Closing the Gap between Research Evidence and Clinical Practice: Jordanian Nurses' Perceived Barriers to Research Utilisation

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Abstract
Background: The nursing profession is a combination of theory and practical skill, and nurses are required to generate and develop knowledge through implementing research into clinical practice. Considerable number of barriers could hind implementing research findings into practice. Barriers to research utilisation are not identified in the Jordanian context. **Aims and Objectives:** To explore Jordanian nurses' perception of the barriers to research utilisation in clinical practice. **Design:** A quantitative descriptive survey design was used. **Methods:** The sample consisted of 239 Jordanian nurses from one university hospital and three governmental hospitals. Nurses were conveniently recruited**.** Data was collection using the Barriers to Research utilisation questionnaire. **Results:** The majority of the participants were males (54%) and 53% of the participants were under the age of 30. The mean total score of barriers to research utilisation (BRU) was high at 2.97 (SD) out of 4 (the highest possible barriers score). The top three barriers were: "research results are not generalizable to their settings", "lack of authority to change patient care procedures", and "research articles are not published fast enough"**.**
Conclusions: Barriers to research utilisation are high and were related to all aspects of research utilisation. These barriers need to be eliminated to improve the provided nursing care. To enhance research utilisation, a national-level guidance development system is needed. This will has the sole responsibility is to develop clinical guidelines, which are informed by the research, which practitioners and health services are then responsible for implementing into practice. Hence, hospital policies need to be reformed to address the procedure and activities of keeping the patients care up to date with current advances in healthcare disciplines.
Keywords: Research utilisation, barriers, Jordan, Nurses, clinical practice

1. Introduction

There is an international consensus on the need for integrating research-based evidence into the daily practice of healthcare providers. However, of the huge amount of health research that is being published every year, only a small percentage of findings are implemented into practice (Squires et al., 2011). There are many factors that may affect research utilisation and uptake into practice. For example, nurses face many barriers to implementing research findings into their practice, especially lack of time to read research papers and to implement the new ideas (Mehrdad et al., 2008, Hutchinson and Johnston, 2004, Chau et al., 2008, Uysal et al., 2010), lack of staff, lack of access to research information (Hutchinson and Johnston, 2004, Bostrom et al., 2008, Uysal et al., 2010), lack of research knowledge (Hutchinson and Johnston, 2004, Bostrom et al., 2008, Uysal et al., 2010), lack of administrative support (Bostrom et al., 2008, Uysal et al., 2010), lack of authority to change practice (Bostrom et al., 2008, Mehrdad et al., 2008, Hutchinson and Johnston, 2004, Chau et al., 2008), and lack of facilities to integrate research into practice (Mehrdad et al., 2008, Bostrom et al., 2008, Chau et al., 2008, Uysal et al., 2010).

In Jordan, nursing researchers are few in number, although a steady increase in the number of publications has been noted in recent years. Although no official reports or publications are available to confirm or contradict this belief, the state of research implementation in nursing practice is not yet known or even explored. A considerable number of studies have investigated nurses` perceptions of barriers and facilitators of research in the USA, Canada, Europe and Asia (Kajermo et al., 2010), but much remains to be understood and learned about research implementation in developing countries such as Jordan. To our current knowledge no similar study has been conducted in the Arab countries or in Jordan in particular.

2. Methods
2.1 Aim
This study was conducted to explore nurses' perceptions of barriers to implementing research findings into daily practice.

2.2 Design
A quantitative descriptive survey design was used.

2.3 Sample and Setting
The convenience sample consisted of 239 Jordanian nurses. All participants were registered nurses with at least a three-year diploma, and who agreed to participate in the study. The study was conducted at four locations: one university hospital and one governmental hospital located in the north and two governmental located in middle regions of the country.

2.4 Instrument
The barriers to research utilisation (BRU) questionnaire was developed in order to evaluate healthcare workers and administrators' perceptions of obstacles to implementing research findings into practice (Funk et al., 1991). It contains 29 items (numerical rating scales); participants required to rate their perception of each item as a barrier on a scale ranged from 1(to no extent) to 4 (to a great extent). The tool has four sub-scales: Adopter characteristics (Nurse); setting characteristics; innovation characteristics (research evidence); and presentation of the evidence. They also asked to write barrier and facilitators for research implementation that are not included in the questionnaire. In Funk's psychometric article, Cronbach's alpha values for the four sub-scales were 0.80, 0.80, 0.72, and 0.65, respectively (Funk et al., 1991) and this means that the tool has good reliability. This tool was translated into Arabic but not validated. Demographic information of participants such as age, gender, education level, area of experience, and years of experience, were gathered.

2.5 Procedure and ethical approval
Ethical approval to conduct the study was obtained from Al Albayit University and hospitals ethics committees. Data were collected through self-reported questionnaires which were distributed individually to each participant who was on duty in the day of the survey, accompanied by a letter to clarify the purpose of the study and the rights of the participants. No names or identification data were requested. Participants were informed that completing the questionnaire would be considered agreement to participate in the study. They were also requested to submit the completed questionnaires to the office of Nursing Director's secretary. Every weekend the researchers collected the completed questionnaires from the Director's office. All questionnaires were kept in a locked cabinet in the first author office and the electronic data files were kept in password locked computer.

