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[AP1-E2-2-05] Trends in Research on Use of the Omaha System Between 2012 and 2019: Exploratory Scoping Review

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Keywords: Omaha System, Electronic Health Records, Nursing Informatics, Standardized Nursing Terminology

The aim of this study was to identify the trends and update the knowledge base regarding recent research on the use of the Omaha System (OS) in research, practice, and education through a scoping review. For analysis, we used 71 PubMed articles published between 2012 and 2019 that employed the OS. The number of research articles using the OS demonstrated a gradually increasing trend, compared with the that before 2011. The focus of these articles included the exchangeability with other terminologies, the feasibility of encoding evidence-based clinical guidelines, and the usage on flamework for interventional study and nursing education.

Trends in Research on Use of the Omaha System Between 2012 and 2019: Exploratory Scoping Review

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Abstract

This study aims to identify the trends and update the knowledge base regarding recent research on the use of the Omaha System (OS) in research, practice, and education through a scoping review. For analysis, we used 71 PubMed articles that employed the OS, published between 2012 and 2019. The number of research articles using the OS demonstrated a gradually increasing trend, compared with that before 2011. The OS research topics were more diverse than the previously reviewed research, including the exchangeability with other terminologies, the feasibility of encoding evidence-based clinical guidelines, and the framework utilization for interventional study, data visualization, and nursing education.

Keywords:

Omaha System, Electronic Health Records, Nursing Informatics, Standardized Nursing Terminology

Introduction

The Omaha System (OS) is a research-based, comprehensive practice, and documentation standardized taxonomy designed to describe client care (http://www.omahasystem.org/). The OS is popular in nursing informatics worldwide. Previous studies have reviewed the published research trends on the OS and the characteristics of this research until 2011 [1]. However, this area of research has not been updated. The intent of the present study was to identify the trends and update the knowledge base regarding recent research on the OS use in research, practice, and education through a scoping review.

Methods

Search Strategy

A systematic literature search was conducted using PubMed. The inclusion criteria were as follows: (a) the article was published between 2012 and 2019, (b) "Omaha System" must be included in the title or abstract, and (c) it must be a research article. Papers with no available abstracts were excluded from our review. After being screened by the title and abstract, the target articles were identified and analyzed.

Data Extraction

The following data were extracted from the identified articles: (a) published year, (b) country or region of origin of the first author, and (c) types of OS usage. The articles were labeled according to their OS use: "analyze clinical process," "analyze client problem," "advance classification research," "analyze client outcomes," and "others," based on a previous review [1].

Data Analysis

The number and/or proportion of articles per publication year, country, or region, and the usage of the OS were calculated. Examples of papers classified according to the usage of the OS were described. In our review process, the first and second authors screened the articles and independently extracted the data. If a consensus was not reached, the third author conducted the final assessment.

Results

In this study, 81 articles were found. Following screening, 71 of them were included in our research (Figure 1). Annually, between 2012 and 2019, five to fifteen articles using the OS were published (Figure 2).

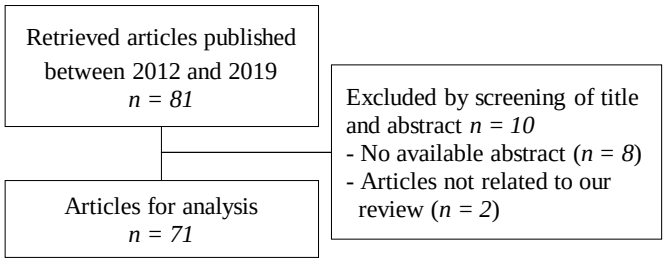

Figure 1- Flow diagram

The majority of the identified articles' researchers were from the United States (n = 51, 72%), Turkey (n = 8, 11%), and China (n = 7, 10%), followed by Canada, Finland, Ireland, Netherlands, and Norway (n = 1).

Table 1 presents the types of OS usage. The most frequent was for "others" (30%). "Others" was not reclassified, but it included new topics such as mapping of evidence-based practice guidelines for non-invasive treatment, demonstrating

the feasibility of encoding evidence-based clinical guidelines, using the OS as a framework for interventional study, and data visualization. The "Advanced classification research" topic had fewer articles, and conversely, the data exchangeability by mapping subsets of patient problems to three classifications (the OS, NANDA International, and the International Classification of Functioning, Disability, and Health) was reported.

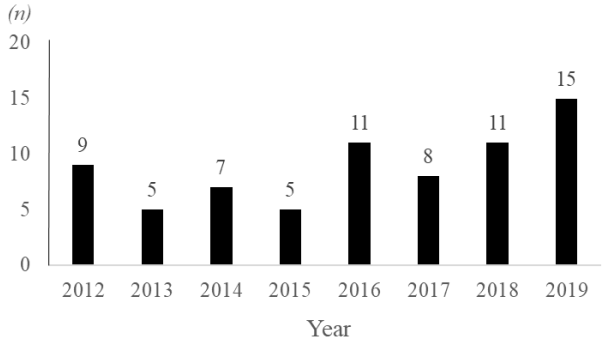

Figure 2- Time-trend of articles using the Omaha System according to published year in PubMed (n = 71)

Table 1- Comparison of types of Omaha System usage between the current research (from 2012 to 2019) and the previous research (from 2004 to 2011) [1]

Type	The current research *n = 71* n (%)	The previous research *n = 56* [1] n (%)
Analyze clinical process	11 (15%)	7 (13%)
Analyze client problem	15 (21%)	5 (9%)
Advanced classification research	4 (6%)	16 (29%)
Analyze client outcomes	20 (29%)	12 (21%)
Others	21 (30%)	16 (29%)

Discussion

The quantity of research articles using the OS demonstrated a slowly increasing trend between 2012 and 2019, compared with the prior trend from 2004–2011 [1]. Almost all the researchers were from the United States; in Asia, the articles only originated from China. Compared with the previous review [1], our updated review revealed some notable findings. The OS was used in research to enhance the implementation of evidence-based practice for healthcare professionals. In recent years, an increasing number of studies have been published on numerous evidence-based clinical guidelines. Furthermore, the current study attempted to validate the exchangeability of data between the OS and other standardized terminologies. With the widespread use of internet technology and a growing body of evidence, the OS might be effectively utilized as a shared infrastructure, in addition to its traditional use, such as for analyzing problems, care process, and outcomes in interventional studies.

Limitations

First, this study was an exploratory scoping review; we searched only using PubMed. Second, articles in the database in languages other than English were not included [2]. Third, the quality of methodologies followed in the reports was not evaluated.

Future research

Based on this exploratory review, we will expand the scope of our search. The OS is one of the most popular terminologies globally [3]. In Asia, the OS has been translated into Japanese, Chinese, Korean, and Thai (http://omahasystem.org/overview.html). An international collaboration research [4] with Asia is needed to clarify the current status and trends in the use of the OS.

Conclusion

The exploratory scoping review revealed a slowly increasing trend in the number of research articles using the OS. The topics of OS research were more diverse than the previously reviewed research, including the exchangeability with other terminologies, the feasibility of encoding evidence-based clinical guidelines, and the framework usage for interventional study and data visualization.

Compliance with Ethical Standards

S.Y. has no conflicts of interest to disclose. A.T. is an external consulting member of WyL. Inc.. T.I. is a CEO at WyL. Inc., which released an electronic health records system — integrating the Omaha System in Japan.

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