



Trends in Nursing Research in Jordan 2013-2016: A Scoping Review

Inaam A. Khalaf^{1*}, Carolyn Sun²

¹Department of Maternal and Child Health Nursing, University of Jordan, Jordan

²School of Nursing, Columbia University, USA

*Corresponding author: Inaam A. Khalaf, Department of Maternal and Child Health Nursing, University of Jordan, Jordan. Tel: +962-65355000; +962-777487250; Email: khalafd@ju.edu.jo; khalaf12@yahoo.com

Citation: Khalaf IA, Sun C (2018) Trends in Nursing Research in Jordan 2013-2016. Rep Glob Health Res: RGHR-103. DOI: 10.29011/RGHR-103.100003

Received Date: 11 October, 2018; **Accepted Date:** 30 October, 2018; **Published Date:** 12 November, 2018

Abstract

Background: Nursing research is developing and has improved over the last 15 years in some Middle Eastern countries including Jordan. Providing current knowledge about the state of nursing research activities is vital to direct nursing research to meet the health needs of communities.

Aims and objectives: To explore the state of nursing research in Jordan in terms of topics researched, methodology, theoretical framework, the source of funding and research relation to Jordanian Nursing Council priority area.

Methods: A search was done using PubMed/MEDLINE, Google scholar, Cochrane online Library and CINAHL with related keywords. The search included articles published in English between 2013 and 2016. The abstract that met the inclusion criteria were retrieved and read. Data were extracted and evaluated by the primary investigator according to the review objectives.

Results: The search resulted in the identification of 604 articles with the highest number of publications (176) published in 2014. The highest percentage of studies focused on adult health topics, while few investigated geriatric topics. Almost 72% of articles utilized a quantitative approach; only 15 articles used a true experimental design and 13.1 % of articles used a qualitative approach. The most common method of participant selection was convenience sampling. Almost 44% were conducted in a hospital setting, with 27.7% of articles collected data from hospitalized patients. Only six studies used a nursing theory or model; 35.8 % of the studies were funded with the highest percentage of funding from Jordanian universities. The highest percentage of articles focused on nursing practice.

Conclusions: Nursing research in Jordan is rapidly developing. More research is necessary to contribute to priority research areas and to inform practice. To further develop the nursing knowledge, nurses need to utilize nursing models and theories as a basis for their research.

Keywords: Development; Jordan; Literature Review; Nursing Practice; Research; Trends

Background and Introduction

Jordan is a Middle Eastern country that occupies an area of 89,000 km with a population of 9,814,995 [1]. The Jordan health care system is one of the best in the region [2].

Nursing education in Jordan is well developed with the first baccalaureate program established in 1972 at the School of Nursing at the University of Jordan. In 1986 at the same school, a Master program in nursing was established [3], followed by

many other Masters programs from different universities in Jordan. In 2005 the first and only research focused PhD nursing program nationally was established at The University of Jordan [4]. The development of nursing education in Jordan facilitated the development of nursing research, especially with the increased number of PhD holders [5].

Research is a vital aspect of any profession, and research has long been an important building block to develop the nursing profession and knowledge. Research is basic for having an evidence-based practice in nursing, with the aim to enrich the health care system and to improve the quality of health care provided to

individuals, families and communities and it is essential to inform policies related to the health care system. It is well documented that nurses are the core of the health system worldwide. In their report “Global strategic directions for strengthening nursing and midwifery 2016-2020,” the World Health Organization (WHO) emphasized the importance of building evidence-based nursing and midwifery as part of its conceptual framework [6]. Furthermore, Polit and Beck [7] indicated that nurses should be encouraged to provide evidence-based patient nursing care, which require improvements in the quality of studies conducted.

The history of nursing research is relatively short, considering that it started in most developed countries in the 1950s [8]. But the state of nursing research is relatively advanced in some countries in its growth and funding opportunities. The USA, Australia, Canada, Hong Kong, Taiwan, and Western European countries are considered advanced in publishing nursing research and obtaining funding [8], and a noticeable increase in publication since the beginning of the 20th century is documented [7,9]. Numerous countries have performed studies to investigate the state of nursing research in a specific country. Nursing research in the USA is well-developed and started in the early 1900s with an emphasis on nurses’ education and resulted in a significant increase in publications during the beginning of the 20th century [9]. In Australia, nursing research is developing rapidly, and nurses participate in various scientific research activities [10,11]. Nursing research in Turkey paralleled the development of nursing research worldwide, but was less developed than nursing research in Europe [12].

