. Data was collected through direct observations. Needed information was gathered by use of a checklist on the basis of ISO 214 standard in abstracting that consists of 13 options of content evaluation, every abstract of research projects that had observed these options of ISO 214 standard received, score 1 and every abstract that had not observed these options was scored 0; therefore, variation range for every abstract of research project was from 0 to 13. Statistics type was descriptive (frequency distribution tables consisting of number and percent) and inferential ($\chi^{[2]}$ test), and SPSS-16 Software was used.

RESULTS

Of a total of the 227 corresponding author of the approved research projects at School of Health Management and Medical Informatics, Isfahan University of Medical Sciences, corresponding author of 2 projects had the educational level of post-doctorate, corresponding author of 71 projects had the educational level of Ph.D, corresponding author of 133 projects had educational level of master of science, and corresponding author of 21 projects had the educational level of bachelor of science; also from the sum of 227 approved research projects of this school, in 207 research projects (91.2%) study goals, in 109 research projects (48%) methodology, in 105 research projects (46.3%) providing research findings, in 222 research projects (97.8%) mentioning results research, in 187 research projects (82.4%) mentioning main and real information of text in abstract, in 78 research projects (34.4%) using active verbs, in 227 research projects (100%) mentioning third person pronouns, in 204 research projects (89.9%) abstaining from using abbreviations, in 202 research projects (89%) extracting the keywords from the text, in 215 research projects (94.7%) starting the abstract with a sentence to explain the subject of the research, in 214 research projects (94.3%) length (the number of words) of abstract, in 226 research projects (99.6%) abstract placement, and in 218 research projects (96%) including keywords were according to ISO 214 standard.

Frequency distribution of commitment to options of ISO 214 standard to separation into study years is presented in the above Table 1.

The highest total commitment rate to options of ISO 214 standard in the research projects at School of Health Management and Medical Informatics, Isfahan University of Medical Sciences related to year 2009 (84.8%) and the lowest rate related to years 2001-2003 (74.4%), and in total, 80.9% of options of ISO 214 standard were observed by corresponding author of research projects at School of Health Management and Medical Informatics, Isfahan University of Medical Sciences.

On the basis of Table 2, $\chi^{[2]}$ test indicated that a significant relation existed between educational group and the rate

commitment to study goals, mention of research findings, abstaining from using abbreviations, signs, and acronyms while no significant relation existed between the rate commitment to methodology, mentioning results research, mentioning main and real information of text in abstract, using active verbs, mentioning third person pronouns, extracting the keywords from the text, starting the abstract with a sentence to explain the subject of the research, length (the number of words) of abstract, abstract placement, and including keyword with educational group.

$\chi^{[2]}$ test indicated that total commitment rate to options of ISO 214 standard in the Persian abstracts of approved research projects at School of Health Management and

Medical Informatics during years 2001-2010 had no significant relation to different educational groups of this school ($P = 0.956$).

On the basis of Table 3, $\chi^{[2]}$ test indicated that a significant relation existed between the rate commitment to extracting the keywords from the text and educational level of corresponding author while no significant relation existed between the rate commitment to other options of ISO 214 standard and the educational level of corresponding author.

$\chi^{[2]}$ test indicated that total commitment rate to options of ISO 214 standard in the Persian abstracts of approved research projects at School of Health Management and

Table 1: Frequency distribution of commitment to options of ISO 214 standard to separation into study years									
Year	2001-2003	2004	2005	2006	2007	2008	2009	2010	Total
Items (%)									
Study goals	83.3	81	96.2	88	100	83.3	93.2	100	91.2
Methodology	41.7	71.4	30.8)	48	35.9	52.4	50	61.1	48
Providing research findings	16.7	47.6	34.6	44	53.8	45.2	52.3	55.6	46.3
Mentioning results research	100	95.2	100	100	97.4	97.6	95.5	100	97.8
Mentioning main and real information of text in abstract	58.3	76.2	84.6	92	84.6	85.7	86.4	66.7	82.4
Using active verbs	25	23.8)	46.2)	40	23.1	33.3	47.7	22.2	34.4
Mentioning third person pronouns	100	100	100	100	100	100	100	100	100
Abstaining from using abbreviations , signs, and acronyms	100	95.2	92.3	88	92.3	88.1	90.9	72.2	89.9
Extracting the keywords from the text	75	90.5	84.6	84	94.9	83.3	95.5	94.4	89
Starting the abstract with a sentence to explain the subject of the research	91.7	100	100	92	84.6	92.9	100	100	94.7
Length (the number of words) of abstract	91.7	100	100	92	100	88.1	90.9	94.4	94.3
Abstract placement	100	100	100	100	97.4	100	100	100	99.6
Including keyword	83.3	95.2	96.2	84	97.4	100	100	100	96

