

# Integrated Management of Chronically ill Patients: Nurse-client interactions and follow-up care

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**Abstract**— Follow-up care ensures continuity of client care, gives room for provider-client interactions and sustains self-management measures in the client with chronic illness. This study examined nurse-client interactions and follow-up care in integrated management of the chronically ill patient. 240 nurses were selected from secondary and tertiary health institutions in Anambra State of Nigeria using purposive sampling technique. Two research questions and two 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. Mean scores were used to answer the research questions while chi-square test was adopted in testing the hypotheses at 0.01 level of significance. The result indicated high level of nurse-client interaction (mean = 3.1368) but average level of follow-up care (mean = 2.1556) of clients by nurses. Client's medical diagnosis was observed to have significant influence on nurse – client interaction; also nurse-client interactions was found to differ significantly across the levels of health care institutions.

**Keywords**— *Chronic Illness, Follow-up care, Integrated care, Nurse-client interaction, Health care institutions.*

## 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 nurse-client interactions and follow-up care in integrated care of chronically ill patients.

### **Research Questions**

- To what extent do nurses interact with their patients/clients while discharging their integrated care of the chronically ill patients?
- What is the extent of nurses follow-up care of their clients in integrated management of chronically ill patients?

### **Hypotheses**

- Patient's medical diagnosis does not significantly influence nurse-patient interactions in integrated management of chronically ill patients.
- Nurse-patient interactions in integrated management of chronically ill patients do not significantly differ between secondary and tertiary health care institutions.

## **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 researchers 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.

**Data Analysis**

Standard descriptive statistics of means, frequency and standards deviation were used to summarize the variables. Mean score and standard deviation were used to answer the research questions. Chi-square test was used to test the null hypotheses at 0.01 level of significance. SPSS version 21 was used in the data analysis.

**III. 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
<b>Valid N (Listwise)</b>	<b>240</b>				

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
<b>Nurses</b>		
<b>Professional Qualification:</b>		
Single	81	33.75
Multiple	159	66.25
<b>Total</b>	240	100.0
<b>Sex:</b>		
Male	51	21.25
Female	189	78.75
<b>Total</b>	240	100
<b>Years of working:</b>		
2-5 years	98	40.8
6-10 years	59	24.6
Above 10 years	83	34.6
<b>Total</b>	240	100.0

<b>Setting/Health Institution:</b>		
Tertiary	143	59.6
Secondary	97	40.4
Total	240	100.00
<b>Unit:</b>		
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
<b>Patients/clients</b>		
<b>Sex of Patients:</b>		
Male	113	47.1
Female	127	52.9
Total	240	100.0
<b>Diagnoses:</b>		
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)	2	0.8
Burns	1	0.4
Liver cirrhosis	1	0.4
Missing system	2	0.8
Total	240	100.0
<b>Duration of illness:</b>		
1-5years	142	59.2
6-10 years	53	22.0
Above 10 years	45	18.8
Total	240	100.0
<b>Self-management measures by patients:</b>		
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 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 physiotherapist 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: Extent of Nurse-client interactions in integrated management of chronically ill patients.

Variable	N	$\bar{X}$	SD
Nurse-client interactions in integrated management of chronically ill patients	240	3.1368	0.56260

NB: Mean score was based on 4-point scale. Mean score <2= poor; score 2= fair; score 2.5 = Good; score > 2.5 = Very Good/high.

In table 4, The mean score for extent of interaction between nurses and the chronically ill clients was 3.1368 with SD of 0.56260.

Table.5: Follow-up care of clients by nurses in integrated management of chronically ill patients.

Variables	N	$\bar{X}$	SD
Follow-up care of chronically ill clients by nurses.	240	2.1556	0.68311

NB: Mean Score was based on 4-point scale. Mean score <2= poor; Score 2 = fair; Score 2.5 = good; Score > 2.5 = very good/high.

Table 5 shows that the mean score for extent of the follow-up of the chronically ill clients by nurses was 2.1556 with SD of 0.68311.

Table.6: Chi-square test of the Influence of Patients' Medical Diagnoses on Nurse-client Interactions.

Variables	Clients' Medical Diagnoses	N	Mean Rank	df	X <sup>2</sup>	p-value
Clients' diagnoses/Nurse-client interaction	Diabetes	58	119.99	11	25.826	0.007
	Hypertension	48	111.13			
	Mental Illness	6	77.33			
	Hereditary Disorders	45	112.80			
	Peptic Ulcer	22	90.57			
	Cancer	21	117.86			
	Heart Disease	14	158.43			
	Arthritis	7	174.43			
	Stroke	13	151.54			
	Infections	2	210.25			
	Burns	1	235.00			
Liver Cirrhosis	1	75.50				

Level of significance = 0.01

In table 6 above, the X<sup>2</sup> of 25.826 was more than the p-value of 0.007. The null hypothesis is rejected. Medical

diagnosis of chronically ill patient significantly influence the interactions between nurses and the clients.