Preceding the 70’s, nurses in Canada relied mostly on nursing research literature published in the United States and the United Kingdom [13], in a more recent investigation the qualitative analysis of 1000 abstracts revealed that nursing research covered many topics with the majority of the studies were related to health issues; service organization, and health promotion [14]. After the statistical research conducted by Florence Nightingale in the nineteenth century nursing research formally began in the United Kingdom in 1953 and has amassed much research-based literature [15]. In France nursing research development parallel research development at international level [16]. The methods and content of nursing research in Finland from 1958 to 1995 review, found 228 articles published, with a trend in an increase in research publications. Nursing practice has been the most common research topic, especially primary health care and surgical and medical care [17]. A scoping review to investigate clinical nursing and midwifery research in African countries through the years 2004 and 2014, found 73 articles published by African nurses, and the results showed a gap between the studies that was conducted and the health care needs of the African community [18].

The evolution of the nursing profession and inquiry in most Arab countries is relatively new compared to Europe and North America. In searching the literature, three studies were found

analyzing the state of nursing research in the Arab world; [5,19,20]. Among the Middle East Arab countries, nursing research began relatively early in Jordan, where the first published nursing research was in 1986 with the return of the first nursing PhD graduate to Jordan [5]. The first analysis of the state of nursing research among Arab countries was conducted in 2013 [5] and focused on Jordan; data was collected by searching different regional and global databases. The search resulted in the identification of 462 articles that investigated nursing issues related to Jordan, or conducted by Jordanian researchers. The highest percentage of the Jordanian studies focused on nursing management issues. Twenty-one per cent were not directly related to improving nursing education or practice in Jordan.

Nashwan, et al. [20] investigated the state of nursing research in Qatar between 2000 and 2015. Only 57 studies were found that were conducted by nurses, in collaboration with nurses, or with nurse participants. The highest percentage of studies focused on clinical practice issues. A study investigated the state of clinical nursing and midwifery research in Middle Eastern countries, found that of the 22 Middle Eastern countries, 10 countries published clinical nursing research, with the majority (94.76%) conducted in Jordan, Iran and Lebanon. The Authors emphasized that a gap in clinical nursing and midwifery research exists requiring improved strategies to assure that clinical research is disseminated and used to improve patient care [19]. In conclusion the three studies indicated that nursing research is developing and improved during the last 10 to 15 years in the countries that were included in the analysis, however more emphasis is needed on conducting nursing research that aims to build the body of knowledge within Arabic countries. However, none of these studies have covered the literature from 2013 to 2016 in specialty areas from Jordan.

The importance of investigating and conducting research to improve nursing practice and education is well documented in the literature. Currently, nursing research is seen as an integral part of professional nursing although implementing knowledge derived from nursing research into the practice setting is still problematic [21]. The purpose of conducting nursing research is to meet the needs of the profession by building the body of knowledge in the field with the aim of improving nursing practice and education. Accordingly, it is important to disseminate research results and utilize them in evidence-based practice. The advancement of nursing science in any country necessitates the investigation of what was explored and how those investigations and research meets the priority areas of that specific country and what may need further examination to plan future research agendas. Many barriers have been indicated that may hinder the utilization of nursing research; one of them is finding what was studied and another is the usefulness of such research as compared to the needs of that country.

Accordingly, the objective of this review was to keep the state of nursing research in Jordan current to inform researchers

and nurses leaders, and to broadly guide the work of the new research projects.

Aims

This study aimed to investigate and analyze the trends in nursing research in Jordan from 2013 to 2016. The following research questions were addressed: What is the current state of nursing research in Jordan in terms of topics researched, sources of data, location of data collection, theoretical framework and methodology used, and funding source? And what is the relationship between the research conducted during the years 2013 and 2016 and the priorities identified by the Jordanian Nursing Council (JNC) in 2016?

Methods

Data Sources and Searches

Searches were conducted in PubMed/MEDLINE, Google scholar, Cochrane online Library, CINAHL. The following keywords were used: nursing research, health care in Jordan, nursing in Jordan, and Jordan. The search included articles published in English from January 2013 to the end of 2016. Articles that were not conducted by nurses were excluded.

