

Nurses Participation in Integrated Management of Chronically ill Patients: Effects of Demographic Variables.

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Abstract: Nurses play prominent role in the healthcare system through advanced care of patients with chronic illness. This study examined the impact of demographic variables on nurses participation in integrated care of chronically ill patients. Purposive sampling technique was used to select 240 nurses working in secondary and tertiary health institutions in Anambra State of Nigeria. Two research questions and three null hypotheses guided the study. The instrument used for data collection was *Questionnaire on Nursing Interventions in Integrated Management of Chronically ill Patients*. Standard descriptive statistics was used to summarize the variables. Percentages were used to answer the research questions, while chi-square, Mann-Whitney-U and Wilcoxon tests were used in testing the null hypotheses at 0.01 level of significance. Findings from the study indicated that very often, nurses set up register for the chronically ill patients, hospital admissions constituted the major service use measures for the clients, and years of working experience and professional qualification significantly influenced nurses participation in integrated care of chronically ill patients. Also sex of the nurse professionals was found to have significant influence on the self-management support given to the clients.

Keywords: Chronic illness, Demographic variables, Integrated care, Nurses participation.

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I. Introduction

A chronic illness is one that lasts for an extended period, usually six months or longer, and often throughout the persons life (Kozier, Erb, Berman and Snyder, 2004). Chronic illnesses usually have slow onset and periods of remission when the symptoms disappear, and exacerbation when the symptoms reappear (Kozier et al. 2004). WHO (2002) defined Chronic conditions as requiring ongoing management over a period of years or decades. Chronic conditions cover a wide range of health problems such as heart disease, diabetes, lung disease eg asthma, HIV/AIDS, mental disorders (such as Depression and Schizophrenia), disabilities and impairments such as musculoskeletal disorders and cancer (WHO, 2002; Nolte and Mckee, 2008; Coleman et al 2008). Studies have revealed that chronic conditions frequently go untreated or are poorly controlled until more serious and acute complications arise (McGlynn et al. 2003). Advances in healthcare that keep people alive while controlling, although not curing their conditions have led to growing numbers of people surviving with chronic illnesses (TNS Opinion and Social, 2007). The Common theme is that people with chronic illness require a complex response over an extended time period that involves co-ordinated inputs from a wide range of health professionals, and access to essential medicines and monitoring systems, all of which need to be optimally embedded within a system that promotes patient empowerment (Conrad and Shortell, 1996; Unwin et al. 2004; Nolte and Mckee, 2008).

According to Plochg and Klazinga (2002), the increasing prevalence of chronic illness is posing considerable challenges to health systems. Patients may receive care from many different providers, often in different settings or institutions, even when they have only a single disease such as diabetes. They are frequently called upon to monitor, coordinate or carryout their own treatment plan while receiving limited guidance on how to do so. Plochg and Klazinga (2002) pointed out that there is pressing need to bridge the boundaries between professionals, providers and institutions through development of more integrated or coordinated approaches to service delivery so as to provide better support for the patients. Integrated care connotes a range of approaches that are deployed to increase coordination, cooperation, continuity, collaboration and networking across the different components of health care delivery (Simeons and Scott, 1999) involving patient and family (Blackie, 1998). Professional integration include joint working, group practices, contracting or strategic alliances of health care professionals within and between institutions and organizations (Shortel et al. 1994; Simeons and Scott 1999; Delnoij et al. 2002).

Chronic illness confronts patients with a spectrum of needs that requires them to alter their behavior and engage in activities that promote physical and psychological well-being to interact with healthcare providers

and adhere to treatment regimen, monitor their health status and make associated care decisions, and to manage the impact of the illness on physical, psychological and social functioning (Clark, 2003). Bayliss et al. (2003) noted that the increasing responsibility taken by patients for self-management can create particular challenges for those with multiple conditions as they may experience aggravation of one condition by treatment of another, for example, a patient with chronic respiratory disease may struggle to adhere to exercise programmes designed for his/her diabetes. Grumbach (2003) observed that the goals of chronic care are not to cure but to enhance functional status, minimize distressing symptoms, prolong life through secondary prevention, and enhance quality of life. According to Nolte and Mckee (2008), it is clear that these goals are unlikely to be accomplished by means of traditional approach to health care that focuses on individual diseases and based on a relationship between an individual patient and a physician; but it is clear that what is needed is a model of care that takes a patient-centred approach by working in partnership with the patient and other healthcare personnel to optimize health outcomes. Crumbie (2005) stated that the advantage of integrated team work is that the patient is treated more holistically and is more likely to be able to see the value of the services provided.