3. Data analysis
Data were entered into the Statistical Package for the Social Sciences (SPSS) (version 17). Descriptive and inferential statistics were conducted (Creswell, 2008). Descriptive statistics such as means, standard deviation, percentages, and frequencies were used to describe the sample characteristics and their responses on the questionnaire (Malim and Birch, 1997). The Mann-Whitney-U test was used to compare the total score distribution between two groups of variables and the Kurskal-Wallis test was used to compare the total score distribution between variables that have more than two groups (Field, 2009).

4. Results
4.1 Sample characteristics
In total 239 questionnaires were returned completed out of the 350 distributed (response rate = 68%). A small majority of the participants were males (54%) and under the age of 30 years (53%); see Table 1.

Table 1. Demographic and Professional Characteristics of Participants

Characteristic	N (%)
Age	
< 30 years	127(53)
30 to 39 years	85(36)
40 to 50 years	27(11)
Gender	
Male	129(54)
Female	110(46)
Education Level	
Diploma	44(18)
Bachelors	180(75)
Masters	15(7)
Clinical Unit	
Medical and surgical units	133(56)
Intensive care units	31(13)
Operation theaters	15(6)
Oncology units	18(8)
Emergency units	42(18)
Clinical experience	
< 5 years	81(34)
5 to 10 years	87(36)
10 to 20 years	50(21)
21 to 30 years	21(9)

4.2 Barriers to research utilisation

Table 2 shows nurses' responses to the barriers to research utilisation (BRU) questionnaire items. The mean total score of BRU was high at 2.97 (SD 0.55) out of 4. In the table, the two categories "great" and "moderate" were merged together and then barriers were ranked accordingly from the highest to the lowest scored percentages. The top three barriers were: "research results are not generalizable to their settings", "lack of authority to change patient care procedures", and "research articles are not published fast enough". The results also show that all items on the BRU questionnaire got an average score higher than 2.5 out of 4. The results also show that nurses have difficulty in understanding research methods and findings (see items no. 14, 15, 16, 17, and 18 in Table 2). However, the lowest three barriers are "the literature reports conflicting results", "the nurse is unaware of the research", and "research reports/articles are not readily available".

In order to understand what factors related to nurses' perception of the barriers to research utilisation in clinical practice, further testing and comparisons were made using the Mann-Whitney U and Kruskal-Wallis tests. The results show no significant difference in mean ranks of nurses' scores on the BRU in regards to gender (U = 5876, Z = -2.2, P= 0.072). In addition, no significant differences were found in the mean rank of the BRU scores in regard to working area (H (2) = 14.80, P = 0.062), education level (H (2) = 0.32, P = 0.854), years of experience (H (3) = 1.30, P = 0.10) or age category (H (2) = 219, P = 0.334), as evident from the Kruskal-Wallis test.

Journal of Education and Practice
ISSN 2222-1735 (Paper)   ISSN 2222-288X (Online)
Vol.7, No.8, 2016
www.iiste.org
IISTE

Table 2. Nurses' perception of the barriers to research utilization

Rank order	Sub-scale	Item	%	Mean	SD
1.	S	The nurse feels results are not generalizable to own setting	73.6	3.10	0.95
2.	S	The nurse does not feel she/he has enough authority to change patient care procedures	72.8	3.13	0.95
3.	R	Research reports/articles are not published fast enough	71.2	3.06	0.92
4.	S	The nurse does not have time to read research	69.5	3.09	1.05
5.	N	The nurse is isolated from knowledgeable colleagues with whom to discuss the research	69.4	3.00	0.92
6.	S	Physicians will not cooperate with implementation	69.4	3.20	0.97
7.	S	There is insufficient time on the job to implement new ideas	68.2	3.02	1.04
8.	S	Other staff are not supportive of implementation	66.9	2.99	0.93
9.	R	The nurse feels the benefits of changing practice will be minimal	64.9	2.94	0.93
10.	R	The research has not been replicated	61.9	2.89	1.03
11.	S	The facilities are inadequate for implementation	61.9	2.93	1.11
12.	S	Administration will not allow implementation	61.9	2.99	1.02
13.	P	The relevant literature is not compiled in one place	61.1	2.88	0.88
14.	R	Implications for practice are not made clear	59.8	2.80	0.94
15.	P	Statistical analyses are not understandable	59.4	2.74	1.00
16.	R	The research has methodological inadequacies	58.6	2.83	0.96
17.	P	The research is not relevant to the nurse's practice	57.7	2.76	1.04
18.	N	The nurse does not see the value of research for practice	57.3	2.73	1.01
19.	N	The nurse sees little benefit for self	57.3	2.73	1.01
20.	R	The amount of research information is overwhelming	56.5	2.67	1.02
21.	N	There is not a documented need to change practice	56.1	2.77	1.03
22.	S	The research is not reported clearly and readably	56.0	2.79	0.99
23.	N	The nurse does not feel capable of evaluating the quality of the research	56.0	2.72	1.02
24.	R	The nurse is uncertain whether to believe the results of the research	55.7	2.73	1.00
25.	N	The nurse is unwilling to change/try new ideas	55.2	2.57	1.13
26.	R	The conclusions drawn from the research are not justified	53.5	2.67	0.92
27.	R	The literature reports conflicting results	51.8	2.80	0.93
28.	N	The nurse is unaware of the research	49.4	2.51	1.06
29.	P	Research reports/articles are not readily available	49.0	2.63	1.03

