

Barriers and Facilitates of Research Utilization as Perceived By Nurses of Suez Canal University Hospital- Ismailia-Egypt

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Abstract: Background: The goal of conducting healthcare related researches is to improve the delivery of healthcare services by implementing their evidences into practice. Our knowledge with regard to those factors that promote or discourage research utilization among nurses in clinical practice is limited. **Aim:** The focus of the study is the identification of barriers and facilitates of research utilization in nursing practice from the perspective of nurses in Suez Canal University Hospital. **Subjects and methods:** A cross sectional design is used. A questionnaire incorporated 29 structured barriers to research utilization was distributed to 68 nurses. Items' scores obtained were used for determining the questionnaire's internal consistency reliability (ICR) and construct validity, and to reflect the degree to which the item was perceived to be a barrier to research utilization. **Results:** Cronbach's coefficient α (CC α) for the whole scale was 0.86, items were found to be loaded by .47 or more on their predetermined theoretical factors and were significantly dependent on these factors ($p < 0.01$). The greatest perceived barriers to research utilization were the inadequacy of facilities for implementation, the delay in publishing research reports, the unclear implications of research utilization for practice, the physicians' non-cooperation and the insufficient time to read researches. All necessary facilitators mentioned by the nurses were related to the organizational factors. **Conclusion:** The tool showed a high reliability and validity estimate. Most of the barriers and all the necessary facilitators were related to organizational factors.

[Mirella Youssef Tawfik, Naglaa Ibrahim Mohamed, and Maha Moussa Mohamed Moussa. **Barriers and Facilitates of Research Utilization as Perceived By Nurses of Suez Canal University Hospital-Ismailia-Egypt.** *J Am Sci* 2014;10(2s):89-96]. (ISSN: 1545-1003). <http://www.jofamericanscience.org>. 12

Key Words: barriers, facilitators, research utilization, nursing practice.

Abbreviations used in this paper: Internal consistency reliability, ICR; Cronbach's coefficient α , CC α ; Confirmatory Factor Analysis, CFA.

1. Introduction:

The ultimate goal of empirically derived best practices is to improve patient outcomes through eliminating unsafe practices, reduce wide variations in individual practices that lack empirical support, and encourage empirically derived practice applications⁽¹⁾. The continued use of healthcare interventions that are not needed or do not affect patient treatment and/or outcomes only serve to increase healthcare cost without increasing appropriateness, quality of care, or effectiveness⁽²⁾.

Healthcare research is conducted to generate new knowledge, with the goal of improving healthcare delivery by translating research evidence into empirical evidence and its implementation into practices⁽³⁻⁵⁾. Nurses are professionally obliged to provide care based on the best available research evidence⁽⁶⁾. Many studies have shown that a gap exists between research and what is done in practices, and many routines are still present in health care although research-based knowledge on more effective interventions are available⁽⁷⁾.

The nursing literature suggests that despite numerous calls for research to be integrated into

practices, this is occurring glacially⁽⁸⁾, and only a moderate proportion of nurses use research as a basis for practices⁽⁹⁾. Despite the fact that nurses may be highly motivated to base their practices on research, they may not have the training to confidently locate, appraise, synthesize, and apply the research findings into their practices^(10,11). This apparent gap between research and practices points to the existence of significant barriers to research use among nurses⁽¹²⁾, and the necessity of developing and implementing plans to reduce or eliminate them.

This study aims to bridge the gap between research evidence and practices by identifying barriers and facilitates of research utilization in clinical nursing practices from the nurses' perspective.

2. Subjects and methods

Type of the study: It is a cross sectional study

Study setting: It was done in Suez Canal University Hospital.

Time of the study: It was conducted over the course of four months started at the beginning of January 2009.

Sample size: Sixty eight nurses participated. The sample was estimated based on the percentage of rating items of a specific questionnaire^(13,14) as a great or moderate barrier.

Type of the sample: The sample was randomly selected from different hospital departments.

Methods: The study was conducted using a questionnaire divided into two sections, the 1st included information on the nurses' educational qualification, the number of their experience years, and department where they work. The 2nd section was based on the barriers' scale, a validated questionnaire, which incorporated 29 structured barriers to research utilization. The questionnaire has a high face and content validity, with Cronbach's alpha coefficients (CC α) of between 0.65 and 0.8 for the four factors they identified and item-total correlations from 0.32–0.65⁽¹³⁻¹⁶⁾.

