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Utilization of Conceptual and Theoretical Framework in Research by Nurse Educators in Akwa Ibom and Cross River States, Nigeria

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Abstract

Conducting research as basis to acquiring valid knowledge to promote professionalism in nursing requires use of conceptual framework (CF) to guide such studies. This study examined Nurse Educators? (NE) utilization of CF in research during and after training in Akwa Ibom and Cross River States, Nigeria. A descriptive cross-sectional survey was used to study a convenient sample of 84 subjects representing 36

Index terms— conceptual-framework; education; knowledge; nurse-educators; nursing; professionalism; research; training; theoretical-framework; utilization.

1 I. Introduction

dvancing the clinical research enterprise remains an integral part of nursing activities to promote quality nursing practice. However, nursing research may not achieve its full purposes without appropriate utilization of conceptual or theoretical framework as a tool to guide the research process. According to Smyth (2004), a conceptual or theoretical framework is described as a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. It is assumed to be a starting point for conceptualizing ideas in the research.

Akpabio and Ebong (2010) enumerated the advantages of using conceptual framework in a study to include the provision of a focus to direct the study, improving the researcher's ability with explanation of the relationship between variables of interest when communicating research findings and provision of expanded scope for application of research findings in practice. When properly articulated, a conceptual framework has potential usefulness as a tool to assist a researcher to develop awareness and understanding of the situation under study, make meaning of subsequent findings and thereafter communicate the findings effectively to guide implementation.

The usefulness of conceptual framework is further highlighted by Smyth (2004) who emphasized that conceptual framework is increasingly needed to enrich, strengthen and keep research on track by providing clear links from the literature to the research goals and questions. Furthermore, he enumerated other usefulness to include guiding the research design, providing reference points for discussion of literature, analysis of part of the data and contributing to the trustworthiness of the study.

In recent years, many scientists have further emphasized the need for application of conceptual framework in research. **??**aiser (2004) noted that research without theory results in discreet information or data, which does not add to the accumulated knowledge of the discipline. In her assertion, theory guides the research process, forms the research questions, aids in design, analysis and interpretation of findings. It enables the scientist to weave the facts together providing positive and direct relationships between variables under study. George (2009) further noted that conceptual framework could allow researchers to build upon one another's work thereby building a body of knowledge. In her submission, pragmatic, conceptually-based research helps accumulate deeper understanding overtime, thus moving a discipline such as nursing forward. Commenting also on conceptual framework and theories, George (2009) identified them as the skeleton on which to build nursing research. In her submission, it is from the framework that principles, assumptions and ideas are taken to frame the study.

Thus, as important as the use of conceptual framework is in research, and although nursing research has received a major impetus to include a conceptual basis for study in recent years, there is dearth of literature reporting results of investigation of nurses' knowledge or awareness of existing theories or models A and actual framework utilization in research work. Similarly, as important as it is to have good knowledge of conceptual framework and to utilize same for the conduct of research, it is often observed that many nursing research reports presented by nurse educators do not reflect any evidence of being guided by any theoretical or conceptual framework.

Additionally, in recent years, the Nursing and Midwifery Council of many nations including Nigeria have made it mandatory for nursing students to utilize conceptual framework in research submitted to the Council in partial fulfillment for their training. In many instances, the student's research projects are observed to reflect poor application of conceptual framework. To be successful, the students need good guidance by nurse educators who themselves should have good knowledge of conceptual framework and the ability to apply same in their research work. In many instances also, the nurses haphazardly apply conceptual framework during their training but fail to do so during studies conducted after their training.

This study therefore investigated nurse educator's knowledge and level of utilization of conceptual framework in research in two states in Nigeria, which included Akwa Ibom and Cross River States. Specific objectives were to:

2 Hypotheses:

Two null hypotheses were also formulated for the study as follows: 1. The proportion of nurse educators who utilized conceptual framework in research during training will not be significantly higher than those who used framework after training. 2. The level of conceptual framework application in research will not be significantly different in the subsections of the research, which include introduction, literature review, methodology and discussion of findings/ recommendations.

