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Review

DEVELOPMENT OF NURSING RESEARCH–DIRECTIONS AND BEST PRACTICES IN THE USA AND EUROPE: A NARRATIVE REVIEW

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Summary

Nursing research is a relatively new area of professional development that began firstly in the USA and made significant progress during the second half of the 19th century. Nursing research has made significant progress in European countries, mainly developed countries. This article aimed to review publications describing the evolution of nursing research, the directions of development, and best practices in the USA and Europe. Different databases were searched according to selected criteria, and a narrative literature review was conducted. Forty-two articles from the USA and Europe were identified and included as the most appropriate in the analysis, published in 22 journals. During the analysis, five basic directions of developing nursing research were identified - nursing research education, organizational structures for nursing research and collaboration with clinical professionals, research dissemination and journals, trends and priorities, and funding nursing research. To increase research capacity and respond to the growing research culture and the requirements of the scientific community, nursing research education is needed at every educational level. Establishing organizational structures has proved the importance of supporting and encouraging nurses to participate in and conduct studies. Funding research in teams is more likely to occur at any organization or center than looking for funding sources from individuals. Encouraging nurses and midwives to conduct research in clinical practice and publish results from scientific studies will help achieve sustainable implementation of evidence-based practice.

Keywords: nursing research, development, evolution, directions

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Introduction

Nursing research is a systematic inquiry designed to generate trustworthy evidence about issues of importance to the nursing profession, including nursing practice, education, administration, and informatics [1]. Nursing research provides the scientific basis for practicing the profession. The first nursing theorist, Florence Nightingale, was also the first nurse-scientist with her observations and detailed records during the Crimean War. It was the first effort into research in nursing. After

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her work, little evidence for continuing research by other nurses exists until the 1900s [2].

There is a long history of nursing research in the United States of America (USA), dating over 100 years. The first studies focused on nursing education, students, and nurses and how they organized their work until 1950. In 1980, the American Nurses Association (ANA) stated that "The knowledge base for nursing practice is developed through research on the responses of individuals and groups to actual or potential health problems, the environments that influence health in humans, and the therapeutic interventions that affect the consequences of illness and promote health" [3]. The culmination in the evolution was the establishment of the National Institute of Nursing Research as part of the National Institute of Health [4]. The American Associations of Colleges of Nursing Position Statement on nursing research described the expectations and competencies of graduates at each level of nursing education [5]. Requirements for research competencies for different educational programs and curriculum have been established.

The development of nursing research in different countries has been influenced by various factors and differs significantly at present. A broad-scope report in 2005 on the state of nursing research in 13 developed European countries revealed a great variety in the level of development with many weaknesses. Constraints such as language difficulties, a limited timeframe, and difficulties in gaining access to key individuals and organizations in countries have hampered the comprehensiveness of the information in the project. Conclusions reported included a great variety in the following: definitions of nursing research, the amount and level of nursing involvement in government or absence of nursing representation, the policy on funding, and the lack of flexible career pathways [6,7].

In May 2013, the European Foundation for Nursing Research (ENRF) was established by the European Federation of Nursing Associations (EFN). Its mission is to promote and encourage nursing research as a factor for professional excellence and how to use it to influence EU policies [8]. The main goals are promoting quality nursing research and education and training programs; obtaining funds and financial aid for research projects; establishing partnerships with universities, institutions, and public or private organizations; disseminating scientific knowledge, and transferring the results of research projects to society.

Objective

This article aims to review the publications describing the evolution, directions of development, and best practices of nursing research in the USA and the European countries.

Materials and Methods

We searched the most popular bibliographic

Table 1. Eligibility criteria for inclusion and exclusion of publication in the review

Criteria	Inclusion criteria	Exclusion criteria
Type of publications	Full-text publications (articles, different types of reviews), peer-reviewed	Publications that are introductory articles by the editors, study material (s), book reviews, book chapter(s)
Language	English	Non-English publications
Country	USA, European countries	Every publication from countries other than the USA and European countries
Yearof publication	Between 2000-2020	Publications before 2000 and after 2020
Focus of publications	Level of development of nursing research in the following areas: - education for nursing research - research trends and priorities - organizational structures and partnership - funding at a national level and journals for research dissemination	Publications with studies related to: - concrete medical field (oncology, cardiology, psychiatry, hematology, etc.) - specific disease (breast cancer, hemophilia, AIDS, etc.); - specific target group (children, pregnant women, older adults, people with disabilities) - theories and models for nursing care - healthcare management.