Wagner et al. (2001) developed the influential chronic care model (CCM) aimed to provide a comprehensive framework for the organization of healthcare to improve outcomes for people with chronic conditions, which was based on the premise that high-quality chronic care is characterized by productive interactions between the practice team and patient, involving assessment, self-management support and optimization of their therapy and follow-up. Eventhough not exhaustive, inclusive in these health professionals that make up the practice team are physicians, nurses, pharmacists, physiotherapists, radiographers, laboratory scientists, record officers, social workers, psychologists, and ancillary staff. Nolte and Mckee (2008) opined that effective responses will require initiatives at all levels to ensure that the right resources can be assembled in the right place at the right time while establishing support and initiatives for everyone to work together to achieve this shared aim. Nolte and Mckee (2008) further added that there is also considerable scope for shared learning from each others successes and failures. It is against this background that this study examined the impact of demographic variables on nurses participation in integrated care of chronically ill patients.

Research Questions

- To what extent do the nurse members of integrated care team set up registers for the patients with chronic illness?
- What service use measures do nurses provide for clients in integrated management of chronically ill patients?

Hypotheses.

- Years of working experience of nurses do not significantly influence nurses input in integrated care of the chronically ill patients
- Nurses professional qualifications have no significant influence on their input in integrated management of the chronically ill patients.
- Sex of the nurse practitioner has no significant influence on the self-management support the chronically ill patient receive from the nurse in the integrated management team.

II. Materials And Methods

Design and Sampling.

The study was a cross-sectional research design. Purposive sample of 240 nurses working in two levels of Health care institutions (five General Hospitals and two Teaching Hospitals) in Anambra State of Nigeria were used for the study. Ethical approval was obtained for the study, and informed consent was obtained from the respondents.

Inclusion criteria for the study were all registered nurses with different areas of specialty attending to chronically ill patients in any of the selected health institutions. Exclusion criteria were nurses who have never attended to chronically ill patients and those who indicated not to participate in the study.

Instrument.

Questionnaire on Nursing Interventions in Integrated Management of Chronically ill Patients (QNIIMCIP) was used to obtain data from the respondents. QNIIMCIP was developed by the researcher based on the framework on chronic care model by Wagner et al. (2001). Section A of the instrument elicited information on the demographic characteristics of the respondents (eg.. professional qualifications, sex, years of working experience, setting/unit, and collaboration team). Section B of the questionnaire elicited information on patient-reported demographics and chronic conditions (eg. Age, sex, medical diagnoses, duration of illness, self-management measures, etc), while section C of the instrument elicited information on nursing interventions in integrated care of chronically ill patients (eg interactions between the nurses and patients, health assessment of

the patients, self-management supports, interactions with the practice team, etc). The responses to section C of the instrument were scored on a 4- point scale ranging from 1 point for less/rarely often, 2 points for fairly often, 3 points for moderately often, and 4 points for very often.

The instrument (QNIIMCIP) was tested for reliability. 20 nurses working in a health institution in another zone of Nigeria were used. Internal consistency reliability coefficient was calculated using Cronbach alpha for the entire scales, and a reliability coefficient of 0.70 was obtained.

III. Data Analysis

Standard descriptive statistics of mean, frequency and standards deviation were used to summarize the variables. Percentages were used to answer the research questions; Mann Whitney U, Wilcoxon and Chi-square statistics were used to test the null hypotheses at 0.01 level of significance. SPSS version 21 was used in the data analysis.

