Barriers to Research Utilization in Clinical Practice

Ghada Abd El-Salam Belal[1], Shereen Ragab Dorgham[2] , Reda Abd-El fatah Said [3]

[1]Maternity and Gynecological Nursing Dept., Faculty of Nursing, Tanta University.[1] Nursing Services Administration Dept, Faculty of Nursing, Tanta University,[2] Nursing Services Administration Dept., Faculty of Nursing, Tanta University.[3]
d_org_ham7@hotmail.com

Abstract : One important source of knowledge is research. Research provides a solid foundation on which health care professionals base their practice. So, the lack of awareness and utilization of research is a hindrance to nursing professional development. This study aimed to assess barriers to research utilization in clinical setting at Tanta University Hospital. The study was conducted at Tanta University Hospital. The study subjects consisted of 96 head nurse. The data of the study was collected using Barrier Scale Questionnaire. The study results revealed that the majority of the highly ranked barriers to research utilization are categorized as setting related barriers, followed by presentation and accessibility of research findings, research and nurses related barriers, while, the majority of suggested facilitators to research utilization are related to setting, and presentation and accessibility to research findings. The study recommended that; the culture of research should be pervasive in the organization through providing supportive leadership by the unit managers and collaboration between colleagues, staff and physicians.
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1. Introduction

Health care is continually changing in the way health care professionals organize and deliver care to the patients. For this reason; health care knowledge must continuously grow and expand to keep health care approaches relevant, current and appropriate. Without new knowledge, health care professionals cannot improve techniques for therapies and even management. One important source of knowledge is research [1,2].

Research is viewed in most professional circles as necessary for the continuous development of the scientific body of knowledge, which is the hallmark of a profession. The essence of evidence - based practice is the provision of quality and cost effective health care to the health consumer. Research provides a solid foundation on which health care professionals base their practice [3,4].

The effort to translate research to the practice setting is an ongoing and challenging endeavor. To provide safe and effective patient care, the nurse must help bridge the gap that exists between research finding and application to practice. The first step in this process may involve the application of knowledge from individual research findings to the clinical setting; this process is commonly referred to as research utilization (RU). Research utilization in nursing practice is not only a duty but also a professional responsibility [5,6].

Nursing professional development is a very important aspect of the nursing profession. It is a lifelong process and it does not stop once nurses get a job[7]. There should be active participation by nurses in learning activities that assist in developing and maintaining their competence, enhance their professional practice, enhance the quality of patient care that they can offer, and support achievement of their career goals. So, the lack of awareness and utilization of research is a hindrance to nursing professional development. The causes for the increasing lack of research utilization must be given solutions [8,9].

Funk et al.,[10] is the pioneer to explore the scope and magnitude of nurses' perceived barriers to research utilization in the United States (US) using a postal questionnaire entitled the Barriers to Research Utilization Scale (BARRIERS). Reported barriers in **Funk et al.'**s and recent studies in the US and Europe within a variety of clinical setting were grouped under four main factors. Those were characteristics of the potential adopter, characteristics of the organization in which the research will be used, characteristics of the innovation or research, and characteristics of the communication of the research. Characteristics of the adopter which is the nurses' research values, skills, and awareness includes barriers like; and lack of time to read, evaluate and implement research findings. Organizational barriers includes for example: lack of access to research resources, lack of funding, and lack of time to use and conduct research. The research barriers includes for example: lack of appropriate recommendations,

and believable findings. The communication barriers includes for example: lack of presentations to audiences in practice, lack of publications and unavailability of consultants to help critique [10,11,12,13].

These barriers limit the potential of identifying clinical outcomes in nursing care. However, recognizing and acknowledging the existence of these barriers enable to implement change in practice in a timelier manner. The purpose of this study, therefore, is to assess the barriers to RU in clinical setting in Tanta Main University Hospital.

Aim of the study:

The purpose of this study was to assess barriers to research utilization in clinical setting at Tanta University Hospital.

2. Material and methods

Design: a descriptive design was used

Setting: the study was conducted at Tanta University Hospital in Tanta University which includes; cardiology, neonate, medical, ICU, obstetric, chest, surgical, neurology, and urology units.

Subjects: The study subjects consisted of all head nurses (n=39) and representative random sample of baccalaureate nursing staff (n= 57) total number (96) who were working in the above mentioned setting and willing to participate in the study.

