



SCOPUS analysis of publications on nursing and phlebitis

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ABSTRACT

Objectives: The aim of our study was to analyze and guide future research on phlebitis, which is one of the complications of nursing and local peripheral intravenous catheter.

Materials and methods: In the study, the method of data collection through document analysis was used. The universe of the research in this study consisted of publications published in journals within the scope of the SCOPUS database (<http://www.scopus.com/>), which is the largest summary and citation database of the literature, until March 13, 2021. The publications containing the keywords “phlebitis” and “nursing” in English were examined in the title of the article.

Results: There were 298 publications in total, with 247 of them being articles. São Paulo (n=10) and Griffith University (n=10) had the most publications. It was determined that after 2001, there was a significant increase in the number of publications on this subject. The year with the most publications (n=21) was 2020. In this regard, the United States of America (n=132) was the most productive country. There were publications from 39 different countries. Our country was listed ninth. 271 of the publications were written in English. There were 389 citations for the most cited article, and 40 articles got no citations at all. Our country had only seven publications (2.34%) and 31 authors.

Conclusion: The number of publications on phlebitis in nursing, both internationally and in our country, is quite low. There is a global need for studies on the subject, which is widely used in nursing practice.

Keywords: Nursing, phlebitis, publication analysis, SCOPUS.

The intravenous (IV) route is a treatment method that involves injecting drugs and fluids directly into the venous system. The main purposes of IV administration are to correct the patient's fluid and electrolyte imbalance, administer medication, to provide nutrition, blood and blood products, and radio-opaque substances. A common type of catheter is peripheral intravenous catheters (PIVC) for IV applications. Peripheral intravenous catheters application is one of the most common nursing practices in patients admitted to the hospital. Local or systemic complications may develop if PIVC is not used under the proper conditions.

The most common of these complications is phlebitis, which presents as swelling, erythema, soreness, and tenderness in the skin around the catheter insertion site for around 2 cm, infection of the catheter insertion site, and inflammation of the intima layer of the vein.^[1-3] Phlebitis is a preventable complication if the risk factors that contribute to its development are avoided.^[2]

This is one of the basics of nursing practice, and there have been numerous studies on the subject. The aim of our study was to analyze and guide future research on phlebitis, which is one of the complications of nursing and local PIVC.

MATERIALS AND METHODS

Qualitative studies are holistic, experience-advantaged, realistic, interpreting and analyzing the results obtained, and were previously used in social sciences; however, their use in the field of health is increasing due to their scientific contribution.^[4,5]

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Table 1. Distribution of publications by characteristics

Year of publication	n	%
2010 and earlier	149	50
After 2011	149	50
Distribution of articles based on type		
Research	247	82.8
Review	38	12.7
Other	13	4.5

In the study, the method of data collection through document analysis was used. The universe of the research in this study consisted of publications published in journals within the scope of the SCOPUS database (<http://www.scopus.com/>), which is the largest summary and citation database of the literature, until March 13th, 2021. The publications containing the keywords “phlebitis” and “nursing” in English were examined in the title of the article. The “content analysis” technique, which is one of the qualitative research methods used in previous studies, was used to analyze the data. Previously, similar methods studies were used as examples.^{16,71}

Following the determination of the global situation, the publications from our country were deeply examined. The authors, years, institutions, journals, citation counts, and field-weighted citation impacts were analyzed.

RESULTS

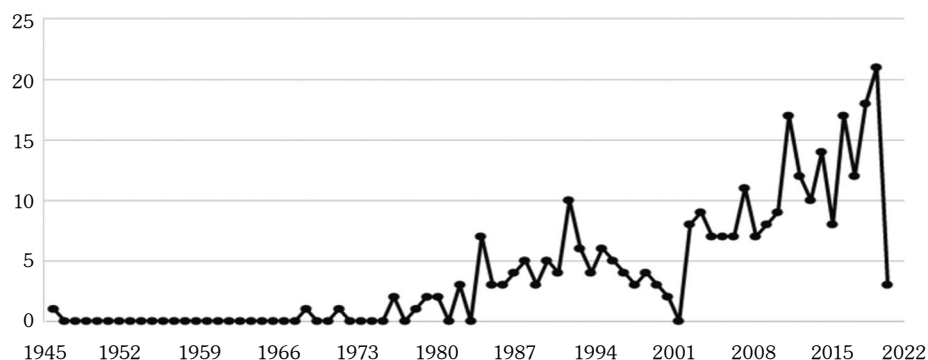
There were 298 publications in total, with 247 of them being articles. São Paulo

(n=10) and Griffith University (n=10) had the most publications. Menzies Health Institute Queensland (n=8) and Royal Brisbane and Women's Hospital (n=7) were the only institutions with more than five research on this subject. It has been determined that there has been a significant increase in the number of publications on this subject since 2001. The year with the most publications (n=21) was 2020 (Table 1, Figure 1).

