Utilization of Nursing Process in Clinical Practices: Nurses Knowledge and Barriers

Salwa El-Badry Aly ,Wafaa N. Ahmed Besely.

Medical Surgical Nursing Department, Faculty of Nursing, University of Alexandria, Egypt.
annyelbadry@yahoo.com

Abstract: The nursing process is central to nursing actions in any setting because it is an efficient method of organizing thought processes for clinical decision-making and problem solving. This study was carried out to determine the extent of understanding to its use and barriers as viewed by academic and professional nursing staff. The convenience-studied subjects (447) comprised academic nursing staff at the Medical Surgical Nursing department, Alexandria Faculty of Nursing, nursing graduates working at the units at the Main University Hospital and the faculty students enrolled to the medical surgical nursing courses from the year 2006 until 2010. The developed tool included three parts, which describe knowledge and barriers in applying nursing process in different medical surgical clinical settings. **The results** revealed limited knowledge in academic nursing staff, while it was approximately absent in both undergraduate and graduate nurses. The main difficulty to applying the nursing process was nursing diagnoses. The barriers included lack of knowledge, skills, and time. Moreover, lack of nursing assessment and care plan formats in addition to the lack of support and enforcement by administrative policies might explain the results.

1.Introduction

The nursing process is one of the most important theories in nursing [1]. It uses clinical judgment to strike a balance of epistemology between personal interpretation and research evidence in which critical thinking may play a part to categorize the clients' issue and course of action [1, 2]. It is based on a nursing theory developed by **Orlando I**. in the late 1950's .Since that time; the term nursing process has been used to describe the accepted method of delivering nursing care. The major purpose of the nursing process is to provide a framework within which the individualized needs of the client, family, and community can be met [3].

The traditional nursing process approach to patient care can be used to conceptualize the essential components of *evidence based nursing practice* (EBP). During the assessment and diagnostic phases of the nursing process important clinical questions are established and the critical review of existing knowledge is completed [4]. Use of the nursing process as a framework is beneficial for both the patient and the nurse because it helps ensure that care is planned, individualized, and reviewed over the period of time that the nurse and patient have a professional relationship [5].

The nursing process is a systematic decision-making approach to problem solving based on open-system theory. The nursing process has many benefits as it provides an orderly and systematic method for planning and providing care. In addition, it enhances nursing efficiency by standardizing nursing practice [6]. Moreover, it stresses the independent function of nurses and increases care quality through the use of deliberate actions [7].

Although the frame of reference to nursing practice in the higher nursing education in Egypt and abroad is nursing process, many questions are always rising in clinical areas and to what extent are the limitations of its use in patient care.

Aim of the study: the study aim is to identify utilization and barriers of nursing process in clinical practice.

Research questions:

· To what extent does the nursing process used in clinical practices?

· What are the barriers of using the nursing process in patient care settings?

2. Materials and Method

Materials

Research Design: A descriptive research design was used to conduct this study.

This study was carried out at the Faculty of nursing, Alexandria University and at the medical surgical units at the Main University Hospital, Alexandria

Subjects: A convenience sample of 449 nurses classified as the following 3 groups:

- Group I: academic staff consisted of 22 clinical instructors, assistant lecturer and lecturer working at Alexandria University ,Faculty of nursing, , Medical surgical nursing department.

- Group II: all professional nurses affiliated to the medical and surgical nursing units at the Main University Hospital of Alexandria (n = 27 nurses).
- Group III: comprised of 400 of nursing students enrolled to medical surgical nursing courses, terms III and IV from year 2006-2010.

Tool:

One tool was used "The nursing process: Nurses Knowledge, utilization and barriers structured interview schedule". This tool was developed by the researchers based on the review of recent related literature. It included three parts as follows:

Part I included nurse's bio-socio-demographic data as: age, sex, and years of experience, in addition to the availability and utilization of nursing care plan.

Part II included Nurse's knowledge regarding nursing process. It included questions related to nursing process as its characteristics, phases, and importance.

