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## **Is it necessary to pay attention to levels of evidence? : Comparative study in Nursing publications indexed in Scopus based on AACCN levels of evidence**

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**Abstract:** Examining the evidence-based level of scientific productions is a qualitative evaluation. This study aims to examine the evidence levels of nursing scientific production in Iran, Malaysia and Turkey and their citation in SCOPUS during 2011 to 2015. The evidence level of the products was determined using the table suggested by American Association of Critical Care Nursing-Levels of Evidence, and their citation rates in the highest level of evidence were determined using the reports of SCOPUS citation database. Based on the results, the most scientific products are related to Turkey, Iran and Malaysia, respectively. In Iran, from 1360 articles, 1193 articles are evidence-based. In Turkey, there are 1449 evidence-based articles from 1730. In Malaysia, out of 790 articles, 523 are evidence-based. Investigating of evidence levels showed that the level of scientific product of Iranian evidence-based nursing is higher than Malaysia and Turkey. Citation rate to Malaysian evidence level A is more than two other countries, and Iran and Turkey, respectively, are placed after Malaysia. So Evidence-based tendency process is growing in three countries but very slowly. In line with the moving towards the evidence-based levels,

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there should be regular, planned and comprehensive trainings on evidence-based performance.

Keywords: Evidence-based Nursing, American Association of Critical Care Nursing-Levels , Scientific Products, SCOPUS

### **Introduction:**

There are many changes in the process of nursing care. One of these changes is the use of evidence in the nursing practice, which is recognized and accepted throughout the world (Ahayalimudin, 2013) . In 1980s, the term "evidence-based practice" was introduced to describe an approach for the correct and well-timed use of scientific evidence which includes the use of the best available evidence in making decisions about the clinical issues(Sackett et al., 1996). Using this approach in nursing improves nurses' care practice(Beyea & Slattery, 2006). Implementation of evidence-based algorithms for caring of patients in emergency and trauma departments has reduced the mortality. However, the results of research show that evidence-based nursing is not yet completely implemented in departments like emergency department(Damkliang et al., 2015; Koota et al., 2018; Lee et al., 2013). Although in the nursing profession, we are moving towards Evidence-Based Nursing (EBN), this movement is very slow in many countries. This problem can be caused by lack of knowledge and desirable performance in this area or some barriers in its implementation(Peterson et al., 2014) .

EBN has different levels and its evaluation and validation is important. This means that after determining the level of evidence and study critique, the validity of the study will be recognized, helping the reader to prioritize the information for reading. Of course, this does not mean to ignore the studies with lower levels of evidence and choose the high-level studies. Rather, knowing the level of evidence is also a guide for readers that helps to prioritize studies based on the research method. Approved international organizations have identified levels of evidence. Now, American Association of Critical Care Nursing (AACN)<sup>†</sup>, the largest specialty nursing organization, is pioneer of providing services to improve patient care using the best scientific evidence. The association has been working on the grading of clinical studies. In 2008, it published the leveling system of studies and provided recommendations for improving nursing care. The final edition of this ranking has been published in 2012. This ranking system contains a thematic pyramid that evidence-based studies with level A are placed at the highest point and included. Meta-analyses and meta-syntheses of the results of controlled trials. Level B evidence included Evidence from controlled trials . Level C evidence included findings from studies with a variety of research designs .These three levels are mentioned as Experimental evidences .D, E and M levels are knows as Recommendations (Table 1). (Peterson et al., 2014).

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<sup>†</sup> <https://www.aacn.org/>

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Category	level	Description
Experimental evidence	A	Meta-analysis or metasynthesis of multiple controlled studies with results that consistently support a specific action, intervention, or treatment (systematic review of a randomized controlled trial)
	B	Evidence from well-designed controlled studies, both randomized and nonrandomized, with results that consistently support a specific action, intervention, or treatment
	C	Evidence from qualitative, integrative reviews, or systematic reviews of qualitative, descriptive, or correlational studies or randomized controlled trials with inconsistent results
	D	Evidence from peer-reviewed professional organizational standards, with clinical studies to support
Recommendations		recommendations
	E	Theory-based evidence from expert opinion or multiple case reports
	M	Manufacturer's recommendation only

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Table 1- American Association of Critical-Care Nurses levels of evidence (Peterson et al., 2014).