ISO=International Standards Organization

Table 2: Frequency distribution of commitment to options of ISO 214 standard in terms of educational group						
Educational group	Medical library and information science	Medical records	Health services management	Other	Total	*P* value
Items (%)						
Study goals	96.6	100	86.3	94.7	91.2	0.032
Methodology	37.9	47.2	51.6	44.7	48	0.573
Providing research findings	51.7	22.2	46	65.8	46.3	0.002
Mentioning results research	93.1	100	97.6	100	97.8	0.198
Mentioning main and real information of text in abstract	86.2	77.8	83.9	78.9	82.4	0.725
Using active verbs	13.8	36.1	36.3	42.1	34.4	0.041
Mentioning third person pronouns	100	100	100	100	100	1
Abstaining from using abbreviations, signs, and acronyms	86.2	80.6	90.3	94.7	89	0.026
Extracting the keywords from the text	86.2	80.6	90.3	94.7	89	0.226
Starting the abstract with a sentence to explain the subject of the research	96.6	97.2	92.7	97.4	94.7	0.543
Length (the number of words) of abstract	86.2	100	95.2	92.1	94.3	0.103
Abstract placement	96.6	100	100	100	99.6	0.077
Including keyword	96.6	97.2	94.4	100	96	0.45

Table 3: Frequency distribution of commitment to options of ISO 214 standard in terms of educational level of corresponding author					
Educational level	Ph.D	Master of science	Bachelor of science	Total	*P* value
Items (%)					
Study goals	89	91.7	95.2	91.2	0.896
Methodology	50.7	46.6	47.6	48	0.855
Providing research findings	38.4	49.6	52.4	46.3	0.252
Mentioning results research	94.5	99.2	100	97.8	0.067
Mentioning main and real information of text in abstract	82.2	83.5	76.2	82.4	0.718
Using active verbs	41.1	32.3	23.8	34.4	0.253
Mentioning third person pronouns	100	100	100	100	1
Abstaining from using abbreviations, signs, and acronyms	94.5	88	85.7	89.9	0.265
Extracting the keywords from the text	80.8	92.5	95.2	89	0.024
Starting the abstract with a sentence to explain the subject of the research	93.2	97	85.7	94.7	0.077
Length (the number of words) of abstract	98.6	93.2	85.7	94.3	0.058
Abstract placement	100	99.2	100	99.6	0.701
Including keyword	93.2	97	100	96	0.249

ISO=International Standards Organization

Medical Informatics, Isfahan University of Medical Sciences during years 2001-2010 had no significant relation with the educational level of corresponding author of research projects of this school (*P* value = 0.978), even though master of science corresponding authors had observed the highest rate of options of ISO 214 standard.

DISCUSSION AND CONCLUSION

Results showed that the rate commitment to study goals in the Persian abstracts of approved research projects at School of Health Management and Medical Informatics, Isfahan University of Medical Sciences conformed with ISO 214 standard, 91.2% of times. Tenopir showed that goal had considered the most important elements of abstract and also considered the main elements in auto-abstracts[11] while Chen *et al.'* research showed that study objectives (33%) were reported.[12] In 48% of cases, the rate commitment to methodology conformed with ISO 214 standard. In the same direction, wang *et al.'* research indicated that methodological quality was poor; only 5% of abstracts described the methods of random sequence generation.[13] The rate commitment to providing research findings conformed with ISO 214 standard, 46.3% of time. Thus, the present research was in agreement with research of Pitkin and Branagan and Pitkin and associates who with careful survey of abstracts showed that inconsistencies and containing data not present in the body is considered one of the main defects in abstracts. [14,15] Mentioning results research with ISO 214 standard was 97.8%. Present result was in the same direction of research of Narine and associates who showed that despite the abstracts under studying being based on evaluation criteria, they did not reflect enough details for helping the readers in understanding and comprehension of the article, and as showed by their study sample, these abstracts needed a

slight improvement in the mention of research results.[16] In the same direction, Schuemie *et al.'* research on analysis of five different standard sections of articles showed that the highest information coverage was located in the results section.[17] The rate commitment to mentioning main and real information of text in abstract conformed with ISO 214 standard, 82.4% of time. Askari 's research also indicated that the rate commitment to the mentioning main and real information of text in abstract, in theses' Persian abstracts of the General Medicine of Arak University of Medical Sciences located in desired situation[7] while Malekmohammadi 's research on Ph.D theses' abstracts in Humanities of Islamic Azad University indicated the opposite.[18] Also, Cohen and associates' research showed that aspects of structure and content differed markedly between article abstracts and bodies.[19] The rate commitment to using active verbs conformed with ISO 214 standard in 34.4% of studied cases. The present result was in agreement with Askari 's research who expressed that the rate commitment to using active verbs was not in the desired situation[7] while Diba and Hassan Larijani 's research on Master theses' Persian abstracts of the Imam Sadeq University indicated the opposite.[20] In 100% of times, the rate commitment to mentioning third person pronouns conformed with ISO 214 standard. These result was in the direction of Karimzadeh 's research who expressed that Ph.D theses' abstracts of industrial and engineering fields of Islamic Azad University had observed the mentioning third person pronouns, but this characteristic was not observed in master theses;[21] also Diba and Hassan Larijani 's research indicated that the rate commitment to the mentioning third person pronouns located in a desired situation[20] while Askari 's research indicated the opposite.[7] The rate commitment to abstaining from using abbreviations, signs, and acronyms with ISO 214 standard was 89.9%. Those results were in the same direction as Malekmohammadi 's research, which