Table.7: Chi-square test comparison of the nurse-patient interactions between tertiary and secondary health care institutions.

Variables	Health care Institution	N	Mean Rank	df	X <sup>2</sup>	p-value	Level of significant
Interactions between nurses and chronically ill patients across health institutions	Tertiary	143	107.86	1	11.770	0.001	0.01
	Secondary	97	139.13				
	Total	240					

Table 7 shows that at 0.01 level of significance, the X<sup>2</sup> of 11.770 was more than the p-value of 0.001. The null hypothesis is therefore rejected. Interactions between

nurses and chronically ill patients significantly differ between secondary and tertiary health institutions.

#### IV. DISCUSSION

Findings from the study indicate that the mean for extent of interaction between the nurses and chronically ill patients was 3.1368 (table 4). This result indicates high level of interaction. Wagner et al (2001) explained that interactions are more likely to be productive if patients are active, informed participants in their care. According to Wagner et al (2001), patients must have the information, skills and confidence to make best use of their involvement with their practice team. On the other hand, practice teams must have the necessary expertise, relevant patient information, time and resources to act so as to ensure effective clinical and behavioural management. Crumbie (2005) stated that the ability to communicate effectively and to be able to listen to the patient's concerns can have a huge impact upon the patient and his or her family. Nolte and Mckee (2008) stated that high quality chronic care is characterized by productive interactions between practice team and patients. Also DeLaune and Ladner (2002) added that the time frame within which interaction occurs influences the outcomes.

The mean of 2.1556 (table 5) for the extent of follow-up care of the clients by nurses, even though fair, needs to be intensified. Donabedian and Rosenfeld (1964) observed that something is known about how patients are cared for in hospitals but much less about how they fare when they are discharged. Several follow-up studies have demonstrated the high frequency with which chronically ill patients fail to abide by medical recommendations; lack of compliance had also been found to be associated with recommended modifications in diet, exercise, habits, activities, intake of prescribed drugs, etc (Donabedian and Rosenfeld, 1964). High quality chronic illness care is characterized by productive interactions between practice team and patients that consistently provide the assessments, support for self-management, optimization of therapy and follow-up associated with good outcomes (Wagner et al, 2001). Follow-up care of chronically ill patients can be in form of out-patient clinic visits by the client, home care/visits by the nurse, telephone calls, office visits, etc (Donabedian and Resenfeld, 1964). These services have their general and specific benefits. Follow-up care is not confined to face-to-face visits. Wagner et al (2001) observed that the use of telephone, for example, allows for more intensive cost-efficient follow-up of chronically ill patients. Kamalam (2005) stated that follow-up services are done in some problems identified in Health Centre, Schools and hospitals. The implications of these findings are that follow-up care of the chronically ill patient ensures continuity of care, reduces relapse in the client's condition, reduces rate of hospital readmissions of the client, promotes the client's

self-management ability and also increases the client's self esteem.

Findings from the study indicate that the medical diagnosis of chronically ill patient significantly influence the interaction between nurses and the client ( $X^2 = 25.826$ ;  $p\text{-value}=0.007$ ) (table 6). DeLaune and Ladner (2002) stated that therapeutic interaction involves discussing the client's problems, needs or concerns. This implies that client's problem obviously arise from client's medical diagnosis. Clark (2003) noted that chronic illness confronts patients with a spectrum of needs that require them to interact with healthcare providers and adhere to treatment regimens. Lorig and Holman (2003) reported that most interventions address medical or behavioural management tasks; and that this depends on the disease process involved, for example, support programmes for patients with cancer are more likely to address the emotional aspect of the disease than programmes for patients with asthma where correct use of medication comes first.

Findings from the study indicate that nurse-client interactions in integrated management of the chronically ill patients differ significantly between secondary and tertiary health institutions ( $X^2 = 11.770$ ;  $p\text{-value} = 0.001$ ) (table 7). DeLaune and Ladner (2002) stated that the complexity of health care services varies according to the delivery setting. Kozier et al (2004) pointed out that the services provided by the health care system is commonly categorized according to type and level.

#### V. CONCLUSIONS

This study revealed high level of nurse-client interactions and average level of follow-up care by nurses in integrated management of chronically ill patients. Also client's medical diagnosis was observed to have significant influence on nurse-client interactions. In addition, nurse-client interaction was noted to differ significantly between secondary and tertiary health institutions.

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