HIV TASK SHIFTING FROM PHYSICIANS TO NURSES IN NIGERIA:

CORRELATES OF NURSE SELF-EFFICACY AND JOB SATISFACTION

By

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ABSTRACT OF THE DISSERTATION

HIV Task Shifting from Physicians to Nurses in Nigeria: Correlates of Nurse Self-

Efficacy and Job Satisfaction

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Rationale: With 25% global disease burden and only 3% global health workforce, the African region continues to account for the largest proportion of people living with HIV. While HIV task sharing between physicians and nurses, improved access to antiretroviral treatment, it led to African nurses acquiring roles beyond their traditional scope of practice. Numerous patient outcome research have identified the benefits of task sharing but research on nurse-related outcomes remains limited. This study attempts to fill the gap in knowledge by examining the demographic and setting correlates of self-efficacy and job satisfaction among Nigerian nurses in HIV task sharing roles. **Method:** A pilot study was conducted using a focus group of ten expert nurses to ascertain the content validity and appropriateness of the study instruments. In the main study, 508 nurses in task sharing roles from 8 of 36 states in Nigeria were surveyed.

Result: A total of 399 surveys from tertiary (26%), secondary (46%) and primary (28%) facilities met criteria for analyses. The mean age and years in nursing practice were 42 (SD = 9.1) and 17 (SD = 9.2); 86% worked in Government hospitals, 76% were female and 70% Registered Nurse/Midwives. Over 95% received training and mentoring and 82% had previous HIV nursing experience. Self-Efficacy for task sharing had statistically significant correlation with female gender but negatively correlated with years in nursing

practice. Job Satisfaction was statistically correlated with years in nursing practice; dual licensure as Nurse/Midwife; working in tertiary hospital; older age; male gender; duration of training and being mentored. Longer HIV nursing experience and working in secondary and primary health centers were found to increase the likelihood for job dissatisfaction.

Conclusion: Although more than 95% of the nurses received WHO recommended training and mentoring, they still faced system related challenges which negatively affected job satisfaction. Similar to reports in literature, these findings have critical implications for burnout, retention and quality service delivery. System-specific strategies such as: complementary staffing mix; continuing education; certification; updated policies, guidelines, scope of practice and curriculum that reflect current professional practice are needed to support nurses in expanded roles.

Dedication

This Manuscript is dedicated to my beautiful family who have been my constant support system. I am especially grateful to my daughters Melissa and Ashley for being my Information Technology Consultants; Miriam and Kimberly my confidants and powerhouse who took charge of the family during my travels; and my husband (Justus Sr.), son (Justus Jr.) and grandchildren (Chike, Adaobi, Chisom, Chima and the second set of twins on the way) who kept me grounded on what matters in life. I am grateful you came along on this journey.

I also dedicate this work to my late sister Jane Nkechinyere Onyekachi (nee Imoh) who passed away when I returned to Nigeria for data collection. I am so glad you waited to come home with me. I love and miss you Jane! Rest in perfect peace!

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Table of Contents

List of Tables

List of Figures

<div align="center">CHAPTER I</div>

<div align="center">**Introduction**</div>

This chapter presents an overview and purpose of the study with a brief

discussion of the antecedents of task shifting especially for HIV care and its impact on

health workforce in Sub-Sahara Africa. The current evidence on the positive and negative

consequences of nurse managed HIV care and the gaps which this study addresses are

reviewed. The dependent and independent variables, the research questions in addition to

the significance of findings from this and similar studies are also be presented.

<div align="center">**THE PROBLEM**</div>

The African region was designated a critical health worker shortage area in 2006 by

World Health Organization (WHO). The WHO global workforce observatory indicates

that the African continent "bears 25% of the global disease burden but has only 3% of the

global health workforce" (WHO, 2006a, p.xix). Even though this has been attributed to

many factors including health worker migration, the Human Immunodeficiency Viral

(HIV) epidemic, rapid scale-up of treatment and prevention services, and unmet

Millennium Development Goals (MDG) further illuminated the severity of this challenge

(UNAIDS, 2011a and 2011b). With increased funding in Africa for HIV treatment,

especially the President's Emergency Fund for AIDS Relief (PEPFAR), the number of

persons requiring antiretroviral treatment (ART) out-stripped the number of physicians

available to initiate and monitor treatment. This resulted in long waiting lists and high

mortality rates among HIV infected patients awaiting treatment (Georgeu et al. 2012).

<div align="center">**Discussion of the Problem**</div>

Task Shifting and Sharing in HIV Care

Since the WHO recommendation "Task Shifting" as a workforce strategy to redistribute health care tasks to available workers, African nurses providing services to patients living with HIV have taken on duties traditionally performed by physicians (WHO, 2006b; WHO/PEPFAR/UNAIDS, 2008). These roles focused on advanced HIV management tasks including initiation and re-prescription of antiretroviral medications, clinical monitoring of patient response to treatment, identifying and treating opportunistic infections, interpreting laboratory results, and use of clinical and laboratory findings to make decisions about patient prognosis or plans of care. These HIV management tasks were not originally within the nurses' scope of practice but with adoption of task shifting as a healthcare strategy to increase access to ART, it became necessary for the nurses to perform these roles. However, preparatory training and mentoring to support nurses' transition into these advanced roles varied within and between countries (Georgue et al. 2012; WHO 2013).

Globally, more people are living longer with HIV due to improved access to treatment and declining mortality. The Joint United Nations Program on HIV/AIDS (UNAIDS) reports from 2012 through 2014 illustrate a progressive improvement in ART access and decline in new HIV infections. In 2013 it was estimated that 35 million people were living with HIV and the decline in new infections was 38% globally. However, out of the 2.9 million new infections in 2012 and 2.1 million in 2013, approximately 70% occurred in sub-Sahara Africa (UNAIDS, 2012; 2013 & 2014a). Among many other strategies in sub-Sahara Africa, task shifting contributed to the improvement in access and number of infected persons on ART in addition to the decline in mortality and number of children vertically infected (UNAIDS, 2012 & 2015a). As mortality from

AIDS related complications decreases, HIV infection is gradually transitioning into a chronic condition in Africa. There will be a higher demand for skilled health providers to render ongoing treatment, maintenance and monitoring such nurses in advanced HIV treatment roles.