expressed that the rate commitment to abstaining from using abbreviations, signs, and acronyms was in a desired situation.[18] Also, Diba and Hassan Larijani 's research indicated that the rate commitment to abstaining from using abbreviations, signs, and acronyms had the desired situation[20] while Askari 's research indicated the opposite.[7] On the basis of the obtained results, the rate commitment to extracting the keywords from the text conformed with ISO 214 standard, 89% of times. These observations were in the direction of Askari's research, which expressed that the rate commitment to extracting the keywords from the text was located in a desired situation[7] Also, Diba and Hassan Larijani's research indicated that the rate commitment to extracting the keywords from the text was located in good situation[20] while Malekmohammadi's research indicated the opposite of these results.[18] The rate commitment to starting the abstract with a sentence to explain the subject of the research was 94.7%. This agrees with Askari 's research, which expressed that the rate commitment to starting the abstract with a sentence to explain the subject of the research was in a fine situation.[7] Also Diba and Hassan Larijani's research indicated that the rate commitment to the starting the abstract with a sentence to explain the subject of the research had the desired situation[20] while Malekmohammadi 's research indicated the opposite of these findings.[18] On the bais of the obtained results, the rate commitment to length (the number of words) of abstract conformed with ISO 214 standard in 94.3% of cases. These results were in agreement with Askari 's research, which expressed that the rate commitment to length (the number of words) of abstract had a desired situation.[7] Also Diba and Hassan Larijani's research indicated that the rate commitment to length (the number of words) of abstract had the desired situation[20] while Malekmohammadi's research indicated the opposite.[18] The rate commitment to abstract placement conformed with ISO 214 standard, 99.6% of times. Karimzadeh's research indicated that the rate commitment to abstract placement was in a desired situation[21] while Malekmohammadi's research indicated that the rate commitment to abstract placement was not in the desired situation.[18] Also, Diba and Hassan Larijani 's research indicated the same.[20] 96% of times, the rate commitment to including keyword conformed with ISO 214 standard. This result was in the direction of Askari's research, which expressed that the rate commitment to including keyword had the desired situation.[7] Also Diba and Hassan Larijani's research indicated that including keyword was in a desired situation[20] while Malekmohammadi 's research indicated the opposite of these claims.[18]

The rate commitment to 13 elements was differed in different years, and the lowest commitment rate was in years 2001-2010. Seems this lack of commitment is due to novice researchers and also because of the recently opened status of this school.

To identify type of educational group and educating level of corresponding author of some research projects was difficult; so with well-informed persons were consulted and decided then.

During searching in research projects at School of Health Management and Medical Informatics, Isfahan University of Medical Sciences, the researchers encountered lack of uniformity and structural and writing defects of abstracts. These defectives causes the search results of users confront with false drop. Because of these points, this research was studied and analyzed in order to indentify and point out the defects and inadequacies of abstracts.

In conclusion, the results of this study indicated that the Persian abstracts of approved research projects at School of Health Management and Medical Informatics, Isfahan University of Medical Sciences, options of ISO 214 standard like mentioning third person pronouns, abstract placement, mentioning results research, including keyword, starting the abstract with a sentence to explain the subject of the research, length (the number of words) of abstract, and study goals were observed to desirel rate but other options of ISO 214 standard like methodology, providing research findings and using active verbs were observed at a the lowest rate. The rate commitment to options of ISO 214 standard in the persian abstracts of approved research projects at School of Health Management and Medical Informatics, Isfahan University of Medical Sciences was not the same in different years. The highest commitment rate to ISO 214 standard related to year 2009, and the lowest rate related to years 2001-2003. The rate commitment to options of ISO 214 standard in approved research projects at School of Health Management and Medical Informatics, Isfahan University of Medical Sciences had no significant relation with educational group and educational level of corresponding author. Therefore, seems that kind of educational group and educational level of corresponding author has not impressed on the rate commitment to options of ISO 214 standard in this research.