Part III included barriers to utilization of nursing process in clinical settings. It identified applicability of nursing process, ability to use it, and obstacles encountered, and to what extent do perceived obstacles related to the nursing process.

Method:

The study was carried out as follows:

1. Permission to carry out the study was obtained from the responsible authorities of the chosen settings after explaining the aim of the study.
2. The tool was developed after reviewing of recent relevant literature, and tested for its content validity by 5 experts in the field of medical surgical nursing.
3. A pilot study was initially carried out on 3 clinical instructors, 3 senior staff nurses and 40 students to test the feasibility and applicability of the developed tool and to determine any obstacle that might be encountered during period of data collection. The necessary modifications were done. Data collected were excluded from the study.
4. The modified tool is introduced individually for gathering data, and each was completed in about thirty minutes.
5. **Ethical consideration:** Confidentiality and privacy were assured to all participants.

Statistical analysis:

Data collected were coded and transferred into a specially designed format to be suitable for computer feeding. Statistical analysis was then performed using State Package for Social Science SPSS version 12.

3. Results:

Table I shows frequency distribution of subjects' sociodemographic characteristics. It is noticed that the mean age of the academic staff group was 31.68±8.952; hospital staff group was 32.04±7.267 and nursing student group was 17.83±1.058. It also illustrates that all participated academic staff group and hospital staff group were females while 28.3 % of the nursing students was males. The mean years of experience of academic staff group were 9.82±7.048 and in hospital staff group it was 6.48±3.298.

As regards the mean times of utilizing nursing care plan by the academic staff group, hospital staff group and nursing students group were 16.91±4.689, 9.63±4.986 and 4.51±2.412 respectively with statistical significant difference among the 3 groups (P value was 0.000*). Statistical significant differences were found also among the 3 studied groups as regards their ages, sexes where P were 0.000* for each.

Table1: Frequency distribution of subjects' sociodemographic characteristics.

Sociodemographic characteristics	Group I (No= 22) Academic Staff		Group II (No= 27) Hospital Staff		Group III(No= 400) Nursing Students		Significance test
	Mean ± SD (range)		Mean ± SD (range)		Mean ± SD (range)		
Age (years)	31.68±8.952 (23-56)		32.04±7.267 (23-44)		17.83±1.058 (16-21)		F = 548.691 P = 0.000*
Experience (years)	9.82±7.048 (1-24)		6.48±3.298 (2-15)		-		-
Sex	No	%	No	%	No	%	
Male	0	0	0	0	113	28.3	χ^2 = 18.498 P = 0.000*
Female	22	100	27	100	287	71.8	
Total	**22**	**100**	**27**	**100**	**400**	**100**	
Times of utilizing nursing care plan	16.91±4.689 (5-25)		9.63±4.986 (5-20)		4.51±2.412 (1-10)		F = 241.339 P = 0.000*

F = ANOVA test χ^2 = Chi square test   *Significant difference at P level ≤ 0.05

Table 2 presents the knowledge of the included nurses about nursing process as a general. It can be observed that *knowledge about the nursing process* items including the characteristics, importance and stages were not fully answered by the studied subjects. There were statistical significant differences among studied nurses in both importance of the nursing process (χ^2 = 7.477, *P* = 0 .024) and phases of the nursing process (χ^2 = 7.477 *P* = 0 .024)

Table 2: Frequency distribution of nurses' knowledge related to nursing process.

	Nurses Knowledge	Group I Academic Staff		Group II Hospital Staff		Group III Nursing Students		Significance test
		No= 22	%	No= 27	%	No= 400	%	
1 - Nursing process knowledge	**Characteristics of the nursing process**							χ^2 = **5.985** *P* = **0.050.**
	Complete correct answer	0	0	0	0	0	0	
	Incomplete answer	13	59.1	7	25.9	187	46.8	
	Unknown	9	40.9	20	74.1	213	53.3	
	Importance of using the nursing process							χ^2 = **7.477** *P* = **0 .024***
	Complete correct answer	0	0	0	0	0	0	
	Incomplete answer	13	59.1	6	22.2	140	35.0	
	Unknown	9	40.9	21	77.8	260	65.0	
	Phases of the nursing process							χ^2 = **10.403** *P* = **0 .006***
	Complete correct answer	0	0	0	0	0	0	
	Incomplete answer	13	59.1	4	14.8	142	35.5	
	Unknown	9	40.9	23	85.2	258	64.5	