Respondents were asked to rate each item on a four-point Likert scale to reflect the degree to which the item was perceived to be a barrier to research utilization (1= no extent, 2= to a little extent, 3= to a moderate extent, and 4= to a great extent). A 'no opinion' response item was also offered. In addition, the instrument had a question inviting respondents to specify and rate additional barriers that they believed to act against research utilization, and a question requiring respondents to document their perception of the three greatest barriers to research use. In addition, there was one open-ended question to measure the facilitators of research utilization. The original questionnaire was translated to the local language, and a process of translation-re-translation was done to ensure exact interpretation to the Arabic language.

The resultant questionnaire was then fulfilled from 10 nurses. Necessary changes in the questionnaire construction and re-wording based on nurses' comments were done. The time required to complete the questionnaire was then recorded.

Ethical consideration: Permission for data collection was obtained from the hospital's manager. The nurses were informed verbally about the purpose of the study before participation, and they were informed that all responses would be treated anonymously. Questionnaires were distributed among nurses and consent was implied by the return of completed ones.

Statistical analysis:

Quantitative data were analyzed using SPSS 17.0 (SPSS Inc., Chicago, IL, USA). Frequency and percentages were computed for qualitative data and means and standard deviations were calculated for quantitative data. Items' scores obtained were used for determining the questionnaire's internal consistency reliability (ICR) and construct validity. A reliability coefficient (CC α) over .50 was considered an accepted

reliability standard⁽¹⁷⁾. For construct validity, four factors were identified. Descriptive labels were given to each factor. These labels represent the most coherent collective interpretation that could be made of the barrier items loading on to each factor. The loading of items on the four theoretical factors was identified through Confirmatory Factor Analysis (CFA), and items that loaded at least 0.3 on its predetermined factor were retained⁽¹⁸⁾. Percentage of participants who reported each item as a moderate or great barrier to the use of research by nurses was used to identify items that act as the most significant barriers and which factor is the most significant. One way analysis of variance was used to determine the statistical significance of differences found among demographic data and total score for each one of the four factors as well as total questionnaire score.

3. Results:

Sixty eight respondents from Suez Canal University Hospital and affiliated to Suez Canal University completed the research questionnaire. These included 55 clinical nurses and 13 nursing educators. The mean years of the respondents' professional experience was 5.6 years (SD= \pm 3.4, range= 2-15), and about 62% of them had less than five years of experience. Participants represented all wards of nursing work in the hospitals, and more than 50% of them worked in the intensive care unit and surgical wards. Seventy five percent of them were staff nurses and only 6% of them had their Master degree (**table I**).

Table 1: Demographic characteristics of participants (n = 68)

Variable	n(%)
Years of experiences	
1 – 5 years	42(62)
6 – 10 years	20(29)
11 – 15 years	6(9)
Professional Role	
Head nurse	4(5.9)
Staff nurse	51(75)
Nurse instructors/trainers	13(19.1)
Department	
Surgery	18(26.5)
Internal Medicine	12(17.7)
Pediatrics	9(13.2)
Intensive Care Unit	20(29.4)
Administration	9(13.2)
Educational level	
Bachelor	64(94.1)
Master	4(5.9)

Table 2: Nurse Reponses about Barriers of Research Utilization Items

Factor number & label	Serial number of questions	Barrier items	CC α	Factor loading	% of variance explained by the factor
1- Organization barriers and limitations	6	The facilities are inadequate for implementation	.85	.57	22.130
	7	The nurses does not have time to read research	.85	.60	
	13	The nurse does not feel she/he has enough authority to change patient care procedures	.85	.68	
	15	The nurses are isolated from knowledgeable colleagues with whom to discuss the research	.85	.47	
	18	Physicians will not cooperate with implementation	.86	.47	
	19	Administration will not allow implementation	.85	.72	
	25	Other staff are not supportive of implementation	.85	.50	
2- Qualities of the research	29	There is insufficient time on the job to implement new ideas	.85	.54	9.045
	2	Implications for practice are not made clear	.86	.53	
	8	The research has not been replicated	.86	.60	
	10	The nurses are uncertain whether to believe the results of the research	.85	.60	
	11	The research has methodological inadequacies	.85	.66	
	14	The nurses feel results are not generalize to own setting	.85	.63	
	17	Research reports/articles are not published fast enough	.85	.67	
	22	The conclusions drawn from the research are not justified	.85	.58	
	23	The literature reports conflicting results	.85	.61	
3- The nurse's research values, skills, and awareness	27	The amount of research information is overwhelming	.86	.48	7.914
	5	The nurse in unaware of the research	.85	.61	
	9	The nurses feel the benefits of changing practice will be minimal	.85	.57	
	16	The nurses see little benefit for themselves	.85	.70	
	20	The nurses do not see the value of research for practice	.85	.80	
	21	There is not a documented need to change practice	.85	.50	
	26	The nurses are unwilling to change/try new ideas	.85	.40	
4- Presentation and accessibility of the research	28	The nurses do not feel capable of evaluating the quality of the research	.85	.64	7.176
	1	Research reports/articles are not readily available	.85	.58	
	3	Statistical analyses are not understandable	.85	.57	
	4	The research is not relevant to the nurse's practice	.86	.61	
	12	The relevant literature is not compiled in one place	.85	.55	
	24	The research is not reported clearly and readably	.85	.70	