Tool of the study:

It was developed by the researchers based on *Funk et al.,*[10]after reviewing the related literature [1,2,5,11]. The modification and adaptation was based on the aim of the study, literature review and opinionaries of five experts.

It was used to identify barriers to RU at Tanta University Main Hospital, as perceived by the head nurses. It includes three parts:

First part about biographical information such as name, age, years experience, department, & education. *Second part* composed of 36 statements. *Third part* included suggestions to enhance research use in clinical practice. Each barrier statement included in these sections was measured on a five point Likert scale.

Barriers are classified into the main four subscales; nurse, setting, research, and communication related barrier. Nurses related barriers involve items regarding capability of evaluating the research, appreciating needs to research for change practice, willing to change new ideas, awareness of the value of research for practice …… etc. Setting related items covers topics such as, availability of researches, facilities, time and motivation offered by the organization…… etc. The

quality of the research includes items reflecting the strength or weaknesses and applicability of available researches. Communication items focus on the understandability of statistical analyses, clarity of implications for practice, clarity and readiness of the research, availability of research reports/articles readiness, and language of research ….etc. Finally, suggestions to enhance research uses in clinical practice items included (12) items such as; providing workplace libraries containing important researches in nursing , increase the base to knowledge research, the research should be relevant to nurse's practice….etc.,

The respondents were asked to rate to which extent they perceived each item as a barrier to research findings. The respondents rated the items on a 5-Point Likert-type Scale as (0= No option, 1= To no extend, 2= To a little extend, 3= To a moderate extend, , and 4= To a great extend. Items of suggestion to enhance research utilization scale were rated as; 3 = Agree, 2 = Neither Agree nor Disagree, 1 = Disagree,

Methods:

An official letter was directed from the Faculty of Nursing, Tanta University to the hospital administrative authorities in order to obtain their acceptance to collect necessary data from the selected settings. Then, the permission was obtained from the hospital administrative authority. The study tool was developed based on *Funk et al.,* [10] after reviewing the related literature [1,2,5,11].

A pilot study was carried out on 10 nurses who were selected to evaluate the clarity and applicability of the research tool. They were excluded from the total sample, and necessary modifications were done based on their responses. Validation of the tool was assessed by presenting it to five experts from the faculty members in Nursing College, Tanta University, experts in different fields; Three members of administration, and two members from obstetric and gynecology nursing .   Internal consistency reliability (coefficient alpha) was applied (á = 0.82).

Informed consent was obtained from each studied nurse included in the study. The anonymity and confidentiality of responses, voluntary participation and right to refuse to participate in the study were emphasized. The researcher explained to the nurses written explanations on the covering letter of the questionnaire. Barrier Scale Questionnaire was collected through semi structured interview, the researchers explain the sheet to the subjects and then, ask them to complete it. Data were collected by the researcher during the period from Mars and April 2011. Barriers to RU as perceived by studied nurses were identified using the study tool.

Statistical analysis

Data was collected, coded and organized into tables, and then analyzed using the statistical package for social science (SPSS). Descriptive measures, including frequency, percentage, arithmetic mean and standard deviation were presented. Z tests were used for statistical correlation. P value was statistically significant at level 0.05%. Ranking of obstacles was also done.

3.Results

Table(1)shows demographic characteristics of studied subjects including age, years of experience, unit, as well as making previous research. High percent (60.4%) of head nurses were in the age 25-30 years, and the minority (2.1%) was in the age 40 ≤ years. Nurses' age was ranged from 25 – 42 years with mean age value 31.34±1.36. Above half (54.3%) of nurses were had 5-10 years of experience, the mean duration of the head nurses working experience was 9.33±2.57 with range 3-19 years.. Of the 96 head nurse, 20.8% were working in medical unit, while, equal percent 2.1 were working in Obstetric and Ophthalmology units. 68.8% of the head nurses did not make any research before.