Selection Criterion of the Study and Data Extraction

All published research related to Jordanian nursing research or research carried out by Jordanian nurses, from January 2013 to the end of 2016 were included. Papers were excluded if they were conference, theses, dissertations, and abstracts, editorials or reports to include only the output of published research, and duplicates were removed. The initial search resulted in 1104 articles, which were screened by title, abstract and text. Applying the inclusion criteria, the search resulted in 604 studies related to Jordanian research or conducted by Jordanian nursing researchers, of which all were included in the review (Figure 1).

Following a previous Jordanian study method [5] the study researcher retrieved and read all abstracts of the articles that met the inclusion criteria. Full text was reviewed for articles that met the inclusion criteria. A pilot assessment of the data sheet used for extraction of information was carried out with 10 studies. Data extraction was conducted by the investigator using a data collection instrument. To validate the process, half of the selected papers were analyzed by research assistants; any differences were resolved through discussion. To extract the needed data from each published article, a data extraction template was developed. The year of publication and the main subject of each article were classified, such as, adult nursing, health promotion, nursing education, maternal health, mental health and nursing management. The location and source of the research data, the study setting and the methodology (design, sampling method and participant classification) were documented. The research theoretical framework, if used, was recorded, as well as funding sources, and the relation of the topics to the priority categories identified by JNC. All study variables were analyzed using descriptive statistics and then the results were tabulated for comparison.

Results

The search resulted in 604 studies written by Jordanian researchers or related to nursing in Jordan. The review of literature showed that the highest number of publications was in 2014 in which 176 research papers (29.1%) of the studies were published. In 2015, 171 (28.3%) of studies were published; fewer were published in 2016, 132 (21.9% of publications); and the lowest number of publications was in 2013, 125 (20.7% of publications).

Nursing Research According to the Research Subject Selected

The title of the research and the abstract were used to classify the articles according to the selection of research subject. (Table 1) shows that the highest percentage of publications [24.4% (n = 147)] focused on adult health nursing topics, and the lowest number of publications less than [1% (n = 5)] investigated geriatric care topics. About [1.7% (n = 10)] of research investigated non-nursing topics.

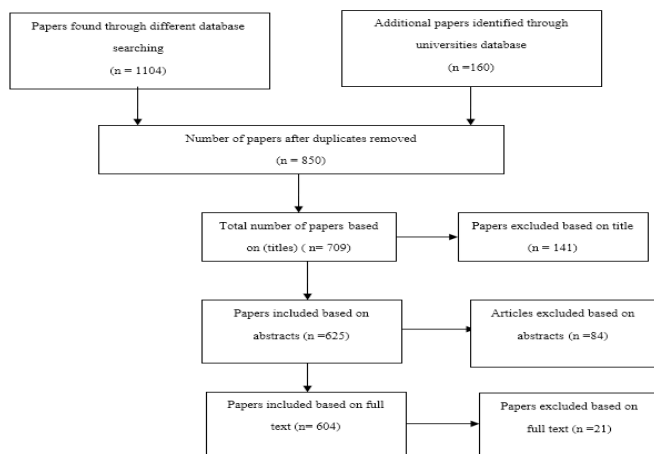


Figure 1: Search and inclusion flowchart based on Moher, et al. [22]. PRISMA statement.

Topic Area	Number	Percentage
Adult health	147	24.4
Nursing management	97	16.1
Mental health	66	10.9
Health promotion	56	9.3
Nursing Education	55	9.1
Maternal health	40	6.6

General Nursing	33	5.4
Women’s Health	18	3.0
Instrument development	16	2.8
Child Health/Paediatrics	54	8.9
Not Nursing	10	1.7
Community health	07	1.2
Geriatric	05	0.8
Total	604	100

Table 1: Number and percentage of published researches according to the research subject.