In the end, below suggestions for improvement of abstracts of research projects at School of Health Management and Medical Informatics, Isfahan University of Medical Sciences are recommended:

1. Educating on ISO 214 standard and methods of writing abstract to corresponding authors and main assistants of research projects by abstracting experts
2. Compulsion of corresponding author and main assistants of research projects to observe ISO 214 standard in writing abstracts of research projects
3. Not to confirm final report of research projects that their abstracts do not commit with ISO 214 standard by research deputy of School and University
4. Compiling a guideline on basis of ISO 214 standard for writing abstracts of research projects in School and University.

REFERENCES

1. Dayyani MH, Shirdel SH. Studying and comparison of scientific-research journals' articles persian abstract in human sciences field with standard ISO 214. Library and Information Science 2007;10:37-52 [In Persian].
2. Farghdan S. Studying the Rate Commitment to ISO 214 standards

among the abstracts of articles of Ganjine Asnad Quarterly. Faslname- Ganjine Asnad 2008;18:81-6.

3. Sadeqlou V. Schema of abstract and abstracting. Information Seeking and Information Science 2009:3;43-47 [In Persian].

4. Traynor P. What is an abstract? (and how can it be a deal – breaker?) [Internet]. 2008 [Cited 2010 Nov 8]. [14 Screens]. Available from: www.cc.gatech.edu/~traynor/f08/slides/lecture08abstract.pdf.

5. Mokhtari H. Studying the adaption of journals' article abstracts of Medical Universities with the Vancouver Group's Manuals and ISO 214. [MSc thesis]. Tehran: School of Library and Information Science, Iran University of Medical Sciences; 2003 [In Persian].

6. Horri A, editor in cheif; Neshat N, collaborate editor. Encyclopedia of library and information sciences. Tehran: National Library of Iran; 2002-2006. Standards; p. 167-9.

7. Askari E. Investigating the adaptability of the theses' Persian abstracts of General Medicine of Arak University of Medical Sciences with abstracting standards (ISO 214) in 1998-2008 [Msc Thesis]. School of Library and Information Science, Hamadan Branch Islamic Azad University; 2009. [In Persian].

8. Kazempour Z, Ashrafi Rizi H. Introduction to indexing and abstracting (a practical guide). Tehran: Chapar publication, 2009 [In Persian].

9. Lancaster FW; Gilvari A, translator. Indexing and abstracting in theory and practice. Tehran: Chapar publication, 2009 [In Persian].

10. Sadiq Behzadi M, Moulavi F. Abstracting Principles on the basic of ISO 214-1976. Tehran: Document of National Affairs of the Islamic Republic of Iran, 2002 [In Persian].

11. Tenopir C. Full text database retrieval performance. Online Information Review 1985;9:149-64.

12. Chen Y, Li J, Ai C, Duan Y, Wang L, Zhang M, *et al*. Assessment of the quality of reporting in abstracts of randomized controlled trials published in five leading Chinese medical journals. PLoS One 2010; 5:e11926.

13. Wang L, Li Y, Li J, Zhang M, Xu L, Yuan W, *et al*. Quality of reporting of trial abstracts needs to be improved: using the CONSORT for abstracts to assess the four leading Chinese medical journals of traditional Chinese medicine. Trials 2010;11:75.

14. Pitkin RM, Branagan MA. Can the Accuracy of Abstracts Be Improve by Providing Specific Instructions. JAMA 1998;280:267-9.

15. Pitkin RM, Branagan MA, Burmeister LF. Accuracy of data in Abstracts of published research articles. JAMA 1999;281:1110-1.

16. Narine L, Yee DS, Einarson TR. Ilersich AL. Quality of abstracts of original research articles in CMAJ in 1989. CMAJ 1991;144:449-53.

17. Schuemie Mj, Weeber M, Schijvenaars BJ, Van Mulligen EM, Van der Eijk CC, Jelier R, *et al*. Distribution of information in biomedical abstracts and full-text publications. Bioinformatics 2004; 20:2597-604.

18. Malekmohammadi M. Comparing the status of ph.D. theses' abstracts in Humanities of Islamic Azad University with abstracting standards. Faslname-Ketab 2009;20:141-54 [In Persin].

19. Cohen KB, Johnson HL, Verspoor K, Roeder C, Hunter LE. The structural and content aspects of abstracts versus bodies of full text journal articles are different. BMC Bioinformatics 2010;11:492.

20. Diba R, Hassan Larijani H. Comparing of the Master theses' Persian abstracts of the Imam Sadeq University from year 1989-2003 with international Standards ISO. Library and Information Science 2006; 40:163-91 [In persian].

21. Karimzadeh S. Comparison of M.A. and ph.D theses' abstracts of industrial and engineering fields of Islamic Azad University with abstracting standards [MSc Thesis]. Tehran: School of Library and Information Science, Islamic Azad University; 2007 [In persian].