Table (2) presents head nurses respondents regarding to barriers of research utilization scale . The most prominent barriers were found in the subscales Setting (mean = 3.15) and Communication (mean = 3.11). The five barriers most highly rated were as follows: There is a lack of collaboration between researcher and clinicians (83.3%), The statistical analysis is not understandable (83%), Physicians will not cooperate with implementation (81.2%), The conclusions drawn from the research are not justified (81%), and The research has methodological inadequacies (80.7%)

Table (3) Presents head nurses respondents regarding to each subscale barriers to research utilization. As regard to nurses subscale barrier, the table shows that the subscale mean was (2.65+1.10) and the nurses rated the most highly barriers was "there is not a document need to change practice (68.7%)". Regarding to setting subscale, the subscale mean was the highest mean score (3.15+1.54), and the nurses rated the most highly barriers was "there is a lack of positive reinforcement to participate in research (79.2%)". The mean score of research subscale was (2.99+1.67), while the nurses rated the most highly barriers was "the research has methodological inadequacies (81.2 %)". In relation to communication subscale, the table showed that the mean score was (3.11+1.27) and the nurses rated the most highly barriers was "there is a lack of collaboration between researcher and clinicians (81.2 %).

Table (4) demonstrates correlation between barriers subscale and demographic characteristics. Analyzing relationships between the outcomes of the four subscales and the demographic characteristics revealed that the age of the head nurses having a significant correlation with all subscale barriers. While, the head nurses with 10-15 years of experience duration having a significant correlation with nurses and research subscale barriers, and the nurses with 15-20 duration having a significant correlation with all subscale except research subscale barrier.

Table (1): Demographic characteristics of the studied subjects

Factors	Mean ± SD	N	%
Age			
25-30	27.82+1.67	58	60.4
30-35	33.42+1.55	14	14.6
35-40	38.36+1.25	22	22.9
40≤	42.00+0.00	2	2.1
Mean / range	**31±1.36 / 25 - 42**		
Years of experience			
3-5	4+0.78	14	14.6
5-10	7.34+1.15	52	54.3
10-15	13.8+1.32	18	18.6
15-20	17.3+0.98	12	12.5
Mean / range	**9.33±2.57 / 3 - 19**		
English Language √	N (96)	%	
- **Don't speak**	0	0.00	
- **Weak**	9	9.4	
- **Average**	61	63.5	
- **Excellent**	26	27.1	
Made a previous research			
Yes	30	31.3	
No	66	68.8	

Table (2): Head nurses respondents regarding barriers to research utilization scale

Barrier subscale	Items	Rank order of all items	Mean ± SD	Total (n = 96) (Scoring 3 , 4 of barriers scale)
Nurses factors	1. The nurse is isolated from knowledgeable colleagues with whom to discuss the research.	27	2.78+1.32	69.7 %
	2. There is not a document need to change practice.	18	2.93+1.12	73.4 %
	3. The nurse does not feel capable of evaluating the research.	33	2.64+1.21	65.3%
	4. The nurse sees little benefit for self	28	2.77+1.12	69.5%
	5. The nurse does not see the value of research for practice.	32	2.64+1.27	66.1%
	6. The nurse feels the benefits of changing practice will be minimal.	24	2.83+1.09	70.8%
	7. The nurse is unaware of the research.	35	2.54+1.24	63.5%
	8. The nurse is unwilling to change/try new ideas.	34	2.60+1.22	65.1%
	9. The nurse does not feel capable of conducting research.	36	2.39+1.19	59.8 %
	10. The nurse does not feel capable of utilizing the research.	26	2.79+1.21	70.0%
Total of nurses (Mean ± SD)			2.65+1.10	
Setting factors	11. The facilities are inadequate for implementation.	9	3.14+1.12	78.6 %
	12. The nurse does not have time to read research.	16	2.97+1.16	74.4%
	13. There is insufficient time on the job to implement new ideas.	25	2.82+1.25	70.5%
	14. Other staff is not supportive of implementation.	31	3.50+6.08	66.6%
	15. The nurse does not feel she/he has enough authority to change patient care procedures.	22	2.87+1.22	71.8%
	16. Physicians will not cooperate with implementation.	3	3.25+0.99	81.2%
	17. The nurse feels results are not generalizable to own setting.	30	2.75+1.30	68.7%
	18. Administration will not allow implementation.	12	3.08+1.13	77.08 %
	19. There is a lack of expectation for research participation.	21	2.89+1.23	72.3 %
	20. There is a lack of positive reinforcement to participate in research.	6	3.18+1.11	79.9%
Total of setting ((Mean ± SD)			3.15+1.54	
Research factors	21. The research has not been replicated.	29	2.77+1.18	69.2 %
	22. Research reports/ articles are not published fast enough.	19	2.92+1.22	73.1%
	23. The literature reports conflicting results.	14	3.00+1.005	75%
	24. The nurse is uncertain whether to believe the results of the research.	11	3.10+0.98	77.6%
	25. The research has methodological inadequacies.	5	3.22+1.09	80.7%
	26. The conclusions drawn from the research are not justified.	4	3.2+0.90	81%
	27. The amount of research information is overwhelming.	23	3.68+5.89	71.3%
	28. Research reports are written in English.	15	2.97+1.23	74.7%
Total of research(Mean ± SD)			2.99+1.67	
Communication factors	29. The relevant literature is not compiled in one place.	20	2.91+1.11	72.9%
	30. Research reports/articles are not readily available.	7	3.18+1.05	79.68%
	31. Implications for practice are not made clear.	8	3.17+0.909	79.4%
	32. The statistical analysis is not understandable.	2	3.32+0.878	83.0%
	33. The research is not reported clearly and readably.	13	3.06+1.11	76.5%
	34. The research is not relevant to nurse's practice.	17	2.93+1.13	73.6%
	35. There is a lack of collaboration between researcher and clinicians.	1	3.33+0.87	83.3%
	36. There is a lack of consultants to help critique.	10	3.19+0.98	78.1 %
Total of communication (Mean ± SD)			3.11+1.27	