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Table 2. Number of publications according to country of origin (state of USA) and year of publications

№	State of USA	N	Years of publication	European country	N	Years of publication
1.	Massachusetts	5	2001, 2015, 2016, 2017	United Kingdom	2	2011, 2018
2.	Colorado	1	2018	Sweden	2	2008, 2009
3.	California	1	2001	Spain	2	2001, 2017
4.	Pennsylvania	2	2005, 2010	France	2	2013, 2015
5.	Maryland	2	2014, 2019	Denmark	2	2015, 2019
6.	Texas	1	2018	Germany	1	2000
7.	New Jersey	2	2008, 2017	Finland	2	2016, 2019
8.	Washington	3	2008, 2018, 2020	Ireland	1	2018
9.	Nebraska	1	2019	Italy	1	2011
10.	New York	1	2007			
11.	Arizona	2	2018, 2020			
12.	Indiana	2	2014, 2018			
13.	Wisconsin	2	2012, 2018			
14.	Illinois	1	2000			
15.	North Carolina	2	2011, 2019			
	Total	**27**		**Total**	**15**	

Table 3. Number of publications related to different topics of study

№	Topic of study	N(%)
1.	Nursing research education	21 (50.5%)
2.	Organizational structures for nursing research and collaboration with clinical professionals	13 (31.0%)
3.	Research dissemination, publications, and journals for nursing research	11 (26.2%)
4.	Nursing research trends and priorities	9 (21.4%)
5.	Funding nursing research	9 (21.4%)

* The total number is over 42 because there are publications concerning more than one topic

databases accessible to the Medical University - Pleven: Scopus, Web of Science, Science Direct, EBSCO host, Springer Link, and OVID. PubMed was added to the search because it covers numerous healthcare publications to identify the relevant articles. A combination of keywords was used for the search, including „nursing research," „development," and „evolution." The eligibility of the publications included in the review was determined according to the criteria presented in Table 1.

After identifying the relevant articles, we performed a narrative review of the publications describing the evolution, development directions, and best nursing research practices in the USA and Europe.

Results

Forty-two articles from the USA and Europe were identified and included as the most appropriate. Depending on the origin, it was found that 62.3% (n=27) of publications were from USA states, and 35.7% (n=15) were publications from developed European countries (Table 2). Most of the articles were published after 2010 (n=30, 71.42%).

The articles were published in 22 nursing journals: "Nursing Outlook" - 10 articles, followed by „Journal of Professional Nursing" with eight published articles.

Most of the authors (n=31, 73.8%) were affiliated to universities or schools of nursing

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(as part of universities), and the others were from various organizations or research centers directly involved in nursing research.

During the review of the development of nursing research, five topics of study were identified that are presented in Table 3.

Half of the publications (50.0%) referred to the development of nursing education for research focusing on doctoral programs. About one-third of the publications (31.0%) discussed essential aspects of the organizational structures and the need for collaboration with clinical professionals. Some authors also emphasized disseminating and implementing the results as a significant aspect of research-based or evidence-based practice (n=11, 26.2%). Studying the trends and priorities in nursing research and how they had changed over different periods was a particular area of interest. Funding as a powerful tool for promoting and stimulating nursing research was also among the priority topics (n=9, 21.40%).

Discussion

Nursing research education

The evolution began in the USA with the affiliation of nursing schools with universities, followed by developing a bachelor's degree (1923, Yale University), master and doctoral degree programs for nurses first in fields outside nursing [9]. Specific competencies for nursing research were needed at every educational level. Introducing evidence-based practice into curricula and practice required research competencies. These competencies were identified for each level or academic year within each program. A study in 2011 identified 137 DNP programs with two possible options: from master to doctor or bachelor to doctor [10]. During the past 70 years, doctoral education in the USA has gone through a significant transformation. The evolution has presented different research-intensive degrees: Doctor of Nursing Science (DNS or DNSc), Doctor of Science in Nursing (DSN), Doctor of Philosophy (Ph.D.) [11]. Nursing doctoral education in the USA continued the evolution over the past 15 years, and there are opportunities to obtain a research-focused Ph.D. degree or a clinical-focused DNP degree. There is also an opportunity for a dual doctoral degree: a PhD-DNP degree [12]. The use of individual development plans in doctoral and postdoctoral programs „will strengthen the education and training of the next generation of nurse scientists" [13]. Several researchers have pointed that the profession needs to develop academic nursing with well-prepared and educated scholars [13-17].