On the other hand, in recent years, the studies have referred to the rapid growth of Iranian science and the improvement of the country's status in Middle East and Islamic countries. In most of these studies, scientific products of Iran have been compared with those of Turkey (Massarrat, 2012; Sarwar & Hassan, 2015). In addition to Turkey, Malaysia is one of Islamic and Asian countries that has made great developments in science and technology. Based on the cumulative number of documents and citations

and search on the Scopus database among the countries of the region, Turkey, Iran and Malaysia are in the first, second and third places, respectively (Massarrat, 2012; Melnyk et al., 2004).

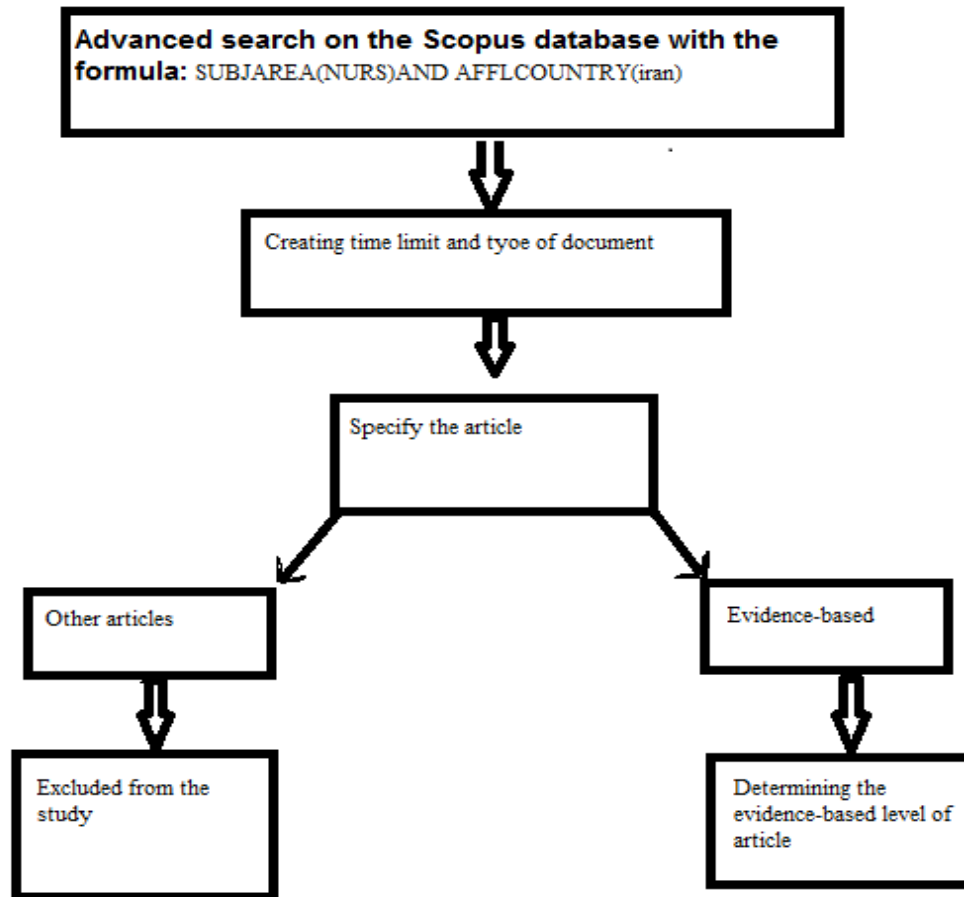
The present study aimed to investigate the scientific products of nursing in Iran, Turkey and Malaysia, indexed in Scopus from 2011 to 2015. The levels of evidence of these scientific products are determined using the scale of evidence levels of AACN and the citation rate in the highest level (A) is determined by Scopus citation database reports. Also we determined the Frequency of Evidence Levels of Nursing Scientific Products in Iran, Turkey and Malaysia, Indexed in Scopus which published in Iranian, Turkish and Malaysian Journals from 2011-2015. The results of this study by clarifying the nursing clinical products of Iran, Turkey and Malaysia, can determine their tendency in growing evidence-based studies, and provide detailed information for research policy makers.