χ^2 = **Chi square test**   ***Significant difference at *P* level ≤ 0.05**

Table 3- A presents the knowledge of the included nurses *related to nursing diagnosis*. It revealed that definition, structure and process of nursing diagnosis were not fully answered by all included nurses. Statistical significant differences were evidenced regarding the definition of nursing diagnosis χ^2 = 6.317 *P* = 0.042, where structure of nursing diagnosis was χ^2 = 6.317 P = 0.042. While for process of nursing diagnosis it was χ^2 = 6.317 *P* = 0.042

Table 3-A: Frequency distribution of nurses' knowledge about nursing diagnoses

	Nurses Knowledge	Group I Academic Staff		Group II Hospital Staff		Group III Nursing Students		Significance test
		No= 22	%	No= 27	%	No= 400	%	
2 - Nursing diagnosis knowledge	**Definition of nursing diagnosis:**							χ^2 = **6.317** *P* = **0.042***
	Complete correct answer	0	0	0	0	0	0	
	Incomplete answer	13	59.1	7	25.9	142	35.5	
	Unknown	9	40.9	20	74.1	258	64.5	
	Structure of nursing diagnosis:							χ^2 = **6.317** *P* = **0.042***
	Complete correct answer	0	0	0	0	0	0	
	Incomplete answer	13	59.1	7	25.9	142	35.5	
	Unknown	9	40.9	20	74.1	258	64.5	
	Process of nursing diagnosis:							χ^2 = **6.317** *P* = **0.042***
	Complete correct answer	0	0	0	0	0	0	
	Incomplete answer	13	59.1	7	25.9	142	35.5	
	Unknown	9	40.9	20	74.1	258	64.5	
	Total	**22**	**100**	**27**	**100**	**400**	**100**	

χ^2 = **Chi square test**   ***Significant difference at *P* level ≤ 0.05**

Table 3- B presents the knowledge of the included nurses *related to nursing diagnosis*. It shows that components, characteristics and types of nursing diagnosis were not fully answered by all included nurses. It also revealed that the items of components, characteristics and types of nursing diagnosis were answered incompletely by 59.1% 44.4% and 31.0 % of the studied nurses respectively. Statistical significant differences were observed only for types of nursing diagnoses and χ^2 was equal 10.977 $P = 0.002$

Table 3- B: Frequency distribution of subjects' knowledge about nursing diagnoses (continued).

	Nurses Knowledge	Group I Academic Staff		Group II Hospital Staff		Group III Nursing Students		Significance test
		No= 22	%	No= 27	%	No= 400	%	
2- Nursing diagnosis knowledge. *Continued*	**Components of nursing diagnosis**							χ^2 = 5.386 $P = 0.068$
	Complete correct answer	0	0	0	0	0	0	
	Incomplete answer	13	59.1	12	44.4	124	31.0	
	Unknown	9	40.9	15	55.6	276	69.0	
	Characteristics of nursing diagnosis							χ^2 = 3.770 $P = 0.152$
	Complete correct answer	0	0	0	0	0	0	
	Incomplete answer	13	59.1	6	22.2	124	31.0	
	Unknown	9	40.9	21	77.8	276	69.0	
	Types of nursing diagnosis							χ^2 = 10.977 $P = 0.002*$
	Complete correct answer	0	0	0	0	0	0	
	Incomplete answer	13	59.1	6	22.2	170	%42.5	
	Unknown	9	40.9	21	77.8	230	%57.5	
	Total	**22**	**100**	**27**	**100**	**400**	**100**	

χ^2 = Chi square test   *Significant difference at P level ≤ 0.05

Table 4 illustrates frequency distribution of nurses ' knowledge about nursing planning, implementation and evaluation phases of nursing process. It presents that *steps of nursing planning*, requirements of implementation and steps of evaluation were not fully answered by the three study groups' members. Statistical significant differences were observed among the three studied groups regarding steps of planning χ^2 = 13.290 $P = 0.001$ and steps of implementation χ^2 = 10.539 $P = 0.005$