Total questionnaire CC α = 0.86; Correlation of the total score with the four factors = 0.8

Cronbach's coefficient α of each item with the total questionnaire score variance ranged from .85 to .86 and the total questionnaire CC α was 0.86. In the process of CFA, items were found to be loaded by .47 or more on their predetermined theoretical factors and were significantly dependent on these factors ($p < 0.01$). Variances explained by the four factors were: 22.13 for factor 1, 9 for factor 2, 7.9 for factor 3 and 7.2 for factor 4. The nine items loaded on factor 1 and concerned with the perception of the respondents towards organizational barriers and limitations showed factor loading of 0.47 - 0.68. The smallest factor loadings were related to the belief that 'the nurses are isolated from knowledgeable colleagues with whom to discuss the research', and that 'physicians will not cooperate with implementation'. The highest factor loading was

allocated to the belief that 'Administration will not allow implementation'. The nine items loaded on factor 2 and concerned with qualities of the research showed factor loading of 0.48 – 0.67. The lowest factor loading indicated that 'The amount of research information is overwhelming' and the highest factor loading indicated that 'Research reports/articles are not published fast enough'.

The seven items loaded on factor 3 and concerned with the nurse's research values, skills, and awareness showed factor loading of 0.4 - 0.8. The smallest factor indicated that 'The nurses are unwilling to change/try new ideas', and the highest indicated that 'The nurses do not see the value of research for practice'. The five items loaded on factor 4 captured the participants' perceptions about the presentation and accessibility of the research showed

factor loading of 0.55 – 0.70. The lowest factor loading was for 'the relevant literature is not compiled in one place' and the highest was for 'the

research is not reported clearly and readably' (**table2**).

Table 3: Mean of Scores for Nurses Responses about Barriers Items

Items' rank order	Factor	Item	% rating item as a great or moderate barrier	No opinion (%)	Item mean score (SD)
1	1	The facilities are inadequate for implementation	85.3	1.5	3.3 (0.9)
2	2	Research reports/articles are not published fast enough	82.3	1.5	3.3 (1)
3	2	Implications for practice are not made clear	79.4	5.9	3.2 (1.1)
4	1	Physicians will not cooperate with implementation	78	5.9	3.0 (1.2)
5	1	The nurses does not have time to read research	75		3.3 (1.1)
6	1	The nurse does not feel she/he has enough authority to change patient care procedures	73.6	2.9	3.1 (1.2)
7	2	The nurses feel results are not generalized to own setting	73.5	1.5	3.1(1.1)
8	1	There is insufficient time on the job to implement new ideas	73.5		3.2 (1)
9	1	The nurses are isolated from knowledgeable colleagues with whom to discuss the research	72.1	1.5	3.1 (1.1)
10	3	The nurses do not feel capable of evaluating the quality of the research	70.6		3.0 (1)
11	1	Other staff are not supportive of implementation	69.1	2.9	3.0 (1.1)
12	4	Research reports/articles are not readily available	67.7	1.5	3.0 (1.1)
13	2	The research has not been replicated	61.8	7.4	2.9 (1.3)
14	3	The nurses see little benefit for themselves	60.3		2.8 (1.2)
15	1	Administration will not allow implementation	60.3	7.4	2.7 (1.3)
16	3	There is not a documented need to change practice	60.3	4.4	2.7 (1.1)
17	3	The nurses feel the benefits of changing practice will be minimal	58.8	1.5	2.8 (1.1)
18	4	The relevant literature is not compiled in one place	58.8	16.2	2.5 (1.5)
19	2	The nurses are uncertain whether to believe the results of the research	57.4	5.9	2.6 (1.2)
20	3	The nurses are unwilling to change/try new ideas	57.4	1.5	2.5 (1.1)
21	2	The research has methodological inadequacies	55.9	10.3	2.5 (1.3)
22	3	The nurses do not see the value of research for practice	54.4		2.7 (1.2)
23	2	The amount of research information is overwhelming	54.4	7.4	2.5 (1.3)
24	4	Statistical analyses are not understandable	51.5	14.7	2.5 (1.4)
25	3	The nurse in unaware of the research	50		2.7 (1.2)
26	4	The research is not relevant to the nurse's practice	47.1	5.9	2.4 (1.3)
27	2	The conclusions drawn from the research are not justified	45.6	8.8	2.3 (1.2)
28	2	The literature reports conflicting results	39.7	13.2	2.2 (1.3)
29	4	The research is not reported clearly and readably	38.2	5.9	2.3 (1.1)

All the items of factor 1 and factor 3, and about 70% of items of both factor 2 and 4 were

reported as being moderate or great barriers to the use of research by more than 50% of participants (**table3**).