Since its introduction by the WHO in 2006, task shifting has pragmatically evolved into "task sharing" due to several reasons. Dambisya and Matinhure (2012) identified some initial misconceptions and uncertainty among frontline health workers who thought it meant "dumping of tasks" or "unauthorized delegation" of tasks. Ivers, et al., (2011) also documented their observations that the tasks were not shifted, instead they were shared with those who acquired the roles. For many health professionals including nurses, task sharing was a more acceptable term because it was less territorial and invoked a spirit of team work. Tulenko (2012) during an Association of Nurses in AIDS Care (ANAC) sponsored presentation at the 19th International AIDS Society (IAS) conference, reiterated nurses' preference for task sharing because it reflected the reality as tasks were not completely handed off. Instead they were shared among various health worker cadres involved. Both terms are hereby used interchangeably.

Initial research on effects of task sharing focused on feasibility, acceptability and patient outcomes. Current evidence revealed that shifting HIV treatment tasks from physicians to nurses in Africa was feasible, safe, cost effective and widely accepted. In some studies, nurse-managed HIV treatment was preferred by patients and had better ART adherence, reduced client waiting time, improved retention and follow-up. Task sharing increased access to ARTs without compromising quality of care (Bedelu, Ford, Hiderbrand & Reuter, 2007; Bolton-Moore et al., 2007; Callaghan, Ford & Schneider,

2010; Mdege, Chindove & Ali, 2012; Umar, Hajara & Khalifa, 2011). Three separate

systematic reviews in 2013 which examined published evidence on task sharing in Africa

found growing support for nurse managed HIV care (Emdin, Chong, & Millson, 2013;

Iwu & Holzemer, 2013;WHO, 2013). However, one of the reviews identified the

following gaps: a) only three qualitative studies explored African nurses' experiences

with task sharing (Cohen et al., 2009; Georgeu et al., 2012; Davies, Homfray &

Venables, 2013); b) nurses were often not the primary informants about nurses' opinions

and response to task sharing (program managers, physicians and authors provided

information on how nurses perceived task sharing); and c) there has been no documented

research which examined the relationships among task sharing training, mentoring, and

African nurses self-efficacy to perform HIV tasks shifted from physicians or their job

satisfaction (Iwu & Holzemer, 2013).

Self-Efficacy for Management of HIV tasks previously performed by Physicians

Self-efficacy is the "self-perception of one's ability to perform competently and

effectively in a particular task or setting" (Bandura, 1982, p.122). It originated from

social learning theory which later expanded to become social cognitive theory. Based on

this theory, humans are believed to have the ability to plan, regulate and actively control

their actions and responses. Mastery experiences, social modeling, and persuasion are

identified as critical sources of self-efficacy development (Bandura, 1982; 1989; 1997).

Relative to clinical practice, studies have shown that self-efficacy is preceded by

education or training, precepting and mentoring. (Opacic, 2003; Young et al., 2012). To

facilitate or strengthen nurses' self-efficacy for performance of task shifted roles, the

WHO (2006b) recommends training and mentoring as requisite components for task

sharing implementation. The WHO not only recommended clinical mentoring for task

sharing but also encouraged widespread country adoption of mentoring and training to

facilitate practitioner confidence, role transition and clinical performance of acquired

skills (WHO, 2006c).

As recommended by the WHO (2006b), there have been several published studies

focused on equivalence, cost effectiveness, acceptance and treatment outcomes related to

task sharing in Africa. When compared to care rendered by physicians, the majority of

these studies found favorable results in support of nurse-managed HIV care (Bedelu,

Ford, Hiderbrand, & Reuter, 2007; Bolton-Moore et al., 2007; Callaghan, Ford, &

Schneider, 2010; Mdege, Chindove, & Ali, 2012). While African nurses have taken on

these advanced nursing roles to improve patient access to HIV treatment, studies

exploring relationships among preparatory training, mentoring, unique setting, nurse

characteristics and nurses' self-efficacy are yet to be conducted.

Job Satisfaction

Job satisfaction is the perception of fulfillment derived from one's job. It is the

"pleasurable or positive emotional state from the appraisal of one's job or job

experiences" (Locke, 1976 p.1304). Job satisfaction among health workers has been

extensively studied globally and in sub-Sahara Africa especially due to critical shortages

of health workers and the HIV epidemic. Reliance on mid-level health providers,

increased workload, HIV stigma, and work environment stressors have all been shown to

affect health worker satisfaction and dissatisfaction in sub-Sahara Africa (Bodilenyane &

Motshegwa, 2012; Chirwa, et al., 2009; McAuliffe, et al. 2009; Faye, Fournier, Diop,

Philibert, Morestin, & Dumont, 2013).

In Botswana, Bodilenyane and Motshegwa, (2012) examined the effects of the HIV/AIDS epidemic on public health nurses' work and physical environment amidst existing workforce shortages. The findings of their study revealed the complexity of HIV nursing and poor working conditions, increased workload, and non-commensurate pay rates were negatively associated with job satisfaction. Chirwa et al. (2009) also found negative relationships between stigma and job satisfaction among nurses in Lesotho, Malawi, South Africa, Swaziland, and Tanzania. Although personal satisfaction ranked high in satisfaction scores, study findings revealed job prospects, pay, and training had the lowest satisfaction scores. In Malawi, high levels of emotional exhaustion were reported by mid-level health personnel, however, the nurse participants were more likely to intend to leave their jobs (McAuliffe, et al., 2009).

It is obvious that multiple workforce and environment issues affect job satisfaction among nurses in Africa. Expanding the role of nurses amidst the stressful work conditions where nurses caring for HIV patients are faced with high patient ratios, limited resources and infrastructure for basic nursing duties, may create additional stressors for nurses. Other studies have shown that job satisfaction and dissatisfaction among health workers may have serious negative implications for quality of care and patient outcomes (Hass et al. 2000; Kazanjian, Green, Wong, & Reid, 2005; Tzeng & Ketefian, 2002).

According to the Herzberg, Mausner, and Snyderman, (1959) and Herzeberg (1966) two-factor theory of job satisfaction, factors which promote performance of the job itself have been found to motivate workers and lead to high levels of job satisfaction. Work related factors that enhance professional achievement among health workers in sub-Sahara Africa ranked high as job satisfiers (Faye et al., 2013). Therefore, one would

expect that task sharing training, mentoring, supportive health facility characteristics and

nurse demographics such as years of experience in nursing and HIV care may affect the

job satisfaction or dissatisfaction of nurses performing task shifted roles. The extent to

which nurses in Africa feel motivated or dissatisfied with performance of these advanced

HIV treatment tasks were explored in this study.