Rickard, CM was the author with the most publications (n=9) (Figure 2). The United States of America (n=132) was the most productive country in this regard. There were publications from 39 different countries. Our country was listed ninth (Figure 3). 271 of the publications were written in English, 17 in Spanish, 10 in Portuguese, and eight in French. The majority of publications were in journals, including Journal of Infusion Nursing (n=49), Journal of Intravenous Nursing (n=23), NITA (n=14), Critical Care Nurse (n=7), and The Journal of the Association for Vascular Access (JAVA) (n=7). The most frequently used keywords were Human (n=256), Phlebitis (n=224), Article (n=163), Humans (n=154), Female (n=119), Male (n=115), Adult (n=99), Priority Journal (n=94), Catheterization, Peripheral (n=93), and Catheterization (n=87).

There were 389 citations for the most cited article, and 40 articles got no citations at all. Table 2 shows an analysis of the 10 most cited articles.

There were only seven publications (2.34%) and 31 authors from our country. Büyükyılmaz¹⁸ had the most publications. Seven of these

**Figure 1.** Distribution of publications by years.

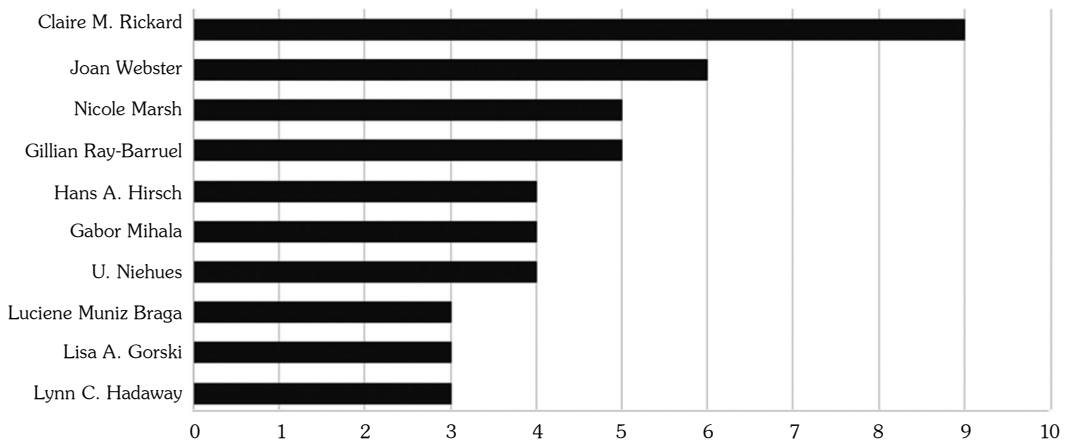


Figure 2. The authors with the most publications.^[8]

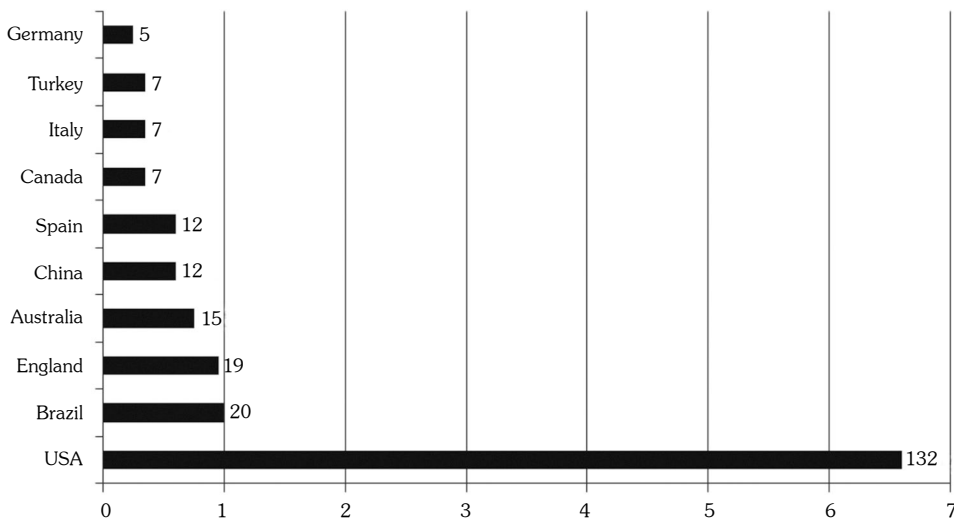


Figure 3. Distribution of publications by country.

publications were also articles and all were written in English. There were two articles in 2018, as well as one in 2003, 2008, 2014, 2019, and 2020. In other years, no article in this field was found.