The top three barriers considered by the participants as being a moderate or great barrier included the following:

- The facilities are inadequate for implementation
- Research reports/articles are not published fast enough
- Implications for practice are not made clear

Six out of the top 10 barriers were related to organizational barriers and limitations, three to qualities of research and one to the nurse's research values, skills, and awareness. Table 3 shows the mean scores on each scale. The mean scores on the subscales were 3.1, 2.7, 2.7, and 2.5 for factor 1, 2, 3, and 4 respectively. Fifty percent of the respondents suggested three additional items that hinder research utilization. The most frequently mentioned barriers were: 'lack of communication channels among university hospitals and nursing/medical schools', 'lack of motivation', and 'dissatisfaction with the nursing professions'. All the participants ranked the biggest three barriers to use researches. The barrier of 'There is insufficient time on the job to implement new ideas' was the most frequently mentioned first, second as well as third biggest barrier for research utilization.

Seventy five percent of the respondents suggested facilitators to increase research use. The most frequently mentioned facilitators were related to organizational factors. The following are the main facilitators:

- Having access to more facilities such as libraries, internet in the work place.
- Having opportunity and time to attend workshops, training sessions, conferences and discussions with professional colleagues.
- Establishing communication channels among university hospitals, nursing and medical schools.
- Establishing communication among the nursing staff, the physicians and the quality control administration.
- Motivation.

4. Discussion

We have assessed the reliability and validity of an Egyptian version of a previously developed and validated barrier scale. This scale have been used in several studies to elicit nurses' perception regarding barriers to research utilization in many developed countries⁽¹⁹⁻²²⁾. The high reliability and validity estimate of the tool confirmed previous study results^(13,15,16). Cronbach's coefficient α for the whole scale was 0.86 which was indicated to be of adequate reliability⁽²³⁾. The high reliability could be explained by the high ability of participants to feel and explain

the tool items as barriers for research utilization, and to the single nature and unidimensionality of the items included.

In the current study, nurses perceived various barriers to incorporating evidence into practice. Seven out of the first ten barriers were shared with the top barriers in another study⁽²⁴⁾, and some of the barriers mentioned are the same as those of nurses in other clinical settings and other developed countries^(25,26).

Inadequate facilities for implementation were ranked first in significance and fall under the organization subscale. This is in agreement with findings of other studies^(24,27). This indicates the important role of the organization in facilitating research utilization. The Healthcare organizations therefore need to ensure that facilities are provided to accommodate a higher level of research utilization⁽²⁵⁾.

'Research reports/articles are not published fast enough' was ranked the second in significance. Whether this perception reflects what is really happening needs further exploration. The unclear implications of research utilization for practice were rated as an important barrier to research utilization (ranked third). This indicates that the research practice gap is still a major force for research-based practice in our setting and that nursing administrators should consider it.

'Physicians will not cooperate with implementation' has been reported as a moderate to great barrier in this study (ranked fourth). In other studies, this item was ranked in the list of the top three barriers^(15,28). Non-cooperation of physicians could be explained by their believing that their cooperation could affect their authority. Cooperation of physicians in nursing education will not affect the authority relationship between physicians and nurses⁽²⁹⁾. Many studies had shown the effect of collaborative interactions as being the key to efficient and effective care^(30,31). We cannot assume that health professionals have either the skills or the attitudes required for inter-professional practice. They may need to learn how to collaborate. Inter-professional education at the undergraduate, graduate and practice levels seems to be essential today, since health professionals are called to work together and to provide more coordinated and comprehensive care to patients⁽³²⁾.