Table (3): Head nurses respondents regarding to each subscale barriers to research utilization.

Factors	Rank order of each subscale	Mean ± SD	(Scoring 4 of barriers scale)	
			N (96)	%
Nurses (1-10)				
1. The nurse is isolated from knowledgeable colleagues with whom to discuss the research.	4	2.78±1.32	59	61.5
2. There is not a document need to change practice.	1	2.93±1.12	66	68.7
3. The nurse does not feel capable of evaluating the research.	7	2.64±1.21	56	58.3
4. The nurse sees little benefit for self	5	2.77±1.12	62	64.5
5. The nurse does not see the value of research for practice.	6	2.63±1.27	55	57.2
6. The nurse feels the benefits of changing practice will be minimal.	2	2.83±1.09	61	63.5
7. The nurse is unaware of the research.	9	2.54±1.24	52	54.2
8. The nurse is unwilling to change/try new ideas.	8	2.60±1.22	54	58
9. The nurse does not feel capable of conducting research.	10	2.39+1.19	48	50
10. The nurse does not feel capable of utilizing the research.	3	2.79±1.21	60	62.5
Total of nurses (Mean ± SD)		2.65+1.10		
Setting (1-10)				
11. The facilities are inadequate for implementation.	4	3.14±1.12	68	70.8
12. The nurse does not have time to read research.	5	2.97±1.16	66	68.7
13. There is insufficient time on the job to implement new ideas.	7	2.83±1.25	61	63.5
14. Other staff is not supportive of implementation.	10	3.50±6.08	54	58.3
15. The nurse does not feel she/he has enough authority to change patient care procedures.	6	2.87±1.22	65	67.7
16. Physicians will not cooperate with implementation.	2	3.25±0.99	74	77.1
17. The nurse feels results are not generalizable to own setting.	9	2.75±1.30	56	58.3
18. Administration will not allow implementation.	3	3.08±1.13	72	75
19. There is a lack of expectation for research participation.	8	2.89±1.23	60	62.5
20. There is a lack of positive reinforcement to participate in research.	1	3.18±1.11	76	79.2
Total of setting(Mean ± SD)		3.15+1.54		
Research (1-8)				
21. The research has not been replicated.	8	2.77±1.18	51	53
22. Research reports/ articles are not published fast enough.	7	2.93±1.22	62	64.5
23. The literature reports conflicting results.	5	3.00±1.005	64	66.6
24. The nurse is uncertain whether to believe the results of the research.	3	3.10±0.98	70	72.9
25. The research has methodological	1	3.22±1.09	78	81.2

inadequacies.				
26. The conclusions drawn from the research are not justified.	2	3.20$\pm$0.90	77	80.2
27. The amount of research information is overwhelming.	6	3.68$\pm$5.89	65	67.7
28. Research reports are written in English.	4	2.97$\pm$1.23	66	68.7
Total of research(Mean ± SD)		2.99$\pm$1.67		
Communication (1-8)				
29. The relevant literature is not compiled in one place.	7	2.93$\pm$1.11	68	70.8
30. Research reports/articles are not readily available.	4	3.18$\pm$1.05	74	77.1
31. Implications for practice are not made clear.	3	3.18$\pm$0.909	76	79.2
32. The statistical analysis is not understandable.	2	3.31$\pm$0.878	77	80.2
33. The research is not reported clearly and readably.	6	3.06$\pm$1.11	70	72.9
34. The research is not relevant to nurse's practice.	8	2.93$\pm$1.13	64	66.6
35. There is a lack of collaboration between researcher and clinicians.	1	3.33$\pm$0.878	78	81.2
36. There is a lack of consultants to help critique.	5	3.19$\pm$0.98	72	75
Total of communication (Mean ± SD)		3.11$\pm$1.27		