DISCUSSION

Phlebitis due to the use of peripheral intravenous catheters, which is part of nursing practices worldwide, is a global problem. Despite medical advancements, this problem is still frequently detected. It is a subject that the field of nursing and other related medical branches

do not emphasize scientifically, and the number of publications is relatively low. Therefore, we planned to analyze the publications, compare the situation in our country, and raise awareness of the deficiency in this issue as part of our research.

The acceptable rate of phlebitis has been reported as <5%, however, due to variation, the rates reported in the literature are likely to range from 0 to 91%. There are 71 phlebitis scales available for infusion phlebitis assessment measures, but none of them have been fully validated.^[10-14] The incidence of eight signs and

Table 2. Analysis of the 10 most cited articles

Authors	Year	Citation counts	Journal name	Article name
Tice et al. ^[15]	2004	389	Clinical Infectious Diseases	Practice guidelines for outpatient parenteral antimicrobial therapy
Maki and Ringer ^[16]	1991	388	Annals of Internal Medicine	Risk factors for infusion-related phlebitis with small peripheral venous catheters: A randomized controlled trial
Rickard et al. ^[17]	2012	215	The Lancet	Routine versus clinically indicated replacement of peripheral intravenous catheters: A randomized controlled equivalence trial
Graham et al. ^[18]	1991	158	The American Journal of Medicine	Infectious complications among patients receiving home intravenous therapy with peripheral, central, or peripherally placed central venous catheters
Helm et al. ^[19]	2015	126	Journal of Infusion Nursing	Accepted but Unacceptable: Peripheral IV catheter failure
Hadaway ^[20]	2012	110	Journal of Infusion Nursing	Short peripheral intravenous catheters and infections
Uslusoy and Mete ^[9]	2008	98	Journal of the American Academy of Nurse Practitioners	Predisposing factors to phlebitis in patients with peripheral intravenous catheters: A descriptive study
Merrell et al. ^[21]	1994	97	Western Journal of Medicine	Peripherally inserted central venous catheters - Low-risk alternatives for ongoing venous access
Stiver et al. ^[22]	1978	96	Annals of Internal Medicine	Intravenous antibiotic therapy at home
Dychter et al. ^[23]	2012	94	Journal of Infusion Nursing	Intravenous therapy: A review of complications and economic considerations of peripheral access

symptoms used in the diagnosis of phlebitis with a peripheral intravenous catheter or a short peripheral catheter, as well as their level of correlation, were investigated in a study. At 5,907 catheter insertion sites, a total of 22,789 observations per day of six signs (swelling, erythema, leakage, palpable venous cord, purulent discharge, and temperature) and two symptoms (pain and tenderness) were analyzed. Most signs and symptoms of phlebitis have been reported to occur only occasionally or rarely, with sensitivity being the highest incidence finding.^[13] In another study, 210 patients were enrolled in three hospitals, with 247 pairs of observation groups. The most sensitive scales were determined to be Catney and Rittenberg, whereas the least sensitive scales were Curran, Lanbeck, and Rickard. Only the Catney (pain, tenderness, erythema, or palpable cord) and Rittenberg (erythema, swelling, tenderness, or pain) scales were found to be acceptable.^[14] However, as with these publications, it is worth noting that there

is no clarity about this subject, which is quite common in daily practice, even in terms of definition. Furthermore, no bibliometric study on phlebitis has been found in the literature, which can be accessed both nationally and internationally.

In the analysis, 235 publications with the same keywords were found in the PubMed database. It is necessary to increase the number of publications in this field as a consequence of the analysis in both databases. According to PubMed, the first publication was in 1964, and the number of publications increased after 2003. After 2001, the number of publications on this subject increased significantly, according to our findings. Moreover, the search of PubMed revealed that all of the publications were published in nursing journals.

Limitations of our study: Our study is confined to theses written in our country between 1994 and 2020, which is a significant limitation.

Conclusion

Analyzing the current situation of a topic is critical for guiding future research by examining publications on that subject. There have been very few publications on phlebitis in nursing, both globally and in our country. Nursing approaches to treating phlebitis in patients should be defined, as should organizational policies and procedures. Nursing practices in phlebitis should be standardized, and the use of the phlebitis scale should be included in the procedure content. Multidisciplinary studies on both prevention and treatment of this situation, which is quite common in nursing practice, are needed globally.

Ethics Committee Approval: The ethical dimension of the research: There is no need for ethics committee approval because the field publication search is used in the research. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

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