Task Shifting (or Sharing) Training

Training was an integral component of the WHO recommendations for task sharing.

The guideline recommended training in the form of didactic, apprenticeship, interactive

case reviews and supervised practicum to promote competency development, confidence

and self-efficacy for application of acquired knowledge and skills (WHO, 2006b; WHO,

2013). Training in HIV task shifting from physicians to nurses included educational

interventions provided for the nurses to enhance their knowledge base and skills to

perform advanced HIV treatment. Following the release of the WHO guidelines for

implementing task sharing, countries that adopted this care strategy put in place targeted,

competence-based training for health workers to perform the acquired roles (WHO,

2006a; WHO/PEPFAR/UNAIDS, 2008). Even though policies to integrate task sharing

into pre-licensure nursing and midwifery education in different African countries lagged

behind (McCarthy et al., 2013), a review of literature revealed that in-service preparatory

training for nurses comprised of contents drawn from country-specific guidelines for

treatment of HIV. Examples of these contents included advanced physical assessment;

indications and interpretation of diagnostic and disease monitoring laboratory tests;

identification and management of HIV related opportunistic infections; indications and

dosages of ARV medications; identification, evaluation and management of medication

side effects; WHO clinical staging; and triage of patient conditions for physician

referrals. Training was also delivered using a combination of modalities such as formal

lectures, skills development workshops, practicum and precepting with demonstrations,

case presentation, reviews and grand rounds to facilitate development of in-depth

knowledge, clinical reasoning and decision making skills (Cameron, Gerber, Mbatha,

Mutyabule, & Swart, 2012; Georgeu, et al., 2012; WHO, 2013). Some examples of

training frameworks and guidelines in use included: the International Training and

Education Center for Health (I-TECH) framework for training, guidelines for HIV

Care/ART Clinical Mentoring in Ethiopia and the Nigerian guideline for decentralization

of HIV services (Ethiopian Ministry of Health, 2007; I-TECH, 2009; Nigerian Ministry

of Health, 2009).

Clinical Mentoring for Nurse-Managed HIV Treatment

In their earlier work, Chick and Meleis (1986) described educational and

professional role transitions as parts of "situational transitions" in nursing. In a review of

registered nurse transition into family nurse practitioner roles, Poronsky (2013) reiterated

that transitions have been theoretically described as "interludes between two periods of

stability". Irrespective of when and how role transitions occur, they are anxiety provoking

for both expert and non-expert clinicians.

In nursing education and clinical settings, mentoring and supportive collegial

relationships have been shown to alleviate transition-related anxiety as well as facilitate

confidence in new roles among nurses (Gilbert & Womack, 2012; Gohery & Meaney,

2013; Melrose & Gordon, 2011). The WHO also recommended the inclusion of clinical

mentoring as a requisite component of task sharing in HIV care through both practical

and consultative methods to enhance clinical and professional development (WHO, 2006b, & 2006c). According to the guideline, mentoring should facilitate provider confidence for role transition in addition to sustaining practical application of knowledge and skills. The WHO recommended that clinical mentors should be expert clinicians in HIV and opportunistic infection treatment who nurture less experienced providers. The mentoring activities should include role modeling of clinical care, practical teaching, case-based discussions and directions on skill application during hands-on care. The clinical mentors often provide collegial and psychological support to boost the mentees' confidence during clinical performance. They respond to questions, review cases, give feedback and provide oversight during case management.

Clinical mentoring relationships provide opportunities to identify and correct gaps in clinical performance while fostering self-efficacy for required tasks. Clinical mentoring can be done during site visits, by telephone, email, and video conference. In some cases, successful clinical mentees could become mentors for other inexperienced HIV providers. The WHO (2006c) and I-TECH (2011) mentoring guides provide sample methodologies and useful tools.

Despite the recommendations from WHO, the relationships among clinical mentoring, nurses' self-efficacy to perform task shifted HIV treatment and job satisfaction are yet to be fully examined. A systematic review of task sharing in midwifery and a recent qualitative study on task sharing implementation in South Africa suggest a possible relationship between clinical mentoring and more successful role transition. They observed that nurses who had easier access to clinical mentors and those mentored by physicians expressed fewer difficulties with transition to task sharing roles

(Colvin et al. 2013; Georgeu et al., 2012). A randomized controlled trial in nursing education compared mentored and non-mentored students and found significantly lower anxiety states, higher academic performance and satisfaction with choice of career among mentored students. Studies in career motivation have also found positive relationships between mentoring, career self-efficacy and career success (Byrne, Dik & Chiaburu, 2007; Day & Allen, 2004). Therefore one would expect that mentoring in task sharing may have similar effects on nurses performing task shifted HIV roles.

Health Facility (Setting) and Nurse Demographic Factors or Characteristics

The impact of provider and health facility characteristics on self-efficacy development, role transition, and job satisfaction cannot be overlooked. McAuliffe et al. (2009) examined the impact of work environment on mid-level health workers in Malawi and found inadequate resources to be highly correlated with emotional exhaustion, and likelihood to leave a job. In the same study, health workers with longer work experience reported more positive perceptions of their work setting. In a review of published articles on task sharing in midwifery practice, Colvin et al. (2013) identified social status, hierarchical or power positions and turf issues between midwives and obstetricians and between midwives and other nurses as barriers to task sharing. Other demographic characteristics which have been linked to clinical knowledge and skill acquisition (competence), practical application and role transition include: type of work setting; duration and type of nursing education (e.g. diploma vs. baccalaureate education); prior (or associated experience; nursing specialty; race; nationality; and progressive or duration of experience as in registered nurse to nurse practitioner role transition (Gilmartin, 2013; Hunter, Pitt, Croce & Roche, 2013; Lipner, Hess, & Phillips, 2013; Meretoja, Leino-Kilpi

& Kaira, 2004; Oranye, Ahmad, & Bakar, 2012; Poronsky, 2013; Takase, Nakayoshi, Yamamoto, Teraoka & Imai, 2014). Earlier studies from Africa evaluated effects and processes of task sharing on quality, patient outcomes and acceptance in relation to care settings and cadre of health providers (Bedelu, Ford, Hiderbrand & Reuter, 2007; Bolton-Moore et al., 2007; Callaghan, Ford & Schneider, 2010; Mdege, Chindove & Ali, 2012). However, the associations among provider and health facility demographics in relation to nurse self-efficacy and role transition for advanced HIV management were yet to be studied. In light of the global workforce challenges, especially in Africa, a better understanding of these factors may inform future preparation of health workers for task sharing. Training and mentoring could be better tailored to address provider needs for more efficient results and quality of care.