Table (4): Correlation between barriers subscale and demographic characteristics

factors	Nurses factor	Setting factors	Research factors	Communication factors
Age	P -value	P -value	P -value	P -value
25-30	0.001*	0.001*	0.001*	0.001*
30-35	0.002*	0.003*	0.001*	0.004*
35-40	0.001*	0.001*	0.001*	0.001*
40$\leq$	0.005*	0.001*	0.001*	0.002*
Years of experience				
3-5	0.058	0.077	0.096	0.087
5-10	0.025	0.036	0.33	0.024
10-15	0.002*	0.009	0.005*	0.006
15-20	0.002*	0.004*	0.008	0.004*
Unit				
Cardiology	0.095	0.635	0.025	0.055
Neonate	0.258	0.631	0.227	0.583
Medical	0.632	0.147	0.282	0.207
ICU	0.428	0.256	0.058	0.047
Obstetric	0.058	0.305	0.027	0.021
Chest	0.011	0.028	0.055	0.040
Surgical	0.036	0.221	0.047	0.069
Neurology	0.044	0.020	0.039	0.033
Ophthalmology	0.058	0.036	0.025	0.024
Dialysis	0.327	0.147	0.019	0.050
Urology	0.029	0.030	0.089	0.043
Made a research				
Yes	0.024	0.012	0.362	0.096
No	0.050	0.047	0.086	0.035

Table (5): shows correlation between barriers subscale, the table revealed that there was statistical significant correlation (P ≤0.05) between nurses and research subscale and other subscales, moreover there was statistical significant correlation (P ≤0.05) between setting subscale and nurses and research subscales .

Table (6) Demonstrates head nurses suggestions to facilitate research utilization. It reveals that the highest equal values (90.6%) are presented for the items of ; Providing workplace libraries containing important researches in nursing , & .Physicians cooperate with implementation , followed by 82.3%

for suggestion for increase the base to knowledge research and equal percent (72.9%) for the following suggestions ; Translations of articles and research findings to read & study , Provide nurses with enough authority to change patient care procedures , Research reports/articles should be readily available , The research should be relevant to nurse's practice , and Encourage collaboration between researcher and clinicians. While the minority (37.5%) for the suggestion of provide sufficient time on the job to implement new ideas, and (45.8%) for Justified conclusions drawn from the research in an appropriate manner and understandable .

Table (5): Correlation between barriers subscale

	Nurses factor		Setting factors		Research factors		Communication factors	
	r	p	r	p	r	p	r	p
Nurses factor	-	-	0.637	0.001*	0.314	0.002*	0.225	0.028
Setting factors	0.637	0.001*	-	-	0.421	0.001*	0.223	0.029
Research factors	0.314	0.002*	0.421	0.001*	-	-	0.276	0.006
Communication factors	0.225	0.028	0.223	0.029	0.421	0.001*	-	-

Table (6): Head nurses suggestions to facilitate research utilization

Facilitators	Agree		Neither Agree nor Disagree		Disagree	
	N	%	N	%	N	%
1.Providingworkplace libraries containing important researches in nursing	87	90.6	0	0.00	9	9.4
2.Translations of articles and research findings to read & study .	70	72.9	26	27.1	0	0.00
3.Increase the base to knowledge research	79	82.3	17	17.7	0	0.00
4.Scientificmeetingsto increase awareness of nurses toward research methods	52	54.2	44	45.8	0	0.00
5.Provide positive reinforcement to participate in research.	53	55.2	26	27.1	17	17.7
6.Provide sufficient time on the job to implement new ideas.	36	37.5	26	27.1	34	35.4
7.Physicians cooperate with implementation.	87	90.6	9	9.4	0	0.00
8.Provide nurses with enough authority to change patient care procedures.	70	72.9	17	17.7	9	9.4
9.Justified conclusions drawn from the research in an appropriate manner and understandable .	44	45.8	43	44.8	9	9.4
10.Research reports/articles should be readily available.	70	72.9	26	27.1	0	0.00
11.The research should be relevant to nurse's practice.	70	72.9	9	9.4	17	17.7
12.Encourage collaboration between researcher and clinicians.	70	72.9	26	27.1	0	0.00