3 II. Literature Review

A close study of research reports in learned Journals globally shows none or part application of conceptual framework in nursing research. Utilization of conceptual and theoretical framework should be expected to apply to all sub-sections of a study. In George's (2009) assertion, utilization of conceptual framework in nursing research should imply actual implementation during research conceptualization stage, during the literature review, in the methodology section, in the discussion section and recommendations arising from the study. These would similarly reflect in the study reports.

When done this way, the framework could adequately assist in identifying meaningful and relevant variables for the study, enhance selection of plausible approaches for the research endeavour, and enhance the development and refinement of the problem area as well as predicting of relationships between the variables under study. Similarly, it could enhance clear and accurate interpretation of research findings and appropriate development of clinical practice protocols. This is necessary because translating research findings to practice is often a challenge due to barriers including poor or none explanation of the relationship between the variables in the study during project design and presentation of research reports to guide practice.

Additionally, where nurse researchers apply conceptual framework to studies, the framework chosen are not usually relevant since the problem being investigated does not fit into the framework. Where there is relevance, the relationships among variables are not properly defined or explained to guide practice often due to poor knowledge of the theoretical or conceptual framework.

Recounting the challenges that could account for the limitation in application of conceptual framework in research, Akpabio and Ebong (2010) enumerated factors including limited knowledge in understanding concepts within the models, lack of skills in explaining relationship among variables based on the framework and inability to identify, understand and formulate assumptions from the model and relate them to the research variables.

It is important to acknowledge the fact that conceptual and theoretical frameworks are abstractions that could be difficult to understand. Reviewing the enumerated challenges that could limit application of conceptual framework in research as documented by Akpabio and Ebong (2010), nurse educators need to have not only a good knowledge of existing theories and models but also a good understanding of concepts within the models, criteria for selecting the theories or models and also possess needed skills in explaining relationships among variables based on the framework. They also need to have the ability to identify and relate assumptions within the study to the research variables all through the sub-sections of the research. These expectations are vital since it could be observed that theories or concepts within each framework represent assumptions and philosophical views of the models' designers.

Nurse researchers could use either nursing or none-nursing frameworks or at times both to provide a conceptual context for studies. Although each framework focuses on the concepts about person, environment, health and illness as well as nursing, each model however defines the concepts differently, links them in diverse ways and gives different process as being central to nursing (Berman, Snyder, Kozier et al, 2008). These reasons provide the need for nurse researchers to possess adequate knowledge of the various theoretical and conceptual frameworks, which could be a good fit for their studies.

Furthermore, a specific research endeavour can focus on one or a few aspects of a conceptual framework (Fawcett, 2002). The use of a specific model according to her could determine the kind of information that should be gathered and the way the information should be organized and interpreted.

On the other hand, a conceptual framework should not be seen as possessing all the concepts or ideas to predict the relationships between variables in a study. This is so since a framework is a construction of knowledge bounded by the life experiences of the individual that developed it.

Furthermore, Miles and Huberman (2004) opined that a researcher should not be expected to analyze all the data in a study using the framework but should remain open to new or unexpected occurrences in the data and the investigation generally since doing otherwise could limit the results from the investigation and render the study less useful.

Considering aforementioned reasons and to expand the scope of predicting relationships among variables in studies, advanced researches usually combine two or more conceptual models or theories to guide a research paying particular attention to remove some of the concepts that are not relevant to explain relationships in the particular study of interest.

The requirement therefore is that nurse researchers should by very skilled in identifying, selecting and applying needed concepts to avoid limiting the scope of investigation or making the study clumsy and meaningless through unnecessary inclusion of concepts that are not relevant for the particular study. All of these require good knowledge that is relevant for utilizing theories and conceptual models for studies.

Commenting on steps in applying conceptual framework in the various sub-sections of the research, George (2009) asserted that at the introductory section of the research, it should be necessary to introduce the framework as a good fit for the research problem.