Purpose of Study

The aim of this study was to conduct a quantitative analysis of the relationships among nurse demographic factors, setting characteristics and Nigerian nurses' self-efficacy to perform HIV tasks shifted from physicians as well as their job satisfaction.

Statement of the Problem

This study sought to answer the following research questions:

1. What were the relationships among nurse demographic characteristics and:
    a. Nurses' perceived Self-Efficacy for HIV task sharing with physicians?
    b. Job Satisfaction?
2. What were the relationships among setting characteristics and:
    a. Nurses' perceived Self-Efficacy for HIV task sharing with physicians?
    b. Job Satisfaction?

3. What were the effects of the combined relationships among nurse demographics, setting characteristics and perceived self-efficacy on the job satisfaction of Nigerian nurses performing task sharing roles with physicians in HIV settings?

It additionally examined group variations in relation to the dependent variables to identify any findings that significantly associated with either self-efficacy for task sharing with physicians or nurses' job satisfaction.

Definition of Terms

The dependent variables for this study were: nurses' perceived self-efficacy for HIV tasks sharing and job satisfaction. The independent variables are task sharing training, mentoring, nurse demographic factors and setting characteristics.

Perceived Self-Efficacy is theoretically defined as the "self-perception of one's ability to perform competently and effectively in particular tasks or settings" (Bandura, 1982 p.12; 1989; 1997). Nurses' perceived Self- Efficacy for HIV task sharing with physicians will be operationalized as scores on the Self-Efficacy Scale for Task Shifting in HIV care (SEQTS-HIV).

Job Satisfaction is theoretically defined as the extent to which a job fulfills an individual's important job values; the degree to which those values are congruent with the person's needs (Bush, 1988). It is the perception of fulfillment derived from one's job or the extent to which a job meets an individual's important job values; or the degree to which those values are congruent with the person's needs (Bush, 1988). In this study, perceived job satisfaction was operationalized as the nurses' scores on the Measure of Job Satisfaction scale (Traynor & Wade, 1993).

Task sharing training is theoretically defined as "competency-based activities using standardized curricula designed to provide a cadre of health workers the necessary knowledge and skill required to meet the roles, competency levels, and standards expected of such trainees" (WHO, 2008, p.28). For this study, task sharing training was operationalized as the nurses' responses to identified preparatory training activities items on the researcher-developed demographic checklist.

Task sharing clinical mentoring is theoretically defined as "a system of practical training and consultation that fosters ongoing professional development to yield sustainable high-quality clinical outcomes" (WHO, 2006c, p.10). In this study clinical mentoring for task sharing from physicians to nurses was operationalized as participants' responses to clinical mentoring items on the adapted demographic checklist (Traynor & Wade, 1993).

Nurse demographic factors are defined as socioeconomic characteristics of a population (N.D., Retrieved from http://www.businessdictionary.com/definition/demographic-factors.html). Nurse demographic factors were operationalized as participants' responses to demographic items on the researcher developed demographic data form.

Health facility characteristics is theoretically defined as geographic coverage and service packages provided namely: primary, secondary or district and tertiary facilities (Hensher, Price, & Adomakoh, 2006). For this study, health facility characteristics were operationalized as nurses' responses to health facility and work setting items on the demographic data form.

Healthcare or provider facility is defined as places that provide health care which include hospitals, clinics, out-patient and specialized care centers (NIH, 2013, retrieved from: http://www.nlm.nih.gov/medlineplus/healthfacilities.html).

Delimitations (Inclusion and Exclusion Criteria)

A convenience sample size of a minimum of three hundred nurses and midwives (N=300) were projected for recruitment from tertiary, secondary and primary health facilities in the six geopolitical zones from northern, southern, eastern and western regions of Nigeria. Participating sites were identified through the Nigerian Federal Ministry of Health taking cognizance of any security warnings by the United States Homeland Security and Department of State to assure investigator safety.

Inclusion Criteria

Only male and female registered nurses and midwives who were working or previously worked in HIV clinics and performed advanced HIV management roles (i.e. HIV management tasks shifted from physicians to nurses) were invited to participate in this study.

Exclusion Criteria

Male and female registered nurses or midwives who were not performing advanced HIV management roles or non-nurse providers in HIV task sharing roles were excluded from the study.

Significance of the Study

With intensified efforts to "end AIDS" globally and achieve the new "90-90-90" agenda set by the UNAID (UNAIDS, 2012 &2015), there is a continued need to sustain strategies that work such as task sharing. For sub-Sahara African countries, existing

socio-economic and work environment disincentives continue to fuel health worker

migration to developed countries. Irrespective of strategies through the PEPFAR funded

projects, ongoing demand for advanced roles for nurses will continue for a longer term.

Other global drivers for task sharing include the changing global economy and

international demand for nurses, the growing agenda to increase access to affordable care,

anticipated need for elder care and the aging nursing workforce.

Moreover, a recent publication on the changing landscape of global supply of health

workers due to demographic and epidemiologic shifts calls for country-specific responses

in redesigning health worker education and roles (Crisp & Chen, 2014). Task sharing is

rapidly expanding beyond HIV treatment. Thus, challenging the nursing profession

globally and most especially in developing countries. It is an opportunity to reassess pre-

licensure education in order to meet the skill demands on graduation. Identifying factors

which facilitate nurse self-efficacy development in task sharing, if mentoring by

physicians is unattainable, would contribute to nursing specific solutions. Redesigning

roles of nurses in Africa requires nursing education changes without total dependence on

other professionals such as physicians. Current PEPFAR funded support and other global

efforts to strengthen nursing education in Africa, could incorporate development of nurse

clinical mentors to support these transitions to advanced practice roles. Despite a drive

for teamwork and inter-professional education, nurses performing task shifted roles

continue to encounter undue physician resistance and turf protecting behaviors from other

professional groups (Iwu & Holzemer, 2013). These challenges and documented negative

consequences of task sharing may have more serious implications for job satisfaction

among nurses in Africa.

Summary

  While current studies on task sharing from physicians to nurses in Africa show growing support and preference for nurse managed HIV care, there are still gaps in evidence for facilitators of nurse self-efficacy for the role and the impact on job satisfaction. Studies such as this are necessary to explore nursing-specific factors and lessons learnt. Findings from this and similar studies will add value to current and future practice, education and retention strategies in nursing. It could also inform the re-evaluation of ways in which nurses and other allied health workers could be prepared to take on population-based healthcare roles in the future.