Table 4: Frequency distribution of nurses ' knowledge about nursing planning, implementation and evaluation phases of nursing process

	Nurses Knowledge	Group I Academic Staff		Group II Hospital Staff		Group III Nursing Students		Significance test
		No= 22	%	No= 27	%	No= 400	%	
3- Nursing Planning, implementation and Evaluation knowledge	**Steps of nursing planning**							χ^2 = 13.290 $P = 0.001*$
	Complete correct answer	**0**	**0**	**0**	**0**	**0**	**0**	
	Incomplete answer	**13**	**59.1**	**6**	**22.2**	**181**	**45.3**	
	Unknown	**9**	**40.9**	**21**	**77.8**	**219**	**54.8**	
	Steps of implementation							χ^2 = 10.539 $P = 0.005*$
	Complete correct answer	**0**	**0**	**0**	**0**	**0**	**0**	
	Incomplete answer	**13**	**59.1**	**8**	**29.6**	**181**	**45.3**	
	Unknown	**9**	**40.9**	**19**	**70.4**	**219**	**54.8**	
	Requirements of implementation							χ^2 = 3.487 $P = 0.175$
	Complete correct answer	**0**	**0**	**0**	**0**	**0**	**0**	
	Incomplete answer	**13**	**59.1**	**8**	**29.6**	**130**	**32.5**	
	Unknown	**9**	**40.9**	**19**	**70.4**	**270**	**67.5**	
	Steps of evaluation							χ^2 = 2.993 $P = 0.224$
	Complete correct answer	**0**	**0**	**0**	**0**	**0**	**0**	
	Incomplete answer	**13**	**59.1**	**8**	**29.6**	**124**	**31.0**	
	Unknown	**9**	**40.9**	**19**	**70.4**	**276**	**69.0**	
	Total	**22**	**100**	**27**	**100**	**400**	**100**	

χ^2 = Chi square test   *Significant difference at P level ≤ 0.05

Table 5 shows frequency distribution of barriers in the utilization of nursing process in clinical settings. It is evidenced that all academic staff and almost all staff and student nurses representing 100 %, 96.3% and 92.8 % respectively shows that the nursing process cannot be applied in practice. All the studied nurses agreed up all the reasons that identified as problems to applying the nursing process. Also all of them viewed nursing diagnoses as the most difficult step of nursing process. Statistical significant differences were observed among the three studied groups regarding reasons of inapplicability of the nursing process in clinical settings where *P* value = 0 .000*.

Table.5: Frequency distribution of barriers in the utilization of nursing process in clinical settings

Utilization Barriers	Group I Academic Staff		Group II Hospital Staff		Group III Nursing Students		Significance test
	No= 22	%	No= 27	%	No= 400	%	
Application of nursing process							FET = 1.224 *P* = 0.519
Yes	0	0	1	3.7	29	7.3	
No	22	100	26	96.3	371	92.8	
Extent to its Applicaability							FET = 1.715 *P* = 0. 784
Not applied	22	100	26	96.3	371	92.8	
As learned	0	0	1	3.7	26	6.5	
With modification	0	0	0	0	3	8.	
Reasons of its inapplicability							FET = 59.789 *P* = 0 .000*
No enough time	3	13.6	3	11.1	43	11.5	
Not accepted	19	89.4	23	85.2	328	88.5	
Problems of its application							-
Lack of skills	0	0	0	0	0	0	
Debate in its writing	0	0	0	0	0	0	
Not applied/practiced clinically	0	0	0	0	0	0	
All of the above	22	100	27	100	400	100	
Main obstacle/steps in nursing process							-
Assessment	0	0	0	0	0	0	
Nursing diagnosis	22	100	27	100	400	100	
Planning	0	0	0	0	0	0	
Implementation	0	0	0	0	0	0	
Evaluation	0	0	0	0	0	0	
Preference of its applicability							-
Yes	0	0	0	0	0	0	
No	22	100	27	100	400	100	
Total	22	100	27	100	400	100	

χ^2 = Chi square test   *Significant difference at *P* level ≤ 0.05

4. Discussion:

Many authors proved that the nursing process facilitates documentation of care and provides a unity of language for the nursing profession [7, 8, 9]. The results of the present study illustrates that the nursing process, as a term, is known but is not accepted by almost all studied nurses. Most of the details regarding a theoretical concept were not fully understood by the nurse students and hospital nurses.