#### Materials and Methods:

This research is descriptive survey with scientometric approach. The research population is all the scientific products of nursing in Iran, Turkey and Malaysia, indexed in Scopus from 2011 to 2015. The research on Scopus database was done as follows:

SUBJAREA (NURS) AND AFFLCOUNTRY (Iran) OR (turkey) OR (Malaysia)

The retrieved records were limited to the Article and review.



### Retrieving Articles in the Scopus Database

Hierarchical pyramid of AACN evidence level (Table 1) was used to determine the articles' evidence level. There were not any scientific production in D and M level In none of the studied countries so we did not report anything in these evidence levels. We reported only the citation rate to articles in level A in the mentioned years using Scopus citation database reports because this level is the highest point of the hierarchical pyramid of AACN evidence level and More citations are expected in these articles.

## Results:

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Publication year	2011	2012	2013	2014	2015	Total
Country of Publication						
Iran	206	194	272	367	321	1360
Turkey	308	296	334	374	418	1730
Malaysia	128	159	181	150	172	790

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Table 2-Frequency of Nursing Scientific Products of Iran, Turkey and Malaysia, Indexed in Scopus from 2011 to 2015

According to the results of the study in table 2 , the highest rate of nursing scientific productions in the studied years were related to Turkey and then Iran and Malaysia, respectively.



Level of Evidence	A	B	C	E	Total
Country of Publication					
Iran	44	291	383	475	1193
Turkey	7	88	271	1083	1449
Malaysia	9	39	100	475	623

Table 3- Frequency of Evidence Levels of Scientific Products of Evidence-based Nursing in Iran, Turkey and Malaysia, Indexed in Scopus from 2011 to 2015

Investigating the evidence levels of scientific products of evidence-based nursing in table 3 showed that Iran has the highest articles at the evidence level A and evidence level B, and Malaysia and Turkey are placed in second and third. At evidence level C, Iran, Turkey and Malaysia, respectively, had the highest evidence-based articles. At evidence level E, the highest rate of articles are related to Malaysia.

Country of publication	Number of Articles at Evidence Level A	Citation Number	Citation Percent
Iran	44	884	20%
Turkey	7	90	12%
Malaysia	9	198	22%

Table 4. The Citation Rate to Articles of Evidence Level A in Countries of Iran, Turkey and Malaysia, Indexed in Scopus from 2011 to 2015

Investigating the citation rate to articles of evidence level A in the studied countries (Table 4) showed that citation to Malaysian articles in evidence level A is more than two other countries, and Iran and Turkey, respectively, are placed in next positions.

Level of Evidence	A	B	C	E
Journals				
Iranian Journal	Hayat	Hayat	Hayat	Hayat
	Anadolu	Anadolu	Anadolu	Anadolu
Turkish Journal	Psikiyatri Dergisi	Psikiyatri Dergisi	Psikiyatri Dergisi	Psikiyatri Dergisi
	--	Malaysian Journal of Nutrition	Malaysian Journal of Nutrition	Malaysian Journal of Family Physician

Table 5. Frequency of Evidence Levels of Nursing Scientific Products in Iran, Turkey and Malaysia, Indexed in Scopus published in Iranian, Turkish and Malaysian Journals from 2011-2015

Table 5 shows that the only Iranian nursing journal, indexed in Scopus and also included EBN articles, is the Journal of Hayat. In Turkey, the Journal Psikiyatri Dergisi is in the same status. In Malaysia, There are not any articles at evidence level A indexed in Malaysian journals.

### Discussion and Conclusion

The aim of Evidence-Based Nursing (EBN) is to use the latest research findings to provide the quality of care and promote the nursing profession.(Melnyk et al., 2004)(10) In many developed countries, the nurses themselves are willing to move

towards Evidence-Based Nursing(EBN)(Damkliang et al., 2015), but in many developing countries, this process is slow and it is because of the problems and barriers such as unfamiliarity of nurses with the Evidence-Based Nursing(EBN).(Majid et al., 2011) Therefore, familiarity with the mentioned process can play a significant role in its growing and promoting. Though the scientific evidence has different levels, determining the level of evidence is a key component in evaluating the evidence.