Nursing Research According to the Geographical Location of Data Collection

The geographical location of data collection was identified. The highest percentage (72.5 %, n = 438) of studies had samples drawn from Jordan, followed by USA (5.1%, n = 31). Furthermore, 2.8% (n = 17) of articles had a sample from Saudi Arabia. Of articles 1.5% (n = 9) used a sample from Oman, 1.8% (n = 11) of studies had samples from more than two countries including Jordan, 1.0% (n = 06) of study samples were from Palestine and 0.8% (n = 5 each) used samples from Syrian refugees living in Jordan. Other studies had samples from Egypt and United Arab Emirates (0.5%, n = 3 each). Samples selected from Australia, Ireland, Jordan and Saudi Arabia together, Pacific Island Country, Scotland, and Syria constituted 0.3% each (n =2 each). The lowest percentage (0.2%, n = 1 each) of studies were conducted with a sample from Canada, Iran, Lebanon, Gulf Cooperation Council states, Saudi Arabia and United Arab Emirates together, Saudi Arabia and Egypt together, Sudan, and Yemen.

Nursing Research According to the Study Design

Almost seventy-two percent of the articles utilized a quantitative approach as can be seen in (Table 2). The highest percentage of the quantitative studies 50.7% utilized a descriptive design; only 15 articles used a true experimental design. While 13.1 % of articles used a qualitative approach, only 2.3% (n = 14) of articles used mixed methods. Almost 10% of the articles were literature reviews and discussion; 1.0% of articles were related to methodological or instrument development.

Research Design	Number	Percentage
Descriptive	117	19.4
Descriptive / Correlational	85	14.1
Descriptive cross sectional	77	12.7

Descriptive- comparative	26	4.3
Survey	53	8.8
A quasi - experimental	44	7.3
A true experimental	15	2.5
Exploratory	10	1.7
Retrospective	5	0.8
Literature Review & discussion	61	10.1
Qualitative phenomenological	74	12.3
Qualitative ethnographic	3	0.5
Qualitative Grounded Theory	1	0.2
Action research	1	0.2
Mixed method	14	2.3
Methodological and or Instrument Development	6	1
Cohort	10	1.7
Delphi	1	0.2
Observational	1	0.2
Total	604	100

Table 2: Number and percentage of published researches according to the study design.

Nursing Research According to the Type of Study Sample

The most common method of participants selection was a convenience sample (58.9%, n = 356), only 16.2% (n = 98) of the studies utilized a random selection of the study participants, purposive sample was used for recruiting participants in 14.7% (n = 89) of the studies specifically qualitative studies.

Nursing Research According to the Source of Data Collected

The majority of the studies, 43.9% (n = 265) were undertaken in a hospital setting, data collected from hospitals and other institutions such as health centers, schools, and universities 2.0% (n=12) and 2.0% (n= 12) of articles collected data from specialized health care centers such as cancer, diabetes, thalassemia, institutions designated for the care of people with Attention Deficit (AD). The sources of data in 19.9% (n = 120) of articles were from schools, universities, and special education institutions, and 10.2% (n = 62) were undertaken in a community setting. Of articles 7.9% (n = 48) were undertaken in health center, health center and schools together, or outpatient

clinic. Data was collected from [1.0% (n = 6)] nursing homes, and data collected from refugee camps, and available records [0.9% (n = 5 each)]. Four studies collected data from addiction centers (0.8%), and 0.3% (n=2) collected data from labs. The lowest number of studies (0.2%, n = 1 each) collected data from Nursing and Midwifery Council, and homeless women’s shelters in USA.

Nursing Research According to Classification of Studies Participant

The highest percentage of the studies (27.7%, n = 167) collected data from hospitalized patients including sick children and adolescents. Three of the articles (0.5%) collected data from patients and healthy individuals; six articles (1.0%) collected data from patients, nurses, and health care providers. Many articles included participants from the community such as healthy adults, healthy children, informants, school teacher and children, university students (16.2%, n = 98); women of reproductive age (5.8%, n = 35) and women and newborns constituted 0.3% (n = 2). Nurses were the participants in 16.3% (n = 98) of articles; 0.8% (n = 5) collected data from nurse managers; health care providers including nurses and physicians were participants in 3.0% (n = 18); and physician and technicians were participants in 3.0% (n = 18). Other study populations included nursing students (7.1%, n = 43), parents of children (5.8%, n = 35), patients’ families (2%, n = 12), curriculum (0.2%, n = 1), and animals (0.4%, n = 2).

Nursing Research According to Utilization of a Theoretical / Paradigm Framework

The literature reviewed revealed that out of the 604 studies, 92.4% (n = 558) did not use a paradigm or a theory and only 7.6% (n = 46) utilized a paradigm as a framework for the studies (Table 3).