CHAPTER II

Introduction

This chapter presents an overview of the literature review for this study (Iwu &

Holzemer, 2013, Task Shifting of HIV Management from Doctors to Nurses in Africa:

Clinical Outcomes and Evidence on Nurse Self-Efficacy and Job Satisfaction) which was

published in AIDS Care online journal. It also presents an evidence table which

summarizes additional relevant studies that tested the proposed relationships and

concludes with the theoretical rationales for the study.

REVIEW OF THE LITERATURE

This review was conducted to examine existing literature for task shifting of HIV

management from physicians to nurses in Africa. Prior to the review, the author

identified key variables related to task sharing in HIV settings (as a human resource

strategy) using Donabedian's (1982) Structure-Process-Outcome (SPO) model as adapted

by Holzemer (1994) for nursing (Table 1). As noted in the review, the earliest reports

prior to 2009 from Africa were mostly presented as conference abstracts at international

HIV/AIDS meetings. These abstracts however, did not meet the inclusion criteria for the

review.

The review analyzed existing evidence on HIV tasks shifted from physicians to

nurses in Africa, in relation to patient outcomes, acceptability, and impact on nurses' self-

efficacy to treat HIV as well as their job satisfaction. The inclusion criteria were: a)

published full-text research on task shifting; b) tasks shifted from physicians to nurses; c)

study conducted in Africa between January 2009 and August 2012. The search was

conducted using PubMed to ensure cited studies would be accessible to African nurses.

Table 1
Variable illustration using Donabedian's Input Process Outcomes Model

PROVIDER	INPUT	PROCESS	OUTCOME
Nurses and Midwives working in HIV settings) and Performing task-sharing Roles	Age Gender Religion Licensure Prior HIV experience Prior HIV Training - - >	Task shifting training. Type of training Training Components Duration of Training Mentoring (Type & Cadre of mentor) - - >	Self-Efficacy Job Satisfaction
SYSTEM			
Setting of Health Facility: Tertiary, Secondary & Primary Health Centers	Setting structure Staffing mix, strength/ratio Type of Administration - - ->	Team building HIV Treatment Guideline Management policies - - ->	Facility Policies & Procedures Provider variables by setting

The overall search yielded thirty four (34) studies among which eleven (8 quantitative; and 3 qualitative) met inclusion criteria. Fifty five percent (6) of the studies were from South Africa while 45% (5) were conducted in Cameroon, Ethiopia, Rwanda, Lesotho and Botswana. Although the majority of the studies reported on patient related outcomes, only two quantitative studies reported on nurse outcomes (Cohen et al. 2009; Fairall, et al. 2012). As the studies did not specifically use the terms "self-efficacy or job satisfaction", the author searched for synonymous words and phrases such as: confidence, comfort level, enthusiasm, improved skills, improved morale, accomplishment.

The Dependent Variables

Self-Efficacy for Treatment of HIV

Only two of eight quantitative studies (25%) reported on nurses' self-efficacy (Cohen et al., 2009; Fairall et al., 2012). The first, a retrospective cohort study from Lesotho compared groups of patients treated by physicians and nurses. In this study,

Cohen et al. (2009) reported that: a) nurse-provided care retained 89.4% and 87.5%

pediatric patients at 6 and 12 months respectively; b) pediatric enrollment rates doubled

within two years of task shifting to nurses (from 54 to 116); a survey conducted among

the nurses who received task shifting training (n=47 and 97.8% of the response) revealed

improved confidence levels. As a result, the authors concluded that nurses had increased

confidence levels and skills with ART initiation and maintenance. They also observed

that intensive training and mentoring for HIV treatment role expansion improved the

nurses' confidence to interpret diagnostic findings and clinical skills in managing both

HIV and other primary health conditions. The second was a cluster randomized control

study from South Africa in which Fairall et al. (2012) compared two cohorts of patients

(ART maintained or cohort 1, and ART initiated or cohort 2) randomized to physician

and nurses treatment arms. Based on statistically significant mean CD4 differences

(cohort 1: M = 22.3(3.6-40.9) and cohort 2: M = 24.4(7.2-41.3), $p<0.05$) in favor of nurse

managed care, the authors concluded that the nurses built upon their existing knowledge

and skills to perform task shifted HIV management roles (Table 2).

Job Satisfaction

Only one of eight quantitative studies (12.5%) presented findings related to job

satisfaction among nurses (Cohen et al., 2009). According to the survey described above,

97.8% of the nurse respondents reported improved morale. Therefore, the authors

concluded that there was a notable improvement in nurses' morale with relation to

performance of task shifted HIV roles. As a result, Iwu and Holzemer (2013)

recommended additional research to explore the evidence and better understand the

impact of HIV task shifting on nurses' job satisfaction.

The Independent Variables

Task shifting (or Sharing) Training and Mentoring

Iwu and Holzemer (2013) observed that six of eight quantitative studies (75%)

provided information about task shifting training and mentoring methodologies and

duration (Brennan et al., 2011; Cohen et al. 2009; Fairall et al., 2012; Monyatsi et al.,

2012; Sanne et al., 2010; Shumbusho et al. 2009). The training methods ranged from

lecture, on-the-job mentored practicum, and case studies, to combined formats. Training

duration varied from unspecified durations to less than two weeks and up to six weeks.

Mentoring formats and duration also differed between studies and included approaches

such as consultations provided onsite, by visiting or telephone, and combined formats.

Three of the studies, Monyatsi et al. (2012), Brennan et al. (2011) and Shumbusho et al.

(2009), compared and reported on percentages of correct disease staging, clinical

decision making and appropriate documentation by nurses compared with physicians. In

all of the studies, there were no statistically significant differences between the provider

groups.

Provider and Setting Characteristics

Provider characteristics were used in 100% of the studies as independent variables

to compare patient related outcomes between physician- and nurse-provided HIV

treatments. Health facility characteristics were also used as independent variables such as

types and locations of the health facilities (provincial, district hospitals and community or

primary health centers) to compute patient outcome comparisons among provider groups.

The review identified that, despite abundant patient related outcomes in support of

task shifting from physicians to nurses in HIV settings in Africa, there were major gaps

related to evidence for nurse related outcomes, especially with regards to perceived self-efficacy for HIV task shifting and job satisfaction. The review concluded with recommendations for additional research to inform future scale-up of task shifting, nursing education and practice.