4. Discussion

Enthusiasm towards the achievement and continuous development of professional status in nursing has result in an increased recognition of the need for distinct body of knowledge based on

research to underpin nursing practice. Despite the drive towards evidence-based practice, implementation of the available research evidence is unclear and failure of research to inform nursing practice has

been an important topic of debate and study over the past decade[14].

It is clear from the nursing literature that there are a number of factors which can impede the use of research in practice. It is important that these are identified and addressed, both at local and national levels, if evidence-based practice is to become a reality [15].

Therefore, this study was conducted to assess barriers to research utilization as perceived by registered nurses. The study results discussed in the following section are composed of the detected top barriers to research utilization in Tanta Main University Hospital and their relationships with nurses' socio-demographic characteristics as perceived by registered nurses.

Regarding barriers to research utilization, results of the present study indicated that utilization of the research findings is a complicated organizational process rather than an individual process as the prominent barriers based on the mean score are related to the characteristics of the organization (setting barriers and limitations) which in our study is Tanta Main University Hospital. These results are in line with two studies conducted in Egypt which found that the setting barriers were ranked as the top barriers to research utilization[16,17]. Setting is also ranked as the greatest barrier in *Funk et al.,* [18] *Karkos and Peters*[19], and *Strickland, and O'Leary – Kelley* [5]. These results may be attributed to head nurses' position and exposure to the intricacies within the organization which may bring a greater awareness of organizational limitations and barriers. This may increase the head nurses' frustration with the setting, as they may believe that these items are out of their realm of control. For example the setting related barriers that come at the top ranking are: lack of positive reinforcement to participate in research, physicians will not cooperate with implementation, administration will not allow implementation, facilities are not adequate for implementation, and nurses does not have time to read research. In other word, the setting in the current study has lack of financial support which will directly affect the conduction and utilization of research.

This is in agreement with *Salsali and Mehrdad*[20], they stated that in Iran, as in most Middle East Countries, increasing cost limitations are one of the forces that require health care to be based on scientific research not only in Iran and developing countries but also around the world. Furthermore, other findings indicated that although nurses appear more confident about their ability to begin to effect change than in early days, lack of authority and supportive organizational culture that is not receptive to change are seen to militate against implementation

of evidence-based nursing practice. So the foundation for evidence-based practice guided by research must be supported throughout the organization, not only to establish such practices but also to sustain the efforts[21,22].

Following setting related barriers to research utilization is communication barriers that means presentation and accessibility of the research which include ; lack of collaboration between researcher and clinicians, statistical analysis is not understandable, research reports are not ready available, implications for practice are not clear, and lack of consultants to help critique. Unfortunately, tension has always existed between researchers and clinicians. Researchers pursue programmatic lines of research aimed at understanding theoretical relationships by applying scientific knowledge principles and experimental control. Clinicians pursue the betterment of their individual clients, health and well-being by applying the training and clinical judgment they possess[23].

Researchers view clinicians as the persons who should apply the knowledge handed to them. Clinicians view researchers as academics whose pursuits usually are irrelevant to patient care. Both clinicians and researchers have speculated as to the cause of the gap. Clearly, there is a need to develop a new research paradigm that involves active collaboration between researchers and clinicians[23,24].

Those support the findings of these study in several other descriptive studies, using the barriers scale concludes that the lack of research utilization was related to language, problems in cooperation and difficulties in understanding statistical analysis[15,25,26]. Furthermore, even when clinically significant, sound research findings are produced they are rarely adopted into hospital policy and clinical practice. This is partially based on lack of collaboration between researchers and clinicians, as well as limited research presentations and publications targeted for clinicians. Research reports most often are presented to audiences of researchers; therefore, pertinent clinical findings may not reach nurses who can use these new ideas in patient care [27].