Nursing programs in Europe were established in universities later than in the USA. The First attempts for research in the Nordic countries began around the 1970s [18]. Doctoral programs for nurses in Sweden were established in the 1970s, and a master's degree program in Finland - in 1979. Finnish nursing education research in 15 nursing dissertations published in 1990-2014 was somewhat student-centered instead of focusing on research topics that are crucial to nursing education and its development [19]. The academic training of teachers in Germany began in 1963, and their inclusion in doctoral programs and the first nursing doctoral program started in 1997 [20]. The development of doctoral programs in Europe has been a slow process. Nurses had to demonstrate evidence-based practice. Three different doctoral approaches were developed: traditional Doctor of Philosophy (Ph.D.), Doctor of Nursing Science (DNSc), and doctorates by published works [21].

Several researchers noted that the transition to a new role from nurse-clinician to scientist involves a change of values and improving research competencies. Developing academic skills is needed, such as writing literature and systematic reviews, learning a new scientific language, communication skills, and oral presentations skills, emphasizing good writing skills. In publications, special attention was paid to building research capacity in nursing and the complexity of education for clinical researchers [15, 22-29].

Organisational structures for nursing research, partnership with clinical professionals

Establishing organizational structures is a time-tested approach to management, support, and development. Nursing researchers have emphasized what is needed to increase collaboration and interdisciplinary activities related to research, teaching, and training [14,

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16, 30].

The National Centre for Nursing Research in the USA (lately known as Institute – NINR) was established in 1986 to support nursing researchers. Today, it is known as one of the largest public organizations in the USA and worldwide [31, 32]. The authors, who provided their own experience with committees responsible for the nurses' research training, confirmed the importance of committees for success in advancing the nursing science [31]. Development of the NINR Logic Model for Centre Sustainability is a very successful project that NINR Centres have supported for more than 20 years [32, 33]. Collaboration and interdisciplinary teams are essential for solving health problems in various fields [34]. Gray's publication described the successful collaboration of nursing students and practicing nurses in the evidence-based research project (2010) [24]. Different centers for supporting nursing research are examples of establishing organizational structures for partnership. The development of shared positions (academic and practitioner) can be considered to implement innovative ideas [35].

Nursing studies had not been conducted by institutions or organizations in Germany until 1990 and were performed by individual nurses in their free time. The first German institute for nursing research was founded in 1991 [20]. A working group on nursing was created in 1990 within the Health Research Fund in Spain to identify the need for nursing research [36].

Another point of view may consider repositories as a type of organizational structure in supporting nursing research. Sigma Theta Tau has an electronic nursing research library called the Virginia Henderson Global Nursing e-Repository. It offers access to nursing research and evidence-based knowledge. In 2015, the American Association of Colleges of Nursing recommended that doctoral projects be archived and shared in a digital repository as a strategy for advancing nursing practice. It was reported in 2019 that such an open access repository for the Doctor of Nursing Practice Project was established at George Washington University [37].

Emerging Scholars Network is another example of an organization that has provided a bridge for students engaged in the Mid-west Nursing Research Society at the beginning of their careers. Leadership and mentoring were provided, and the web uses social media platforms such as LinkedIn, Twitter, and Facebook [26].

Research dissemination, publications, and journals for nursing research

The concept of research utilization in nursing dates back to the early 1970s [38]. The implementation of research findings in practice is a process that often ends only on paper but not in patient care [39]. A collaborative effort between nursing school and community-based agencies has developed and implemented a shared position that combines academic and service institution responsibilities. This initiative was a way to "build a bridge" between nursing education and service that made research dissemination and implementing evidence-based practice possible [35]. Pragmatic Dissemination and Implementation approaches and strategies can be used by nurses to speed up research translation and to reduce the gap between science and practice [40].

The first journal, "Nursing Research," was established in 1952, and several textbooks related to nursing research were published at that time. Another important event in disseminating the nursing theory and research was creating the "Annual Review of Nursing Research" in 1983 with critical analyses of research nursing practice, care delivery, education, and the nursing profession [9]. In establishing an Open Access Repository for Doctor of Nursing Practice Projects, students identified an opportunity to influence global nursing care as evidenced [37].

The impact factor is the most widely-used means of assessing scientific output in nursing and all other disciplines. The presence of nursing journals in international databases has grown between 2009 and 2014, and the impact factors also tended to increase [41]. Scientific interest progressed through six phases: from publications on education to focusing on theory, followed by clinical practice and quality of life studies. Currently, methods in nursing are mainly investigated.

Scientists emphasized that researchers should

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become better educated and skilled in all stages of the research process [25, 42, 43]. Various initiatives have been taken to promote scientific development. A free database was set up in 2006 for about 26 Italian journals in Italy. A specific nursing vocabulary has been built and the project aimed to foster nursing scholarship in Italy [44]. More effective dissemination of new knowledge was needed to make sustainable changes in clinical practice.