Secondly, at the end of the literature review, it is necessary to thoroughly describe the framework, explain its application to the study, and how the framework has been used in studies about similar problems.

Thirdly, in the methodology section, it is necessary to explain how the framework is being used in the design and how data collection methods such as questionnaire items reflect the concepts in the framework. Fourthly, the framework should be used in the discussion section to describe how study findings are consistent or inconsistent with the framework. Finally, suggestions for practice and further research should be offered in such a way that they are congruent with the frameworks' concepts and propositions.

Nurse educators as role models and change agents are strategically placed to facilitate staff development and organizational change affecting nursing practice through research. According to National League for Nursing Board of Governors (2002), nurse educators are the key resource in preparing a nursing workforce that will provide quality care to meet the health care needs of the population. Additionally, the National League for Nursing Board of Governors (2012) emphasized that regardless of the setting in which the nurse educators are employed, there is a core knowledge and skills that are essential if one is to be effective and achieve excellence in the role. That core knowledge and skills in their assertion entail the ability to conduct research, facilitate learning, advance the total development and professional socialization of the learner, design appropriate learning experiences and evaluate learning outcomes.

In summarizing the need for conceptual framework in research, it could be stated that when the problem being investigated fits into an existing framework, it can guide the study appropriately, the conceptual definitions and problem refinement can be drawn from the framework, the data collection instrument would be congruent with the framework, findings would be interpreted based on explanations provided by the framework thus enriching the values of its findings. Similarly, the implications of the findings and practical implementation of research findings would be based on the explanatory power of the framework thereby making research utilization in actual nursing practice easily acceptable and much easier.

4 III. Materials and Methods

The study involved a descriptive cross-sectional survey approach to determine nurse educators' knowledge and utilization of conceptual framework in research; during and after their training. The study settings were two states namely Akwa Ibom and Cross River States in the South-South Geo-Political Zone of Nigeria. Written ethical approval was obtained from the Ministries of Health in the two states as well as the Year 2 015 principals of the selected schools while informed consents were obtained from the nurse educators who participated in the study. The distributions of schools were eight Schools of Nursing, seven Schools of Midwifery and two Schools of Psychiatric Nursing making a total of seventeen (17) schools in the two states. From the nominal roll of each school, the total population of nurse educators in the two States was 231.

Simple random sampling method of balloting was used to select ten schools from the seventeen schools. From the ten selected schools, a convenience sampling technique was used to select one hundred (100) subjects representing 43% of the target population. The instrument for data collection was a 32item questionnaire developed by the researchers and arranged in four sections.

Section A required respondents to supply their bio-data, section B was concerned with knowledge of theoretical and conceptual framework and criteria for selection; section C was to provide data on the proportion of nurse educators who had ever used conceptual framework in research while section D dealt with levels of conceptual framework application in the various sub-sections of research. The instrument was validated with test-retest reliability estimates of 0.82 for section A and 0.86 for sections B, C, and D.

The data were collected by the authors assisted by two trained research assistants. From a total of 100 questionnaires administered, 84 were sufficiently completed and used for data analysis giving a return rate of 84%.

5 IV. Data Analysis

The socio-demographic data and the frequency counts on the various categories of aspects of use of framework in research were converted to percentages and to show whether the proportion of respondents who utilized conceptual framework in research during training was significantly higher than those who used framework after training, the normal Z-test for proportions was used. Additionally, a two-way ANOVA and Fishers' modified t-test statistics were used to test whether the level of conceptual framework application in research was significantly different in the subsections of the research. All two hypotheses were tested at .05 level of significance.

The data on the level of conceptual framework application were recorded as the sum of the level of application items for each of the chapters. Thus, there was an aggregate score for introductory part of research, literature review, research method and discussion of findings. These scores were considered continuous such that a high score means high level of application and low score means low level of application. The frequency counts on the various categories of aspects of use of conceptual framework in research were converted to percentages.