A summary of additional literature reviewed to identify HIV related task shifting (sharing) studies beyond 2012 and studies which tested the proposed relationships in this study among other populations is presented in Table 2.

Table 2

Summary of Studies that Examined Relationships among Nurse Demographics, Setting Characteristics, Self-Efficacy and Job Satisfaction.

S/N	Reference	Study Description	Sample Characteristics	Variables	Study Findings	Conclusion/ Significant Contribution
1	Akinnawo, Akinbobola & Ahmefule (2013)	Cross-sectional survey to examine the relationships between demographic factors and perceived job satisfaction among Nigerian female Immigration Officers	N=74, High & Low Job Status 50% each, Mean Age=41.69 (no SD but range=26-53), Job tenure range=3-31 years	Job Satisfaction and Employee demo-graphics	Level of Satisfaction: High 54.1%, Low 28.3%, Very Dissatisfied 17.6%; Tenure r=0.25, p<0.05, Mean Differences Education M=4.52, t=2.8, p<0.05; Married M=4.23, t=1.99, p<0.05	Majority had high job satisfaction, length of job tenure, High education level and being married were positively related to higher levels of job satisfaction
2	Bodilenyane & Motshegwa (2012)	Cross-sectional survey explored the effects of HIV disease on nurse job satisfaction in Botswana	N=70 Nurses from public hosp. (69% female, 31% males)	Job satisfaction (nature of job, workload, pay & physical condition)	Workload Exp(B)=1.781; Dissatisfaction Exp(B)=1.551 p<0.05	Nature of HIV work increased workload and odds of nurse's dissatisfaction with work
3	Cameron, Gerber, Mbatha, Mutyabule & Swart, (2012)	Cross-sectional descriptive survey to determine percentage of primary care nurses initiating ART after task shifting training in South Africa	N=126 (7% of 1736 (total number) trained)	Nurse demo-graphics, Training, performance of task shifted role, Mentoring	Prior PMTCT/HIV training-73/79%, Percentage prescribing ART increased from 11% to 62% post training, 59% reported mentor visit range 1-8 x in 2months.	Task shifting training increased nurses confidence for ART initiation; lack of mentoring, short staffing and assignment to other duties were some reasons for not performing roles
4	Cohen et al. (2009)	Retrospective cohort analysis to examine outcomes with an ART treatment decentral-	13,243 adult & Pediatric pts. enrolled; 5376 (6.5% children) Initiated ART	Training, Mentoring, Self-Efficacy & job satisfaction	98% (46/47) nurses reported improved morale and confidence with clinical skills, Nurse workload =45/day	Nurses' diagnostic & clinical skills for HIV and primary care conditions were improved.

Table 2						
Summary of Studies that Examined Relationships among Nurse Demographics, Setting Characteristics, Self-Efficacy and Job Satisfaction.						
S/N	Reference	Study Description	Sample Characteristics	Variables	Study Findings	Conclusion/ Significant Contribution
		ization and RN provided ART in Lesotho			(>WHO 30/day recommend-ation)	Nurse workload was high
5	Corless, et al. (2012)	A sub analysis (experimental arm)of a repeated measure, Randomized Controlled Trial to examine role of self-efficacy (SE) in self-care symptom management strategies	N=569, mean age 42.8(SD=9.6), 38%female, 59.7 male2% transgender; 42% AIDS diagnosis, 66.8% comorbidity and 72.9 on ART.	General Self-efficacy, Engagement with Provider, HIV self-care symptom management.	2 groups: high and low self-efficacy (work $X^2 = 14.32$, educ. $X^2 = 13.9$, gender $X2 = 5.7$, ethnicity $X^2 = 4.8$ viral load $X^2 = 10.1$) $p<.05$, Substance use was higher in low SE group. Symptoms frequency lower in high SE group ($t=4.20$, $p<0.05$); Symptom intensity was higher in low SE group at baseline, substance use, prescribed and over the counter medication use (mean ranks higher in low SE ($ZU=2.17$ & 1.98, $p<0.05$).	Significant difference in socio-demographics characteristic among Low and High self-efficacy groups. Low SE group had higher symptom intensity and frequency at baseline; use of symptom management strategies differed but symptom frequency improved for all over time.
6	Fairall et al. (2012)	Cluster randomized study, compared MD & RN maintained ART (Cohort 1); MD & RN initiated ART (Cohort 2) from South Africa	3862 (MD); 5390 (RN) 3202 (MD) 3029 (RN	Training & Self-Efficacy	Mean differences in CD4 (24.2, $p<0.05$) & Wt. (0.62kg, $p<0.05$) from baseline in RN group.	Nurses built on existing HIV treatment Prep knowledge & skill to perform expanded roles in HIV treatment.
7	Faris, Douglas, Maples,	Cross sectional survey of	N=1983 nationwide sample: 79.7%	Job satisfaction and nurse	NP Roles: (total score F2=4.98, Collegiality	Type of role, age and length of

Table 2						
Summary of Studies that Examined Relationships among Nurse Demographics, Setting Characteristics, Self-Efficacy and Job Satisfaction.						
S/N	Reference	Study Description	Sample Characteristics	Variables	Study Findings	Conclusion/ Significant Contribution
	Berg & Thrailkill (2010)	APNs in the Veterans' Administration systems to elicit factors related to job satisfaction and barriers to practice	NPs, 17.8% CNS, 91.1% females. Mean Age 49.8(7.9)	demo-graphics	F2=6.55, growth F2=5.49: p<.05). Age: (Total score r=.055, autonomy r=.058, interaction r=.089, growth r=.056: p<.05). Highest mean scores (Benefits 5.18(0.67); Autonomy 4.61(0.77)Lowest: growth 3.60(1.19); collegiality 3.74(1.13)	employment were positively related to autonomy, growth and collegiality. Significant differences by roles. Highest satisfaction: benefits & autonomy; Least with growth & collegiality
8	Kacel, Miller and Morris (2005)	Correlational analysis of factors that influenced APNs' job satisfaction in a Midwestern state in the USA	N=147 APNs, 97.9% females with 2-15 years' experience	Job satisfaction, Demo-graphic & setting character-istics	Minimal satisfaction (M=199.04 (SD = 32.22)), Intrinsic factors highest Mean scores = 5.15-5.24(SD= .67-.85); intrinsic factors lowest Mean 2.69-3.96(SD=1.32-1.52) Practice setting & Experience were correlated to satisfaction levels. (Comm. /Pub. Health scored low in profession, social and comm. interaction M=36(SD=4.71). APNs 0-1yr had high some intrinsic & extrinsic factors	As predicted by the theory, intrinsic factors were strong satisfiers while extrinsic factors were related to dissatisfaction. High satisfaction levels declined gradually, plateaued between 8-11yrs experience & may represent a ceiling in advancement.