IV. Result

TABLE 1. Descriptive statistics of the measured variables

Variables	N	Minimum	Maximum	Mean	SD
Age of patients	240	3.00	84.00	47.4	16.06701
Interaction between Nurses and Patients.	240	1.00	4.00	3.1368	0.56260
Health Assessment of Patients	240	1.00	4.00	3.0250	0.61769
Self-management support	240	1.00	4.00	3.1017	0.57056
Optimization of client Therapy	240	1.00	4.00	2.9806	0.51649
Interaction Between Practice Team	240	1.00	4.00	2.7212	0.59982
Follow-up care of Patient	240	1.00	4.00	2.1556	0.68311
Evaluating Programme of care/Nursing Audit	240	1.00	4.00	2.9033	0.84941
Valid N (Listwise)	240				

Table 1 shows the descriptive statistics of the measured variables. Out of the 240 chronically ill patients, the least age was 3 years, maximum age 84 years, mean age 47.4 with standard deviation (SD) of 16.06701. The mean for interaction between nurses and patients was 3.1368 with SD 0.56260; for health assessment of the patients, the mean was 3.0250 with SD of 0.61769. Self-management support had a mean of 3.1017 with SD of 0.57056; optimization of client therapy had a mean of 2.9806 with SD of 0.51649. For interaction between the practice team, the mean was 2.7212 with SD of 0.59982. Follow-up care of patients had mean of 2.1556 with SD of 0.68311, while evaluating programme of care/nursing audit had mean of 2.9033 with SD of 0.84941. Total number of each variable was 240.

TABLE 2: General characteristics of the nurses and the chronically ill patients

	Frequency	Percent
Nurses		
Professional Qualification:		
Single	81	33.75
Multiple	159	66.25
Total	240	100.0
Sex:		
Male	51	21.25
Female	189	78.75
Total	240	100
Years of working:		
2-5 years	98	40.8
6-10 years	59	24.6
Above 10 years	83	34.6
Total	240	100.0
Setting/Health Institution:		
Tertiary	143	59.6
Secondary	97	40.4
Total	240	100.00
Unit:		
Medical Unit	156	65.0
Surgical Unit	43	17.9
OPD/Emergency Unit	30	12.5
ICU	9	3.8
Others	2	0.8

Total	240	100.00
Patients/clients		
Sex of Patients:		
Male	113	47.1
Female	127	52.9
Total	240	100.0
Diagnoses:		
Diabetes	58	24.2
Hypertension	48	20.0
Mental illness (Schizophrenia, psychosis)	6	2.5
Hereditary disorder (sickle cell Disease, Asthma, epilepsy)	45	18.8
Peptic ulcer	22	9.2
Cancer	21	8.8
Heart disease	14	5.8
Arthritis	7	2.9
Stroke	13	5.4
Infections (eg PTB, HIV)		
Burns	2	0.8
Liver cirrhosis	1	0.4
Missing system	1	0.4
Total	2	0.8
Total	240	100.0
Duration of illness:		
1-5years	142	59.2
6-10 years	53	22.0
Above 10 years	45	18.8
Total	240	100.0
Self-management measures by patients:		
Self-care	7	2.9
Multiple measures (include Health care provider, family support, peer assistance, etc)	232	96.7
Missing system	1	0.4
Total	240	100.0

Table 2 shows the general characteristics of the nurses and the chronically ill patients. For professional qualification of the nurses, holders of single qualification constituted 33.75% while holders of multiple qualifications were 66.25%. Male nurses were 21.25% while the females were 78.75%. 40.8% of the nurses had 2-5 years working experience, 24.6% had 6-10 years, while those with more than 10 years experience constituted 34.6%. Tertiary health institution constituted 59.6% while secondary level was 40.4%. 65% of the nurses were working in medical unit, 17.9% in surgical unit, 12.5% in OPD/Emergency unit, 3.8% in ICU and 0.8% in other units of the health institutions. For the clients/patients with chronic illnesses, table 2 shows that 47.1% were males and 52.9 were females; for medical diagnoses of the patients, 24.2% had diabetes mellitus, 20.0% had hypertension, while 2.5% had mental illness. 18.8% had hereditary disorders (like sickle cell disease, asthma and epilepsy), 9.2% had peptic ulcer, 8.8% had cancer, 5.8% had heart disease, 2.9% had arthritis, while 5.4% had stroke. 0.8% of the patients had infections (HIV and pulmonary tuberculosis) while 0.4% had burns and liver cirrhosis respectively. For duration of the clients' illnesses, 59.2% had their illnesses for a period of 1-5 years, 22% for 6-10 years while 18.8% for more than 10 years. For the self-management measures adopted by the clients, 2.9% adopted self-care while 96.7% included health care providers, family support and peer assistance in their self-management measures.