6 V. Results

Results of the socio-demographic characteristics of the study subjects are presented in Table 1. From Table 1, 67 (79.8%) of the respondents were females while 17 (20.2%) were males. In terms of age, 5 (6.0%) were in the age bracket of 21-30 years, 12 (14.2%) were aged 31-40 years, 49 (58.4%) were aged 41-50 years; 15 (17.8%) were aged 51-60 years while only 3 (3.6%) were in the range of 61 years and above.

In terms of professional rank, the highest numbers were represented by Chief Nursing Officers (CNO) who were 38 (45.2%) followed by Deputy Directors who were 20 (31.0%). Regarding professional qualifications, 49 (58.3%) of them had B.Sc. in various fields including nursing, 5 (6.0%) were holders of masters degrees in various fields including nursing. Majority, 56 (66.7%) had between 21 and 35 years experience in nursing/nurse educators' job. With the frequency distribution on knowledge of theoretical and conceptual framework, the results are presented in Tables 2 and 3. On knowledge of the theoretical framework, Table 2 shows that 13 (15.5%) of nurse educators did not have knowledge to list any, and only 39 (46.4%) were able to list five.

On knowledge of conceptual framework presented in Table 3, 30 (35.7%) of the respondents could not list any and only 13 (15.5%) were able to list five conceptual framework. The result on knowledge of criteria for selecting framework is presented in Table 4. From Table 4, 29 (34.5%) of the respondents were not able to list any criterion for selecting framework, 13 (15.5%) listed three criteria and 29 (34.5%) identified four criteria.

The results of the analysis on research conducted during and after the respondents' training are presented in Table 5. From Table 6, 19 (22.6%) of the respondents did not use any framework in research during their training, 21 (25%) used a conceptual framework only once, 28 (33.3%) applied a framework twice while only five (6%) applied theoretical or conceptual framework four times. On the other hand, as many as 55 (65.4%) did not apply any framework in their studies after training, 11 (13.1%) did so only once and 4 (4.8%) applied framework five times and above. a) Results from hypotheses Ho1: The proportion of nurse educators who utilize conceptual framework in research during training will not be significantly higher than those who did so after training. To compare the proportion of respondents who use framework during and after training, the normal Ztest for proportions was applied.

From the result, the proportion of respondents who used framework during training was 77.4% while that after training was 34.6%. Z = 5.61 i.e. the computed Z-value was 5.61. Since the calculated Z-value (5.61) was greater than the critical Z-value ($\pm$1.654) at .05 level of significance, the null hypothesis was rejected. This means that the proportion of nurse educators who use framework during training is significantly higher than those who use a framework after training. Ho2: The level of conceptual framework application in research will not be significantly different in the subsections of the research.

To test this hypothesis, a two-way ANOVA for repeated treatment design was carried out with persons and sections of the research as factors. The repeated treatment design allowed for the removal of the differential effect of individuals' differences, which could swell the error term in the ANOVA model and make significant results appear not significant. The descriptive statistics (Mean and standard deviations) by sections of the research are given in Table 7. From table 7, mean level of application of framework was highest in Literature review (7.29) followed by discussion section (5.10) and the least level of application was in the methodology section (3.62). The observed differences were tested for overall significance using a two-ANOVA for repeated measures design. The results were similarly given in Table 8. For both persons and sections of research, the P-values associated with the computed F-values were less than the chosen level of significance, given their respective degrees of freedom (83, 249 and 3,249). As a result, the null hypothesis of no significant overall differences due to both persons and sections of research was rejected. This means that there are significant main differences in level of application of framework due to both persons and sections of the research.

The main focus of this study was on differences due to sub-sections of the research. Further analysis was carried out in this direction. Multiple comparisons were done using Fisher's modified t-test recommended by Edwards

(1972). The results are presented in Table 8. From Table 8, all the paired differences were significant since all the computed t-values were greater than the critical t-values of ±1.96. Comparing introduction with literature review, t-value is 9.14. Comparing introduction with methodology, t-value is 2.08, comparing introduction with discussion, t-value is 2.45, comparing literature review with methodology, tvalue is 11.23, comparing literature review with discussion, t-value is 6.70, comparing methodology with discussion, t-value is 4.53.