Table 2						
Summary of Studies that Examined Relationships among Nurse Demographics, Setting Characteristics, Self-Efficacy and Job Satisfaction.						
S/N	Reference	Study Description	Sample Characteristics	Variables	Study Findings	Conclusion/ Significant Contribution
9	Kim, Oliveri, Riingen, Taylor & Rankin (2013)	An RCT to examine effects of graduate to undergraduate mentoring on anxiety, self-efficacy, academic performance and satisfaction with nursing career choice	N=51 (experimental/ control 34/17), gender Female 94%/100%	Mentoring, demo-graphics, self-efficacy, performance and satisfaction	Pre & post-test: Self-efficacy (adjusted difference = 0.09. p>0.05; satisfaction (adjusted difference=1.38 ,p<0.05)	Although self-efficacy was not statistically significant when compared between groups, the perceived satisfaction with nursing as career choice was significant
10	McAuliffe, et al. (2009)	Cross-sectional survey that explored the work environment of mid-level health workers from 34 health facilities in 3 districts of Malawi	N=157 (57.3% Enrolled and Reg. Nurses, 32% Med. Assistants/ Clinical Officers; 55.6% female & 43.1% males, Mean service yrs. 13.5(SD-not	Job Satisfaction, provider character-istics	Work relations (t (126) =2.42, p=<0.05; Resources &: Professional Satisfaction r = -0.20, p>0.05, Likelihood to leave r= -0.28, p<0.05 & plans to leave r= -0.23; Management support & current assignment r= -0.22, p<0.05; control over practice & salary r= -0.18 p<0.05.	Nurses were more likely to report positive work relationship; Inadequate resources was related with lower job satisfaction and poor retention. Organization support was crucial for retention. Salary was poor in relation to assignment & autonomy
11	Nahm (1940)	A seminal, often referenced as the first study on Satisfaction in Nursing. Conducted in 1935-1939 at Univ. of Minnesota, it explored factors associated	N=275 (36.4% private duty, 36.4% institutional and 27.2% public health nurses, all graduates of nursing schools in Minnesota	Job satisfaction, Nurse and setting character-istics	98% satisfactory attitude to nursing; 78% liked, 21% were indifferent, 1% disliked their jobs. Drivers: Positive perception of Nursing educ., adequacy of nursing training.	Overall high levels of satisfaction. Public health nurses highly socialized with higher levels of satisfaction. Education, future prospects and pay were assoc. with

Table 2						
Summary of Studies that Examined Relationships among Nurse Demographics, Setting Characteristics, Self-Efficacy and Job Satisfaction.						
S/N	Reference	Study Description	Sample Characteristics	Variables	Study Findings	Conclusion/ Significant Contribution
		with job satisfaction or dis-satisfaction among nurses			Income ($1000) & prospects Dissatisfied with: Soc. Science, psychiatry, Infectious disease training, supervisors & workload	high level of satisfaction. Nurses who felt satisfied engaged with professional organizations
12	Ndiwane, A. (1999).	A cross sectional, descriptive study which compared the job satisfaction levels among three groups of nurses providing advance practice roles in Cameroon.	N=158; 88.6 % urban; 11.4% for rural health centers; 37%nurses' aides; 35% registered nurses; 28% state registered nurses & 67% females	Job satisfaction Nurse and setting demo-graphics	Higher Coworker relation t=2.01, $p<.05$ in urban setting; Lower education level had higher satisfaction: work F=9.76, pay F=7.10, promotion F=4.7, coworker F=10.27 $p=<.05$)	Setting & Nurse demographics (education), Type of facility characteristics, years of service and gender were significantly related to job satisfaction.
13	Olusola, O. (2011)	A cross sectional survey to examine relations among employee self-efficacy, intrinsic factors job satisfaction and performance at two industries in Nigeria	N=300 respondents	Self-efficacy, intrinsic motivation job satisfaction and job performance	All three factors together were significant predictors of job performance with 97.1% explained variance (R^2 =.971, $F_{(3,284)}$ =3211, $p<.05$); Intrinsic motivation - 61.5% explained variance (R^2 =.613, $F_{(1,286)}$ =453.2, $p<.05$); Self-Efficacy – 81.5 explained variance (R^2 =.815, $F_{(1,286)}$ =1260.7, $p<.05$)	While intrinsic motivation, self-efficacy and job satisfaction positively predicted job performance, all three together = 97.1% variation in job performance. All three factors are critical for optimal worker productivity

Table 2						
Summary of Studies that Examined Relationships among Nurse Demographics, Setting Characteristics, Self-Efficacy and Job Satisfaction.						
S/N	Reference	Study Description	Sample Characteristics	Variables	Study Findings	Conclusion/ Significant Contribution
14	Takase, Nakayosi, Yamamoto, Teraoka & Imai, (2014)	A longitudinal study of nurse graduates with quarterly measures of perceived competence levels in 1 years at five hospitals in Japan	N=176, (70 BSN; 52 Non-BSN). Mean age 22.77 (SD= 3.14 & 4.65), gender – Female= BSN 92.8% Non-BSN 90,3%	Nurse demo-graphics, Perceived competence in holistic nursing skills	At 3rd month Mean competence Non-BSN =4.04 (0.87), BSN =3.68(0.85) t (116) =2.27, $p<0.05$.	Non-BSN nurses had a higher confidence levels on graduation. Improvement occurred in for both groups over time without statistical significance between groups
15	Tyler et al. (2012)	Cross sectional survey of RNs in post intensive care unit to explore clinical competency, self-efficacy and job satisfaction to develop interventions for students	N=23 RNs, 86% female Means: Age 34yrs, Nursing experience 8yrs	Clinical competency; Self-Efficacy; and Job Satisfaction	Proficiency ratings >10 clinical activities was negatively correlated to self-efficacy and job satisfaction; <10 was positively related to self-efficacy and job satisfaction ($p=0.05$).	Although not significant, improving knowledge and skills proficiency of staff nurses may improve their self-efficacy and prepare them as potential mentors for new graduates