According to the mean score in our study, following the communication barriers is the research barriers which include two of the ten highly ranked barriers to RU in this study, they are; research has methodological inadequacies and conclusions drawn from the research are not justified. This implies that the respondents may not be familiar enough with research to form an opinion regarding methods. This is in accordance with other studies which reported that lack of research related knowledge leds to skepticism of the research finding and make nurses

unable to understand or evaluate their quality, even if those researches are written in a good quality. Without being introduced to the available research, nurses are unable to evaluate the results and carry out the recommendations [1,10,28].

The last but not the least barrier based on the mean score is the nurses' barriers. This result agrees with *Ezz , Zahran , and El-Soussi* [17] , in which the last barrier is the nurse barriers even if the ranking order of corresponding items under the nurses barriers are not the same. This may be attributed to the fact that within the nursing profession, significant questions are still asked about the scope of nursing practice. Nurses have difficulties in describing their scope of practice beyond providing a list of daily activities they perform [29].

The first ranked barrier in nurses barriers are the following; there is not a document need to change practice, nurse feels the benefits of changing practice will be minimal, and they does not feel capable of utilizing the research. These may be attributed to the lack of questioning, nurses do not have the ability to recognize clinical practice problems and many traditions in clinical nursing practice are accepted as a fact and rarely are questioned. In addition, not all nursing textbooks acknowledge existing research or discuss how opinion guides nursing practice. Nursing should be grounded on evidence, rather than tradition [30].

The fourth ranked items under nurses' barriers is that nurses are isolated from knowledgeable colleagues with whom to discuss research. *Funk et al.,*[18] stated that nurses' sense of isolation from knowledgeable colleagues with whom to discuss research could be particularly problematic, because most also believed that practicing nurses might feel incapable of evaluating the quality of research on their own.

Study findings also revealed that there are statistical significant differences between some of the nursing demographic characteristics and barriers subscales related to research utilization (table 4). As Regard nurses' age there was statistical significance between nurses age and subscale barriers; nurses, setting, communication, and research barriers. These may be attributed to the fact that what ever there age they are faced with the same barriers in the same setting. This result is in agreement with *Yava et al.,* [31]. Study which showed that the perception of Turkish nurses to the barriers to research utilization is not influenced by age.

In relation to nurses' experiences, the present study illustrated that there are statistical significant differences between nurses' experiences and subscale barriers to research utilization. Nurses who have more experience perceived higher amount of barriers

to research utilization than others. This is may be attributed to that a large portion of the study sample is old aged nurses. Moreover, they may be hadn't receive any research related education after their employment due to limited finance and time provided by the hospital to conduct research.

These results is opposed by *Chien*[32], who found that nurses with less experiences perceived higher levels of barriers to research utilization. On the other hand " *Yava et al.,* [31] study has stated that the perception of nurses is not influenced by factors such as years of professional experience in nursing care.

The current study showed that the most frequently suggested facilitators to research utilization were concerned with setting and research. Among the suggested facilitators are; providing workplace with libraries containing important researches in nursing, and physicians cooperate with implementation, increase the base to knowledge research, translations of articles and research findings to read and study, provide nurses with enough authority to change patient care procedures, research reports/articles should be readily available, the research should be relevant to nurse's practice, and encourage collaboration between researcher and clinicians. As it was expected the top ranked facilitators suggested by the head nurses were according to them related to the setting barriers and presentation of the research barriers. So, it is time to move for talk to action.

Conclusion

Based on the findings of the current study, it is concluded that, a great proportion of nurses working at Tanta Main University Hospital perceived several barriers to research utilization. The majority of the highly ranked barriers to research utilization are categorized as setting related barriers, followed by presentation and accessibility of research findings, research, and nurses related barriers. While, the majority of suggested facilitators to research utilization are related to setting, and presentation and accessibility to research findings. Moreover, barriers to research utilization are affected by a number of factors, such as; nurses' age, experience and level of English language.

Recommendations

The following recommendations can be made in the light of the current study results:-
1. The culture of research should be pervasive in the organization through providing supportive leadership by the unit managers and collaboration between colleagues, staff and physicians.

2. Bringing nurse clinicians and nursing researchers closer together should help focusing on problems clinicians are facing in practice and publish findings in a form useable for them. This form should be in Arabic language, simple and accessible for nurse clinicians.

3. On a methodological base, the barriers scale should be replicated at different setting and among different samples whom will affect the RU process.

4. Based on identified barriers, nurse administrators, clinicians and research can design and implement specific collaborative strategies to overcome these barriers.

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