Based on the results of the research, Iran, Turkey and Malaysia, respectively, had the highest nursing scientific products in the studied years. These results are in consistent with the results of (Negarandeh, 2013), and (Sarwar & Hassan, 2015) . Investigating the evidence level of these products showed that Iran has the highest scientific products at evidence level A, B and C, and Turkey and Malaysia, respectively, are placed in second and third positions. At evidence level E, Turkey had only 77% scientific products. While the scientific products of evidence-based nursing in Malaysia is lower than Turkey, but it has high percent in producing articles at evidence level A and B, as well as, citation to articles of the evidence level A in Malaysia is more than two other countries. In comparison to the studied countries, Iran is not only higher in scientific products of Evidence-Based Nursing (EBN), but also its scientific products in the evidence levels is more than other countries. Therefore, it can be concluded that in line with moving towards Evidence-Based Nursing (EBN), Iran, Malaysia and Turkey, respectively, are pioneer. Therefore, it is necessary to identify, consolidate and reinforce the factors and infrastructures of this growing. It should be noted that similar research such as (Ahmad et al., 2014), which examined the levels of clinical evidence in the articles of medical journals in Pakistan, Nigeria, Japan and united states, showed that 73% of aricles of

American general medicine journal had the evidence level 1 and 2, while, among 66-95% of Japanese, Nigerian and Pakistani articles had the evidence level of 3 and 4. Although, the theoretical scope of the mentioned research is different from this research, it seems that the ratio of articles at the evidence level 1 and 2 and in nursing scientific products are 28% in Iran, 8% in Malaysia and 6% in Turkey, which are not justifiable. In the research of (Kay et al., 2017; Kay, Memon, Simunovic, Athwal, et al., 2016; Kay, Memon, Simunovic, & Ayeni, 2016), which is in the field of surgery and orthopedics, more than 30% of articles had the evidence level 1 and 2. Therefore, the amount of Evidence-Based articles in the studied countries in comparison to other scientific domains is very low and it is necessary to take measures in order to resolve this problem. Holding and participating in training workshops of evidence-based practice or providing special privileges for article providers in high evidence levels can be considered as an appropriate approach in this field.

Based on the results of citation to the articles of evidence level A, the scientific products of Malaysia have received the most citation rate, however, the number of evidence-based articles of Malaysia was lower than Iran and Turkey and its reason needs further qualitative study.

The research findings showed that Evidence-Based Nursing scientific products in Iran and Turkey are indexed only in one journal of mentioned country. In Malaysia, this condition is for two journal. It should be taken into consideration about the limited number of the journals in the three countries for the purpose of publishing Evidence-Based articles. Therefore, it is suggested to evaluate the cause of the shortages or weaknesses of the mentioned journals for future research.

It should be noted that inadequate familiarity of Iranian scholars with evidence-based practice and also EBM databases , has led to lack of publications in evidence-based scientific products. As the possibilities of using EBM databases can be provided, regular, planned and comprehensive trainings about evidence-based practice should be considered. According to the findings of Hanson(Hanson et al., 2004) , the level of familiarity and attitude of clinical students has changed dramatically after participating in evidence-based medical training courses.

In general, since the findings of this research refer to the inadequate of nursing scientific products at the evidence level A and B, these findings are in consistent with the reserch by (Kay et al., 2017; Kay, Memon, Simunovic, Athwal, et al., 2016; Kay, Memon, Simunovic, & Ayeni, 2016), (Sugrue et al., 2016), (Makhdom et al., 2013) (Zaidi et al., 2013) , (Turpen et al., 2010), (Loiselle et al., 2008) , and are not in consistent with the findings of (Ahmad et al., 2014), (Hanzlik et al., 2009), (Judy et al., 2018). It is suggested to do qualitative research about the reasons of non-performing nursing research at high evidence levels and unfamiliarity of nurses with Evidence-Based Nursing (EBN).

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