Type of theoretical framework	Number	Percentage
Nursing Models or theories (Tanner’s Clinical Judgment Model, Roy Adaptation Model, Pender’s health promotion model, Mishel theory of uncertainty in illness, Newman System Model, and Moral Distress Theory)	6	13
Hermeneutic phenomenology of Heidegger	7	15.2
Non- nursing model or theory	33	71.7
Total	46	100

Table 3: Number and percentage of published researches according to the utilization of theoretical / paradigm framework.

Classification According to Funding Status and Funding Source

Funding was reported in 35.8 % (n = 216) of the studies, while 61.4% (n = 371) of the studies reported no funding, and 2.8% (n = 17) of the studies did not specify the source of funding. The highest percentage of the funded studies (63.4% %, n = 137) were funded through Jordanian universities; forty-two (19.4%) were funded through international organizations; nine (4.2%) were funded by national organizations. Many studies were funded by international universities (7.9%, n = 17), and 4.6% (n = 10) were funded by Arabic Institutions. Funding by national and international universities together accounted for one study (0.4%).

Relationship Between the Research Conducted During the Years 2013 and 2016 and the Priorities Identified by JNC in 2016

The JNC is the national governmental regulatory institution for nursing and midwifery in Jordan. According to JNC law (53) for 2006, it is the role of JNC to support scientific research. In response to this law, in 2016 the JNC with the efforts of many experts developed the national priorities for nursing and midwifery research. The priorities were developed to address the health and social challenges facing Jordan. The research priorities were classified in five main nursing domains including regulation, leadership, workforce, education, and practice [23].

Classifying the research studies to the research priorities classified by JNC revealed that the highest percentage of articles (70.9 %, n = 428) fell under the nursing practice priority; among these 12.1% (n = 73) were health promotion and disease prevention studies. Ten percent of the studies (n = 60) were related to the nursing leadership category and a similar percentage (9.4%, n = 57) were related to nursing education. Nursing management and nursing workforce constituted 2.8% (n = 17 each) of the included studies. The lowest percent of studies fell under the nursing regulations priority area (2.5%, n = 15), however, 1.7% (n = 10) of the articles were not related to nursing.

Discussion

This study was carried out with the purpose of updating nursing researchers about what has been investigated within nursing specialties and what is needed to address the challenges facing nursing in Jordan and worldwide in the future.

This literature review showed that nursing researchers in Jordan are active in writing and publishing research; 604 articles were written between the years 2013 and 2016. Comparing this

result to the 462 articles revealed in the literature review between 1986 and 2012 [5], this shows a major increase in Jordanian nursing research; the current study published more research in four years than published in the previous 26 years. This result might be explained by the fact that more nurses obtained a doctoral nursing education or a Master degree in the last 20 years, in addition to the establishment of the first and only doctoral nursing program in Jordan. This result is consistent with the development of nursing research in many countries [11,20,24]. Alhusaini, et al. [19] found only 210 clinical nursing research published by 22 Middle Eastern countries during the years 2000 to 2015, with 50% of articles conducted in Jordan.

The results of the current study showed that highest percentage of studies investigated adult health nursing topics, followed by nursing management and the least researched topic was geriatric care. This result is different from what was found related to nursing research in Jordan [5] in which the most searched area was nursing management, followed by health promotion. However, in both studies, geriatric care topics were the least researched. Different results were found by Alhusaini, et al. [19] in which the most frequently researched topics were related to maternal child health and women's health, but this review included only clinical nursing research and included all Middle Eastern countries. In another scoping review [18] they found that the highest percentage investigating midwifery, maternal and child health followed by patient experiences and then human immunodeficiency virus/sexually transmitted infections.

The investigation of nursing research in Qatar revealed that the highest percentage of studies focused on clinical practice issues, and the lowest percentage in sociocultural issues [20]. Similarly in Finland they found that nursing practice has been the most common research topic [17]. In Canada, the highest percentage (67%) of studies investigated health issues, health service organization and health promotion [14]. Australian researchers focused mostly on nursing education [10]. Topics related to elderly health care were the least investigated in the current study. WHO [25] reported that the old aged population is increasing and old age period is characterized by complex health conditions. Future contributions by Jordanian nursing researchers should contribute to the investigation of topics related to elderly to improve their health and/or to inform nurses and health care providers about the best way to provide the needed care.