In this context, it has been issued that the nursing process is perhaps one of the most challenging nursing theories for its application, and many students struggle with it [10]. The nursing process is considered as a method of problem solving and critical thinking while its formulation and implementation are written in different forms especially in nursing diagnosis.

The results illustrate that nursing diagnoses was considered one of the main barriers in formulating the nursing process and in its application. This finding is in line with Horrocks *et al.* (2002) and Quan (2007) who stated that the nursing process is used to help nurses make nursing care plans, carry them out and improve patient outcomes [11, 12]. Furthermore, the nursing process has achieved predominance, if not pre-eminence, in the Faculty of Nursing in Alexandria University.

Vigorous critiques of the nursing process have been observed from studied hospital nurses. They identified that the nursing process is inadequately taught or understood. This result however, is not in congruence with Yildirim (2011) who stated that the nursing process is generally viewed as a tool for planning and providing patient care [13].

However, when considering at the academic background of the nursing process, it was found that its teaching was theoretically carried out once throughout the four faculty years in two credits; that is to say, it is not given enough time to be learnt. But it is continually reinforced throughout practice.

Many nursing students attributed the reasons hindering effective application of the nursing process to practice, to the differences in ways of its teaching, and the emphasis on ways of writing related to assessment sheets and nursing care plans rather than its practical application to individual patient care.

The current results revealed that writing *nursing diagnosis*, in particular, was considered troublesome as viewed by many studied nurses' students, even with following NANDA guidelines. Many studied clinical and academic staff nurses view it as a sophisticated step carried out only for theoretical reasons. To put it into practice, it needs changing the system as a whole in terms of increasing numbers of professional nurses, introducing complete nursing assessment and nursing care plan formats and reinforce their uses in clinical settings.

The problem of nursing diagnosis worldwide is that very few people can understand the nursing term used in NANDA without rereading the diagnosis several times [14]. Doctors or other caregivers involved in the care of the patient are going to take time to understand the problems phrased by NANDA. The results of this study are in line with the international critique [15, 16].

As viewed by many of the studied nurses, the nursing process says nothing about the content of nursing intervention however; it is merely a sequence of steps passed through in order to achieve a desired end. Although, all academic staff in medical surgical nursing followed phases of nursing process in teaching strategies, not all professional nurses use the nursing process in health care settings.

The nursing process is synonymous within the discipline of nursing. It is an organized, systematic approach used by nurses to meet the individualized health care needs of their patients. The nursing process is considered as a way of critical thinking approach that could be utilized elsewhere. Henceforth, it needs modifications and continuing training to be applied and reflected on patients' outcomes. It is now a time for nursing education to be changed not only in theoretical aspect but also for clinical practice and reflect on service and patient care.

Conclusion:
In the light of the present study, it can be concluded that nursing process is basically the same as any rational thought process and its application in nursing is very beneficial. Its application in education and in clinical settings is challenging because of many reasons. It is time consuming, and it needs both intellectual and performance skills. Moreover, shortage of professional nursing staff and lack of support from hospital rules and regulations can be other reasons. The major barrier in the utilizing of nursing process among our participants is the formulation of nursing diagnosis.

Recommendations:
1. Simpler ways for applying the nursing process should be tried to achieve better outcomes.
2. Hospital nurses should be encouraged to use nursing process in patient care.
3. In-service education programs for nursing process should be done regularly
4. Nursing assessment and patient care plan formats should be available at all clinical fields.
5. Administrative support and enforcement in application of nursing process in clinical settings are required.

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