TABLE 3. Health Professionals in collaboration with nurses in the Integrated Management of Chronically ill Patients

Collaborative Team	Involvement	Frequency	Percent
Medical Doctor	Yes	240	100
Laboratory Scientist	Yes	214	89.2
	No	26	10.8
Physiotherapists	Yes	132	55.0
	No	108	45.0
Dieticians	Yes	181	75.4
	No	59	24.6
Radiographers	Yes	122	50.8
	No	118	49.2
Social Worker	Yes	98	40.8
	No	142	59.2
Psychologist	Yes	90	37.5
	No	150	62.5
Pharmacist	Yes	225	93.75
	No	15	6.25
Record Officer	Yes	239	99.6
	No	1	0.4

Valid N = 240

Table 3 shows that nurses had 100% (240) collaboration with medical doctors in integrated management of chronically ill patients. The extent of collaboration with laboratory scientists was 89.2% (214); 55% (132) collaboration with physiotherapists, 75.4% (181) with dieticians, 50.8% (122) with radiographers, 40.8% (98) with Social workers, 37.5% (90) with Psychologists, 93.75% (225) with Pharmacists, and 99.6% (239) collaboration with record officers.

TABLE 4. Register set up for the chronically ill patients by nurses.

Extent	Frequency	Percent
Rarely	10	4.2
fairly often	10	4.2
moderately often	17	7.1
very often	203	84.6
Total	240	100.00

Table 4 shows that in 4.2% (10) of cases, nurses rarely set up registers for the chronically ill patients; in 4.2% (10) of cases, the extent was fairly often; moderately often in 7.1% (17) of cases and very often in 84.6% (203) of cases.

TABLE 5. Service use measures provided for clients by nurses in integrated management of chronically ill patients

Service use	Frequency	Percent
Out Patient:		
Yes	217	90.4
No	23	9.6
Total	240	100.0
Home Visit:		
Yes	27	11.25
No	213	88.75
Total	240	100.0
Hospital Admissions:		
Yes	222	92.5
No	18	7.5
Total	240	100.0

Telephone calls:		
Yes	47	19.6
No	193	80.4
Total	240	100.0

Table 5 shows that 90.4% (217) out-patient services were provided for chronically ill patients by nurses while in 9.6% (23) cases no out-patient service was provided. 11.25% (27) home visits were done and there was no home visit in 88.75% (213). Hospital admissions of the patients constituted 92.5% (222), and there was none in 7.5% (18) of cases. Service use of telephone calls constituted 19.6% (47) while there was no telephone calls in 80.4% (193) of cases.

TABLE 6. Chi-square test of the influence of years of working experience of nurses in integrated care of chronically ill patients.

Variables	Years of working experience	N	Mean Rank	df	X ²	p-value	Level of significance
Years of working experience of nurses/ Integrated care of chronically ill patients	2-5 years	98	130.69	2	3.618	0.164	0.01
	6-10years	59	111.97				
	Above 10 years	83	114.52				
	Total	240					

Table 6 shows that at 0.01 level of significance, the X² of 3.618 was more than the p-value of 0.164. The null hypothesis is rejected. Years of working experience of nurses significantly influence nurses' actions in integrated management of chronically ill patients.

TABLE 7. Mann-Whitney U test of the influence of professional qualification of nurses on integrated care of chronically ill patients.

Variables	Professional Qualifications	N	Mean Rank	Sum of Ranks	Z-score	p-value	Level of significance
Professional Qualification/ Integrated management of chronically ill patients	Single	81	126.39	10237.50	0.938	0.348	0.01
	Multiple	159	117.50	18682.50			
	Total	240					

In table 7 above, at 0.01 level of significance, the Z- score of 0.938 was more than the p-value of 0.348. Professional qualification significantly influence nurses input in integrated care of chronically ill patients. The null hypothesis is rejected.

TABLE 8. Wilcoxon Test of the Influence of Sex of Nurses on the Self-management support given to chronically ill patients.