The current study results showed that almost one-third of the studies were not directly related to improving nursing practice and/or nursing education in Jordan. This may be explained by the fact that many Jordanian nurses are working outside Jordan especially in the Gulf area, others published parts of their PhD dissertations and thus approaching non-Jordanians and publishing their reviews, and many did collaborate with non-Jordanian researchers through different projects.

In the current study the highest percentage of researchers used quantitative, descriptive design, on conveniently selected samples. Similarly Leino, et al. [17], Alhusaini, et al. [19] and Nashwan, et al. [20] found that most studies used descriptive quantitative designs. More researchers are using qualitative design, experimental design, and randomization than what was found in a previous literature review [5]. Additionally, in the current study researchers used other types of design that was not used previously such as qualitative grounded theory, action, cohort, Delphi, and observational studies. Stinson, et al. [13], mentioned that Canadian nursing researchers' early studies largely utilized quantitative descriptive design; diversity of research design, including qualitative approaches were seen later in the progression of nursing science. A contradictory finding was reported by Sun and Larson [18] in which they found that highest percentage of research used qualitative design. The literature recommended that researchers needs to shift from the descriptive design into explanatory and experimental types of research to contribute to building the nursing knowledge [15,26].

Similar to many worldwide nursing research studies, the highest percentage of studies in this review were conducted in hospital settings in addition to many from medical centers. Differing from a previous Jordanian study [5] where the highest percentage of study participants were nurses, in the current study nurse researchers focused more on studying topics related to patients' health care conditions and long-term illnesses among patients from different age groups, including adults, newborn and children. This result is consistent with Nashwan, et al. [20] study but contradict Borbasi et al.'s [10] study findings that most Australian studies collected data from nurses, followed by patients, and consistent with the idea that nursing research should go hand-in-hand with patient-led research [27].

Included studies utilized participants from the community, nurses, nurse managers; nursing students, health care providers and patients' families, suggesting nursing research currently covers the majority of nursing care settings. Specialized health care centers such as Cancer, Diabetes, Thalassemia, Institutions designated for the care of people with Attention Deficit (AD), nursing homes, addiction centers, Nursing and Midwifery Council, homeless women's shelters, and Labs were new sites and not seen in previous study [5].

The utilization of nursing theories or paradigms as framework for studies remains insufficient among Jordanian nursing research. This result is consistent with many studies [5,20,28]. Accordingly, nurse researchers in Jordan should continue to incorporate nursing theories and paradigms in their research. Furthermore, the literature suggested that conducting nursing studies based on theories from non-nursing disciplines will not facilitate the development of nursing profession, or clinical practice [29,30].

In the current study only 35.8 % of the studies were funded, many studies have indicated that nurses' research receives low priority in funding [5,24,31]. The highest percentage of studies were funded through Jordanian universities; followed by international organizations. This result is consistent with a previous Jordanian study [5] but contradicts Nashwan, et al. [20] study in which most of the studies were funded through national organizations. In Jordan each university allocates at least 3% of its yearly budget for nursing research. Therefore, while many national and international sources for research funds are available, nurses mainly use university funds. Utilizing available funding from different organizations, including the Scientific Research Support Fund will provide opportunities for expanded research for nurse scientists.

Developing research priority areas is important to direct the future of nursing research and enhance excellency in the nursing profession. Research studies were classified according to the research priorities designated by the JNC; the highest percentage of studies were under the nursing practice priority, which includes many areas such as health promotion and disease prevention studies, this result is consistent with Alhusaini, et al. [19] study, and Currie, and Chipps [32], study about military nursing research 1990-2013 in which they found a shift in topics toward clinical research occurred after 2003. Areas investigated by Jordanian nurse researchers were consistent with many priority areas identified by several international organizations, such as NINR, Sigma Theta Tau

International, and other nursing organizations [7]. However, other area of priorities identified by JNC leadership, such as nursing education, nursing management and nursing workforce still need further investigations. Additionally, the lowest percent of studies fell under the nursing regulations priority area. This suggests researchers in Jordan may need to strengthen efforts to investigate topics related to nursing regulations. Recently Sun, et al. [33] conducted a Delphi survey to determine clinical priorities for research within Middle Eastern Region. They found the majority of priorities focused on primary care, community health, and non-communicable diseases.