7 VI. Discussion

The study showed that as many as 30 (35.7%) and 13 (15.5%) of the respondents could not list any of the theoretical and conceptual framework respectively. Furthermore, 34.5% of the respondents had no knowledge of any criteria for selecting conceptual framework for research while 7.1% could only identify one criterion. These results are very worrisome.

Although there is dearth of literature reporting results of investigation of nurses' knowledge of existing theories and models, and actual utilization of conceptual framework in research, Akpabio and Ebong (2010) enumerated challenges associated with non-utilization of framework to include limited knowledge of existing theories and models as well as limited knowledge in understanding concepts within the model. The authors also acknowledged the fact that theoretical and conceptual frameworks are abstractions that could be difficult to understand.

However, due to the numerous benefits that can accrue through application of conceptual framework in research, it is very important that nurse educators who train others and who themselves should be knowledgeable concerning theoretical and conceptual framework application in research posses adequate knowledge not only of the theories and models but how to apply them in research. This argument is in line with the submission of the National League for Nursing Board of Governors (2012) who emphasized that regardless of the settings in which the nurse educators are employed, there is a core knowledge that is essential if they are to be effective and achieve excellence in the role. They identified the core knowledge to entail the ability to conduct research and facilitate learning.

The proportion of nurse educators who did not conduct research during training was 14.3% while those who did not do so after training stood at 63.1%. Whereas 22.6% of the respondents did not use framework for research during their training, as many as 66.7% did not do so after their training.

These findings could imply that nurse educators use conceptual or theoretical framework because it is an institutional requirement during training and they fail to use framework in research after training probably because its use is no longer demanded. This argument corroborates Akpabio and Ebong's (2010) assertion that lack of institutional requirement for use of conceptual framework can be a factor against its utilization.

Further results also showed that the level of conceptual framework application in research was significantly different in the various sub-sections of the research. From the results, the highest difference was between methodology with a mean level of application as 3.62 and literature review with a mean level of application as 7.29, while the least difference was between introduction section with 4.30 and methodology section of research with 3.62. Furthermore, the mean level of utilization of conceptual framework at the discussion section was 5.1. These findings does not correspond to the submission by George (2009) George's (2009) assertion therefore implies that it is necessary to utilize conceptual or theoretical framework in all sections of the research work. Aforementioned facts are vital since a conceptual framework is meant to keep research on tract, providing clear links from the literature to the research goals and questions, guide the research designs, provide reference points for discussion and contribute to the trustworthiness of the study. Thus, when used this way, conceptual or theoretical framework can enable the researcher to weave the facts together, providing positive and direct relationships between variables under study.

8 VII. Conclusion

Based on the study findings, it is concluded that may nurse educators in the study areas do not have adequate knowledge of theories and models for application as conceptual framework as well as the criteria for selecting them for use in their research. Similarly, many who use theoretical or conceptual framework during training do not do so after training. Furthermore, the few who utilize framework to guide their research do not use the framework to guide the various sub-sections of the study but only make reference to conceptual or theoretical framework at the literature review followed slightly to reference of the framework in the discussion section.

9 VIII. Recommendations

It is therefore recommended as follows:

? Continuing education programmes, workshops and seminars should be used to improve nurse educators' level of knowledge of theories and models for application in research as well as the criteria for selecting them for application research. ? Nursing Journals where research reports are published should demand as a requirement the inclusion of conceptual or theoretical framework that guided the research in papers for publication. These recommendations are likely to improve nurse educators' knowledge and utilization of conceptual and theoretical framework in research.