Variables	Nurses Sex	N	Mean Rank	Sum of Ranks	Z-score	p-value	Level of significance
Sex of Nurses/ Self-management support to patients	Male	51	101.19	5160.50	2.241	0.025	0.01
	Female	189	125.71	23759.50			
	Total	240					

Table 8 shows z-score of 2.241 (p-value = 0.025) at 0.01 level of significance. The null hypothesis is rejected. Sex of nurse practitioners significantly influence the self-management support they give to the chronically ill client

V. Discussion

Findings from the study indicate that very often (84.6%), nurses set up register for the chronically ill patients (table 4). This finding is highly commendable. Crumbie (2005) stated that the starting point for chronic disease management is the development of the register of patients who have particular conditions. If the care provider is working in general practice, the patients in the practice who can be searched for are those who are identified as having the particular problem. If you are a health visitor attached to several practices, you can, for example, search your own case load of children and identify how many of them have a particular condition (Crumbie, 2005). Wagner et al (2001) pointed out that a computerized disease registry that includes critical

information about each patient and the performance and results of important aspects of care, enables care teams to call in patients with specific needs, deliver planned care, receive feedback, and implement reminder systems. Crumbie (2005) further stated that register of people with a particular condition is useful for structuring and evaluating programme of care.

Findings from the study showed that hospital admissions constituted the highest (92.5%) service use measures nurses provided for the chronically ill patients, followed by out-patient service which constituted 90.4% (table 5). The patients benefited little from home visits (11.25%) and telephone services (19.6%) (table 5). Researchers have advocated for increased use of methods of interaction other than face-to-face visits in integrated management of chronically ill patients. Wagner et al (2001) noted that use of telephone allows for more intensive, yet cost-efficient follow-up of chronically ill patients and which has been associated with improved outcomes in a variety of chronic diseases. Kamalam (2005) stated that home visit is necessary because the vast majority of sick people are in the home especially the old-age group. In addressing other advantages of home visits, Kamalam (2005) added that home visits permit the nurse to see the family background of her client, observe the environmental and social conditions at home, and render follow-up services for some problems identified during the visits.

Findings from the study indicated that years of working experience of nurses significantly influenced nurses input in integrated management of the chronically ill patients ($X^2= 3.618$; $p\text{-value} = 0.164$) (table 6). Benner (2001) writes that experience is essential for the development of professional expertise. Benner's Model (2001) describes five levels of proficiency in nursing. The five levels are novice, advanced beginner, competent, proficient and expert. Benner (2001) propounded that the "novice" (eg nursing student) has no experience. In the novice, performance is limited; the novice is inflexible and is governed by context-free rules and regulations rather than experience. The "advanced beginner" demonstrates marginally acceptable performance; the "competent" has 2 or 3 years experience, demonstrates organizational and planning abilities and differentiates important factors from less important aspects of care. The "proficient" has 3 to 5 years of experience, perceives situation as wholes rather than in terms of parts, uses maxims as guides for what to consider in a situation, and has holistic understanding of the client which improves decision making, and focuses on long-term goals. Benner (2001) has it that in the "Expert", performance is fluid, flexible and highly proficient. The "expert" no longer requires rules, guidelines or maxims to connect an understanding of the situation to appropriate action, but demonstrates highly skilled intuitive and analytic ability in new situations, and is inclined to take a certain action because "it felt right".

The significant influence of nurses professional qualifications on integrated care of chronically patient ($Z= 0.938$; $p\text{-value} =0.348$) (table 7) indicates the importance of knowledge acquisition and professional development. Kozier et al (2004) stated that with advanced education and experience, nurses can fulfill advanced practice roles such as clinical nurse specialist, nurse practitioner, nurse midwife, nurse anesthetist, nurse educator, administrator and researcher. DeLaune and Lander (2002) explained that one of the several characteristics of quality nursing care is maintenance of a current knowledge base. This implies that additional professional qualifications promote competencies.

Findings from the study also indicate that sex of the nurse practitioner significantly influence the self-management support given to the chronically ill patient ($Z= 2.241$; $p\text{-value} = 0.025$) (table 8). DeLaune and Lander (2002) stated that nurses function as clinicians, team members and managers. These functions ideally should extend to all nurses irrespective of sex. However, the significant influence could be attributed to the female sex. Kozier et al (2004) stated that traditional nursing has always entailed humanistic caring, nurturing, comforting and supporting; and that these attributes are traditional female roles.

VI. Conclusions

This study indicate that very often, nurses set up registers for the chronically ill patients, and that the service use mostly provided for the chronically ill clients by nurses was hospital admissions; and nurses' years of working experience and professional qualifications significantly influence their participation in integrated management of the chronically ill patients. The study also reveal that sex of nurse professionals has significant influence on the self-management support given to the chronically ill clients.

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