Limitations

This study did not analyze studies in-depth, as it was not a purpose of the study. Although efforts were made to search all available databases, some relevant papers may have been missed. While there have been increases in nursing research by year, some of the increases in nursing research identified may be due to reasons other than increased research or increased PhD prepared nurses. For example, it is possible that with an increase in open access journals, or improved databases may have contributed to the number of detectable publications, rather than a true increase in published articles. However, this particular analysis of nursing

research will assist nurses and health care providers to conduct studies based on the literature gap, to continue developing the nursing body of knowledge and to support evidence nursing practice and education through utilization of nursing research.

Conclusions

This review will contribute to providing nursing researcher with the needed knowledge about the state of nursing research in Jordan, which will help in directing their future contribution to the research area needed further investigation. Investigating the condition of nursing researcher globally is an important area to be investigated; the method used in this investigation is usable for nursing researcher in other countries who are interested in documenting the situation of scholarly activities in their countries.

Prior to the 90's, Jordanian nurses depended mostly on nursing research literature published in the Western countries. Jordanian nursing researchers have increased publications; this increase in writing scholarly work is parallel to the development of nursing education in Jordan, and the increase of nurses holding Ph.D. The current study revealed that nurses were writing and investigating more topics related to nursing practice than previously. This was recommended by a previous study [5] and this increase in the number of studies related to practice may help in facilitating and improving nursing practice in Jordan. This study suggests that Jordanian nurses are working hard to build the body of nursing knowledge in Jordan and improving nursing practice but translating nursing research into practice is still needed. Furthermore, research related to the elderly population, and experimental studies utilizing randomly selected participants are still needed.

Other improvements for Jordanian nursing researchers could include utilization of nursing theoretical frameworks and increased training in grant application. Availing nurses of funding through national and international organizations and through development and investigation in priority areas may increase nursing research output. Many of the categories that considered as a priority by JNC for nursing research, such as leadership, nursing education, nursing management, and nursing workforce still need further investigation. Emphasis on nursing regulations remains an important priority as it regulates the nursing profession in Jordan. Additionally, research priorities for nursing should be reviewed by the JNC according to identified accomplishments and noting areas that require further investigation.

Documenting and reviewing the states of nursing research activities in different countries is vital to direct nursing research to meet the health needs of the different communities all over the world. It will also strengthen research-based practice and research utilization as an important step to advance the nursing profession.

In conclusion, and based on the study findings, the future of

nursing research in Jordan is optimistic; it is evident that there is now a firm foundation for development of scholarly activities in Jordan.

Ethical Approval

Ethical approval was not needed because article is based on literature review.

Acknowledgement

This work has been carried out during sabbatical leave granted to the author from the School of Nursing at “the University of Jordan during the academic year 2016-2017”. The author would like to acknowledge the Writing to Improve Nursing Science program developed by Columbia University School of Nursing, which the author participated in during the preparation of this manuscript, and the assistance received from both the participants and leadership in terms of mentorship and manuscript review. Specifically, I would like to acknowledge Kristine Kulage for her valuable support