Nursing research trends and priorities

Many countries established priorities for nursing research proposed by professional organizations, scholars, or governments. The American Nurses Association (ANA) identified ten key directions as priorities in 1985. Different studies also have set priorities for some nursing specialty practices (oncology, critical care, etc.). Some authors consider key themes as priorities such as nursing theory development, methodology, and professional nursing practice [45]. Others emphasized the research agenda, developing a Model of Research Priorities for clinical nurse specialists [46] and even considering linking US trends in nursing research to global research trends and research agendas [30].

In Europe, studies are mainly in Nordic countries. In 1995, priorities for research in Nordic countries included health promotion, symptom management, and care for the elderly. Different studies presented the locus of interest within metaparadigmatic structure with four domains (client, client-nurse, practice, and environment) or clinical care nursing research trends. They focused on the patient experience of symptoms, family suffering, and long-term consequences [18, 47]. A three-round Delphi survey conducted in Sweden identified three hundred and eighty nursing research areas (2007). The priorities were preserving humanistic values and developing cross-organizational collaboration in the healthcare system, human dignity in geriatric care, and continuity of care [48]. The main research areas in research proposals in France (2011) were clinical nursing, nursing education, and nursing management [49]. Nursing research priorities in Finland for the period 2012-2018 included theory development, methodology, expertise in advanced nursing, and professional practice [50]. The priorities initially identified in Spain (2001) were related to continuity and coordination of nursing care, quality of care, the impact of invasive techniques and treatments on patients' quality of life, primary caregivers' needs, and customers' satisfaction [36].

Funding nursing research

Federal support for funding nursing research and early funding for nursing doctorate education began in the 1950s. The establishment of the National Centre for Nursing Research (NCNR) in 1989 provided financial support for studies. Later, the Centre became an Institute (NINR), and in 2000, the federal funding for nursing research increased to over $70 million [9]. The NINR Centres of Excellence Program was developed to foster interdisciplinary research. NINR funded over 18 university centers in different disciplines, e.g., grant funding focused on women's health and gender research and interdisciplinary collaboration [33, 34].

Discussions on the role of nursing in health services research in 2001 by nursing leaders pointed out the lack of clarity as to how many nurses were currently funded for conducting research. Only a few organizations had been a source of funding, such as the Agency for Healthcare Research and Quality [16]. Improving research capacity and culture are essential in obtaining funds for research. Bland Model of Faculty Productivity is a new organizational process that was applied. It has led to an increased number of submitted projects and the amount of funding [28].

In Germany, the Robert Bosch Foundation established a program to support doctoral students in nursing or nursing-related research and master courses in foreign countries [20]. The Ministry of Health in France launched the first national public funding program for hospital-based nursing research in 2010. A cross-sectional study showed that only 25 projects were funded out of the 149 submitted between 2010 and 2011. At the same time, public hospitals offered scholarships for nurses for doctoral studies in other disciplines [23, 49].

Publications did not overlook the need for good writing skills and the importance of their improvement: such skills are needed not only for completing a doctoral dissertation and writing

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articles but also for guaranteeing successful obtaining required funding projects [25].

Study limitations

There are some limitations of the study. Firstly, the study utilized six databases to which the Medical University of Pleven has access and included PubMed. We did not search for publications in other databases such as CINAHL, which contains many publications in the field of nursing. The second limitation is that the publications included in the review are only from the USA, where the nursing research is the most developed, and European countries because Bulgaria is one of them. The development of nursing research in other regions and countries such as Canada, Brazil, or Japan may be a research object of interest for another inquiry. Another limitation of including eligible publications is the language. As the language used in most databases, English was set as an inclusion criterion. Also, the set period excluded articles and studies published before 2000, which possibly contained more detailed information about the activities undertaken.

Conclusion

There is a long-standing tradition in the development of nursing research in the USA. Different organizations at a national level were established to support and educate researchers in nursing. Federal funding supported research and education and played a significant role in development. Publishing in nursing journals and establishing accessible databases have increased the spread of new knowledge.

Some European countries are more advanced than others, in which nursing research is in its early stages. Establishing organizational structures at national and institutional levels is essential for organized leadership, support, and cooperation. In universities where research units have been set up, research activities should be encouraged. An in-depth review of nursing research education is necessary because of the great need for improving research skills. It is also important to provide various funding sources as one of the leading motivational and encouraging factors in undertaking research. Researching practice, disseminating, and implementing results from scientific studies will ensure sustainable implementation of evidence-based practice.

Experience, good practices, and contemporary trends in nursing research in the USA and European countries pointed to the directions in which activities could be undertaken to guarantee the successful development of nursing research.

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