Note. Sub-scales: N, nursing; P, presentation; R, research; S, setting., %: rating item as great or moderate barrier, SD: standard deviation

5. Discussion

This study show that Jordanian nurses have a higher level of barriers to research utilisation into clinical practice (mean = 2.97, SD 0.55) than those reported in previous studies (in previous studies the mean of total BQ scores ranged from 1.96 to 2.75) (Atkinson et al., 2008, Bostrom et al., 2008, Chau et al., 2008, Oh, 2008, Brown et al., 2009, Schoonover, 2009). This result highlights the magnitude of the phenomenon, which is evident from the high mean score of the total barrier scale and from the fact that all items in the questionnaire got a mean score higher than 2.5. This might be because in Jordan the concept of research utilisation is newly introduced and not well understood. In addition, most of the healthcare settings and nursing administrations do not value research and its findings. The implications of this are that previous research has indicated that managers who are not research-oriented are less likely to support research utilisation activities (Boström et al., 2007, Estabrooks et al., 2003, Squires et al., 2007). This results in expanding the current gap between research and clinical practice in Jordan.

The higher level of barriers to research utilisation among Jordanian nurses highlights the urgent need to reform the research implementation policy within the clinical settings in ways to support research utilisation. Also, undergraduate education needs to emphasis how to conduct research and integrate its findings into practice. Furthermore, mandatory courses in research implementation are needed not only for nurses but also for professionals at higher administration levels, as they are among the facilitators of research uptake into practice.

The greatest barrier to research utilisation is that "Jordanian nurses feel that research results are not

generalisable to their setting. This result was inconsistent with what was found in several studies (Mehrdad et al., 2008, Hutchinson and Johnston, 2004, Chau et al., 2008, Kajermo et al., 2010), where the greatest barrier was related to time constrictions or lack of understanding of research methods, analysis, and findings. This might be justified by the fact that the bulk of published research in nursing and other disciplines comes from the USA, UK and Europe (Kajermo et al., 2010). Hence nurses do not feel the applicability of their findings as a result of cultural and administrative differences between Jordan and the origin of the published work (the Western world). According to Rogers (2003), one of the important determinants of innovation diffusion (i.e. research evidence) is its compatibility with individual norms, culture and environment. Thus, more local research that is familiar to Jordanian nurses is encouraged. Publication in Arabic, to overcome the language barrier and the need to translate research findings from other languages, could do much to overcome this problem.

This study shows that the majority of the greatest five barriers perceived by Jordanian nurses (four out of five) were related to the "setting" sub-scale. This was in accordance with previous reports (Hutchinson and Johnston, 2004, Chau et al., 2008, Kajermo et al., 2010, Uysal et al., 2010). For example, a systematic review found that the greatest barriers in 85% (53 out of 63) of the included studies were the following: "nurses do not have time to read research", "nurses do not have time to implement new ideas" and "nurses have no authority to change patient care procedures"(Kajermo et al., 2010). These barriers are related to the "setting" sub-scale of the barrier questionnaire. This indicates that Jordanian nurses feel a lack of support, encouragement and cooperation from their hospitals, represented by nursing administration, physicians, and chief managers. This lack of support goes side by side with a lack of research units and research education activities within most Jordanian hospitals, and may lead to the higher level of perceived barriers related to "setting" as one of the main research utilisation determinants. However, to confirm these results, further surveys to explore the perceived barriers of other healthcare professionals (e.g. physicians, pharmacists and social workers) and administrators inside and outside the institutions or units are highly recommended. This would create research evidence on the need for research utilisation programmes to be generalised in all Jordanian healthcare settings, in order to enhance research and its utilisation into clinical practice within the country. Further, Bostrom et al., (2007) acknowledged that nurses who were working in institutions that value research and were under the supervision of research-oriented managers are more likely to use research findings in their clinical practice. Hence, taking this fact in consideration, policy makers in the Ministry of Health are required to reform the current situation of the uptake of research into practice in the country.

5.1Limitations
This study has several limitations that need to be considered such as the convenience sampling procedure and hence the participants who completed the survey might not entirely reflect the opinions of those who did not. Also, this study used a non-validated Arabic version of the barriers scale and this could threaten the internal validity of the study.

6. Conclusion
This study demonstrates that Jordanian nurses face a high level of barriers to research utilisation. These barriers were related to all aspects and determinants of research uptake into practice. To enhance research utilisation, a national-level guidance development system is needed. This will has the sole responsibility is to develop clinical guidelines, which are informed by the research, which practitioners and health services are then responsible for implementing into practice. Hence, hospital policies need to be reformed to address the procedure and activities of keeping the patients care up to date with current advances in healthcare disciplines.

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