Figure 1:

1

Variable	Category	N	Percentage
Gender	Male	17	20.2
	Female	67	79.8
	Total	84	100
Age	21 -30	5	6.0
	31 -40	12	14.2
	41 -50	49	58.4
	51 -60	15	17.8
	61 and above	3	3.6
	Total	84	100
Professional	Nursing Officer I	1	1.2
Rank	Nursing Officer II	10	11.9
	Senior Nursing Officer	2	2.4
	Principal Nursing Officer	6	7.1
	Asst. Chief Nursing	1	1.2
	Officer	38	45.2
	Chief Nursing Officer	20	31.0
	Deputy Director (NS)	84	100
	Total		
Professional	RN/RM	17	20
Qualification	RNT with Diploma	13	16
	B.Sc./B.N.Sc./PGDE	49	58
	M.Sc.	5	58
	Total	84	100
Years of	1 -10	14	17
Experience	11 -20	14	17
	21 -30	39	46
	31 -35	17	20
	Total	84	

Figure 2: Table 1 :

2

Numbers of theoretical framework	Frequency	%	Cum %
Nil	13	15.5	15.5
1	5	6.0	21.4
2	4	4.8	26.2
3	9	10.7	36.9
4	14	16.7	53.6
5	39	46.4	100.0
Total	84	100.0	

Figure 3: Table 2 :

3

Number of conceptual framework	Frequency	%	Cum %
Nil	30	35.7	35.7
1	10	11.9	47.6
2	8	9.5	57.1
3	14	16.7	73.8
4	9	10.7	84.5
5	13	15.5	100.0
Total	84	100.0	

Figure 4: Table 3 :

4

Knowledge of criteria	Frequency	%	Cum %
Nil	29	34.5	34.5
1	6	7.1	41.7
2	7	8.3	56.0
3	13	15.5	65.5
4	29	34.5	100.0
Total	84	100	

Figure 5: Table 4 :

5

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Number of research conducted	During training	Cum %	After training	Cum %
1	21 (25.0%)	25	14 ((16.7%)	16.7
2	28 (33.3%)	58.3	7 (8.3%)	24.6
3	11 (13.1%)	71.4	3 (3.6%)	28.2
4	5 (6.0%)	77.4	2 (2.4%)	30.6
5 and above	7 (8.3%)	85.7	5 (6%)	36.6
Nil	12 (14.3%)	100	53 (63.1%)	100
Total	84 (100%)		84 (100%)	

Figure 6: Table 5 :

6

Application of framework	During Training	Cum %	After Training	Cum %
1	21 (25.0%)	25	11 ((13.1%)	13.1
2	28 (33.3%)	58.3	9 (10.7%)	23.8
3	11 (13.1%)	71.4	3 (3.6%)	27.4
4	5 (6.0%)	77.4	2 (2.4%)	29.8
5 and above	Nil	-	4 (4.8%)	34.6
Nil	19 (22.6%)	100	55 (65.4%)	100
Total	84 (100%)		84 (100%)	

Figure 7: Table 6 :

7

Section of Research	N	Mean	Standard deviation		
			1.297		
Introduction	84	4.30	1.949		
Literature review	84	7.29	1.017		
Methodology	84	3.62	1.510		
Discussion of findings	84	5.10			
Source of variation	Sum of squares	df	Mean square	F	P
Persons	1830.112	83	22.050	4.898*	0.003
Section of research	4026.780	3	1342.260	298.147*	0.000
Error	1121.092	249	4.502	-	-
Total	6977.984	335	-	-	-

Significant at 0.05 level, P $<$ 0.05

Figure 8: Table 7 :

8

Section	Introduction	Literature review	Methodology	Discussion
	Mean = 4.30	Mean = 7.29	Mean = 3.62	Mean = 5.10
Introduction (4.30)	-	2.99	0.68	0.80
Lit. review (7.29)	9.144	-	3.67	2.19
Methodology (3.62)	2.080	11.223	-	1.48
Discussion (5.10)	2.446	6.697	4.526	-

* Significant at 0.05 level. df = 166, Critical t = $\pm$1.96

** Values above diagonal are mean difference, and values below diagonal are computed t-vales.

Figure 9: Table 8 :

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