References

1. Department of Statistics (2015) Statistical yearbook (Jordan), Amman 2015.
2. Ajlouni M (2011) Health Systems Profile (Updated) Country: Hashemite Kingdom of Jordan. World Health Organization., Eastern Mediterranean Regional Office (EMRO). Division of Health System and Services Development (DHS). Health Policy and Planning Unit 2011.
3. Sultan FA (1998) Nursing in Jordan: Start, Development and Aspirations. Sultan Graphics Centre for design and printing. Amman- Jordan 1998.
4. Zahran Z (2012) Nurse education in Jordan: history and development. *Int Nurs Rev* 59: 380-386.
5. Khalaf, I. (2013). Development of nursing research in Jordan (1986–2012). *International nursing review*, 60(4), 461-468.
6. World Health Organization (2016) Global Strategic Directions for Strengthening Nursing and Midwifery 2016-2020. World Health Organization, Geneva 2016.
7. Polit D, Beck C (2015) Nursing Research: Generating and Assessing Evidence for Nursing Practice. Lippincott Williams and Wilkins. Philadelphia 2015.
8. Parahoo K (2014) Nursing Research: Principles, Process and Issues. Palgrave Macmillan 2014.
9. Rn MH (2000) Development of nursing research in Germany in the European context. *Int J Nurs Pract* 6: 222-228.
10. Borbasi S, Hawes C, Wilkes L, Stewart M, May D (2002) Measuring the outputs of Australian nursing research published 1995-2000. *J Adv Nurs* 38: 489-497.
11. Wright CM, Davies C, Francis K (1995) The history of nursing research in Australia. *Reflections Spring* 21: 17-18.
12. Özsoy SA (2007) The struggle to develop nursing research in Turkey. *Int Nurs Rev* 54: 243-48.
13. Stinson SM, Lamb M, Thibaudeau MF (1990) Nursing research: the Canadian scene. *Int J Nurs Stud* 27: 105-122.
14. ME Jeans and Associates and Canadian Association of Schools of Nursing (2008) Nursing Research in Canada: A Status Report. Commissioned by the Canadian Association of Schools of Nursing on behalf of the Canadian Consortium for Nursing Research and Innovation 2008.
15. Lelean SR, Clarke M (1990) Research resource development in the United Kingdom. *Int J Nurs Stud* 27: 123-138.
16. Dupin CM, Chami K, Petit Dit Dariel O, Debout C, Rothan - Tondeur M (2013) Trends in nursing research in France: a cross - sectional analysis. *Int Nurs Rev* 60: 258-266.
17. Leino - Kilpi H, Suominen T (1998) Nursing research in Finland from 1958 to 1995. *J Nurs Scholarsh* 30: 363-367.
18. Sun C, Larson E (2015) Clinical nursing and midwifery research in African countries: A scoping review. *Int J Nurs Stud* 52: 1011-1016.
19. Alhusaini MA, Sun CJ, Larson EL (2016) Clinical nursing and midwifery research in Middle Eastern and North African countries: A Scoping review. *Journal of Health Specialties* 4: 238-245.
20. Nashwan AJ, Mansour DB, Alzayyat A, Nair SK, Zawahreh AI (2017) Development of nursing research in Qatar: 15-year status report. *Open J Nurs* 7: 242-252.
21. Bohman DM, Ericsson T, Borglin G (2013) Swedish nurses' perception of nursing research and its implementation in clinical practice: a focus group study. *Scand J Caring Sci* 27: 525-533.
22. Moher D, Liberati A, Tetzlaff J (2009) Altman DG for the PRISMA Group Preferred reporting items for systematic reviews and met analyses: the PRISMA-statement. *J Clin Epidemiol* 151: 264-269.
23. Jordanian Nursing Council (2016) National Nursing and Midwifery Research Priorities 2016-2020. Jordan.
24. Lerheim K (1990) Nursing research developments in Norway. *Int J Nurs Stud* 27: 139-45.
25. World Health Organization (2016) WHO Progress Report on Nursing and Midwifery, 2013-2015. b. World Health Organization, Geneva 2016.
26. Walker W (2005) The strengths and weaknesses of research designs involving quantitative measures. *J Res Nurs* 10: 571-582.
27. Moreno-Casbas T (2005) Nursing Research in Europe, Scoping Report. Institute of Health Carlos III, Madrid.
28. Bond AE, Eshah NF, Bani - Khaled M, Hamad AO, Habashneh S et al (2011) Who uses nursing theory? a univariate descriptive analysis of five years' research articles. *Scand J Caring Sci* 25: 404-09.
29. Barrett EA (2002) What is nursing science?. *Nurs Sci Q* 15: 51-60.
30. Fawcett J (1999) The state of nursing science: hallmarks of the 20th and 21st centuries. *Nurs Sci Q* 12: 311-318.
31. McCreaddie M, Kuzemski D, Griffiths J, Sojka EM, Fielding M et al (2018) Developing nursing research in the United Arab Emirates: a narrative review. *Int Nurs Rev* 65: 93-101.
32. Currie J, Chipps J. Mapping the field of military nursing research (1990-2013) a bibliometric review. *Int J Nurs Stud* 52: 1607-1616.
33. Sun C, Dohrn J, Oweis A, Huijjer HA, Abu□Moghli F et al (2017) Delphi survey of clinical nursing and midwifery research priorities in the Eastern Mediterranean region. *J Nurs Scholarsh* 49: 223-235.