Two of the top ten barriers were related to insufficient time 'the insufficient time to read researches and to implement new ideas (ranked fifth and eighth). It is known that heavy activity and workload gave nurses neither time nor energy to do research-related activities. These barrier items were rated as important barriers to research utilization in other studies^(23,27), although the rank order of importance assigned to each has varied from study to study⁽²⁴⁾. The concept of time, in addition to real lack

of time, has different aspects as lack of interest, lack of knowledge and lack of appreciation of the need for research-based practice. The barrier of 'There is insufficient time on the job to implement new ideas' was the most frequently mentioned first, second as well as third biggest barrier for research utilization. If research utilization is to increase, the most important organizational change that needs to occur is to enhance the time that is made available to nurses to use research evidence. The recent advances in information technology enable nurses to access and research evidence databases promptly⁽³³⁾. Ready access to computer devices must be provided to allow nurses to use this technology to access research findings as quickly as possible. In addition, the nurses have no authority to administer their time at work and the possibility of allocating time for research activities in practice depends on administration. Strategies such as access to reading material at nurses' place of work during working hours, having scheduled study time and the opportunity to read research literature and search data bases while at work must be provided if nurses are to keep themselves up to date with research⁽²⁴⁾.

Nurses' lack of authority to change patient care procedure and implement evidence-based change was rated as an important barrier to research utilization (ranked sixth). This finding is supported by other studies^(22,28). Due to medical dominance, practicing nurses have experienced a system where the majority of clinical decisions are imposed by doctors. This will have a negative effect on nurses' self-confidence and in turn minimize their ability to exercise authority or power in the practice setting or to function to the full scope of their practice as nurses⁽³⁴⁾. Nurses require legitimate authority that will allow them to create better working conditions, not only for their benefit but also for that of patients by providing high-quality patient care.

The nurses feel results are not generalized to own setting and feeling of being isolated from knowledgeable colleagues (ranked the seventh and the ninth barriers in our study) are two related barriers. Feeling of being isolated from knowledgeable colleagues was ranked as one of the top barriers for research utilization in other study⁽³⁵⁾. Working in isolation, lack of communication and interdisciplinary collaboration may be responsible for as much as 70% of the adverse events currently reported in patients care⁽³⁶⁾. Therefore, senior staff/policy in particular should make certain that the necessary structural and practical support for research use has been recognized and will be supplied⁽²⁴⁾.

The lack of nurses' ability of evaluating the quality of research (ranked tenth) may reflect a lack of nurses' education and knowledge. Opportunities to

learn about research methods and the research process in a clinical context have been recommended as motivating factors to involve nursing staff in research utilization⁽²⁴⁾. Nursing students must have a working knowledge of how to locate, appraise, and apply research studies to improve client care⁽³⁷⁾. This could be achieved by proposing strategies for teaching research utilization within baccalaureate nursing programs⁽³⁸⁾.

In response to the open-ended questions, many respondents noted the need of communication channels to be established among university hospitals and nursing/medical schools'. Enhancing communication would actually contribute for more involvement of nurses in researches. Cooperation between academic and clinical staff is one of the main elements driving the movement for research-based care. Some authors confirm the finding that collaborative exchange between service and academia is essential and there is obviously a real need for increased collaboration between researchers and clinical nurses willing to promote the use of research⁽³⁹⁾. The findings in this study relating to the lack of knowledge and the recommended facilitators to improve research utilization correspond to the findings and conclusions in other study⁽²⁴⁾.

Two other related barriers were noted by respondents to act against utilization of research: 'Lack of motivation', and 'dissatisfaction with the nursing professions'. Nurses' dissatisfaction with their salaries was the main reason that made a university hospital nurses to quit their jobs⁽⁴⁰⁾. Nurses may experience greater professional fulfillment when strategies to provide financial incentives are implemented^(41,42).

Recommendations:

We recommend that no further descriptive studies using the barriers scale be undertaken because further use would constitute a waste of scarce research resources. To advance the field and improve the quality of care for patients, tailored intervention need careful evaluation. Community campaigns using educational media are essential to increase knowledge and awareness about research. In addition we recommended examination of various contextual and human factors for enhancing research use in a given organization context.

Conclusion

This study investigated the reliability and validity of a tool used to determine the barriers for research utilization and to determine the barriers as well as the facilitates perceived by nurses in Suez Canal University Hospital in relation to research utilization in clinical practice. The greatest perceived

barriers were the inadequacy of facilities for implementation, the delay in publishing research reports, the unclear implications of research utilization for practice, the physicians' non-cooperation and the insufficient time to read researches. All necessary facilitators mentioned by the nurses were related to the organizational factors. Further researches were needed to study the role of related interventions in increasing the research capabilities among nurses.

Acknowledgment:

I wish to express my deepest appreciation and sincere gratitude to everyone who has contributed to this work. In particular I would like to thank all the nurses in Egypt who so generously offered their experiences and so willingly answered all questions, both hospital directors of Egypt for helping in gathering this study.

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2/22/2014