Among the fifteen studies in this table, five (33%) were conducted in HIV settings, eight (57%) in Africa, two (13%) from Nigeria, one (7%) from Japan and six (40%) were conducted in the United States of America. One seminal publication (Nahm, 1940) was included as a landmark study which is often referred to as the first job satisfaction research in nursing. The findings and conclusions remain relevant to job satisfaction research seven decades later. A second older study (Ndiwane, 1999) was also included due to the setting (Cameroon) and similarities to the current study in terms of expanded nursing roles. Ndiwane's (1999) and two APN role transition studies (Faris, Doglas, Maples, Berg & Thrailkill, 2010; Kacel, Miller & Morris, 2005), tested similar variables and were guided by Herzberg's two-factor theory. The findings indicate that intrinsic factors, nurse and setting characteristics were significant correlates of job satisfaction and dissatisfaction as predicted by the theory. Altogether, nine studies (60%) examined job satisfaction, seven (47%) evaluated self-efficacy, three (20%) examined impact of training and mentoring, while demographic factors were used as predictor variables in eight (53%) of the studies. In one of the studies from Nigeria (Olusola, 2011), both high self-efficacy and job satisfaction were predictive of employee job performance. The second study was guided be Herzberg's two-factor theory and used personal demographics as predictor variables for job satisfaction. The findings were significant for length of service, educational level and marriage as positive predictors of job satisfaction. Age was not a significant predictor of job satisfaction. Group variations were also identified in the literature (Akinnawo, Akinbobola & Ahmefule, 2013; Corless et al., 2012; Kacel, Miller and Morris 2005). Overall, these studies provide empirical evidence for the proposed relationships for this study from other populations.

Theoretical Rationale

This study was guided by two theoretical frameworks: Self-Efficacy theory (Bandura, 1982) and Herzberg's (1959) Two-Factor theory.

Self-Efficacy Theory

Self-Efficacy is derived from social learning theory which later expanded to become social cognitive theory in which Bandura (1982; 1989; 1997), defined self-efficacy as a person's perception of his or her ability to perform competently or effectively in a given task or setting. In this theory Bandura (1989), posits that humans have the ability to plan, regulate and actively control their actions and responses to situations. As explained by Beraducci and Lengarcher, (1998), this theory has two main aspects: a) Efficacy expectation which is the perception of capability to perform a task; and b) Outcome expectation or the result expected once the task is performed. Successful outcomes often reinforce and motivate efficacy expectations. Self-efficacy as a concept has been applied in health and non-health related fields (such as psychology, engineering, education etc.) to evaluate academic and technical competencies. For each setting, the interpretations were dependent on the context and specific applications.

In nursing, the concept of self-efficacy has been used to evaluate education and clinical performance, provider and patient behaviors, self-care, symptom and self-management of treatment and preventive modalities etc. (Inge et al., 2012; Rowbotham & Schmitz, 2013; Townsend & Scanlan, 2011). There has been no documented research that specifically explored nurses' self-efficacy to manage antiretroviral therapy in HIV care (Iwu & Holzemer, 2013).

According to Bandura (1997), people with high self-efficacy are motivated and perceive difficult tasks as challenges to be mastered or overcome. However, persons with low self-efficacy tend to avoid difficult tasks. The attributes of self-efficacy include perceived confidence and capability to perform a task, as well as repeated success even under stressful or unfavorable conditions, which is sometimes referred to as resilience or perseverance (Townsend, 2013). These attributes are applicable to the context of task sharing in HIV settings.

Walker and Avant (2005) described antecedents as the conditions that must exist before a concept can be fully understood. With self-efficacy, Bandura (1997) identified the antecedents as "the sources" of self-efficacy which are: a) Mastery experiences with difficult tasks in which success acts as a motivator. Overcoming failures also builds resilience which in task sharing, is accomplished through clinical experiences with case studies, simulations and patients. b) Social modeling whereby one observes others in similar roles or tasks such as preceptors and mentors. c) Social persuasion or expressions of belief in one's capabilities to perform a task by trusted colleagues, educators, supervisors etc. d) Perception of emotional and physical reactions in which a person's repeated success in overcoming situations subjectively perceived as stressful enhances his/her self-efficacy. Figure 1 shows an image adapted by Burt (2011), which is reproduced for this study with permission from the Master's in Science program in Learning and Organizational Change at Northwestern University, Chicago, USA. This image depicts the antecedents of self-efficacy which apply in task sharing situations.
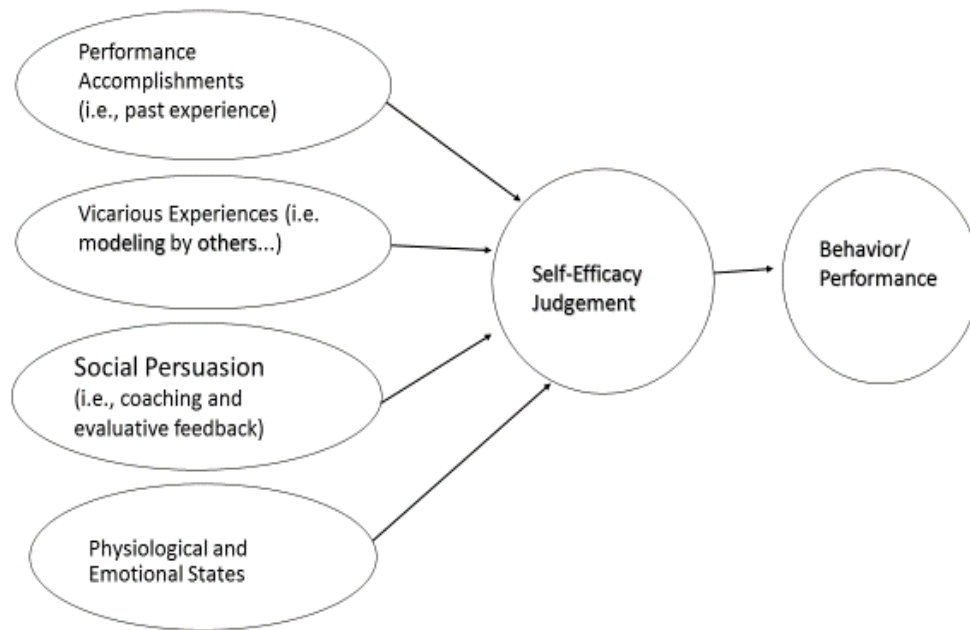
Figure 1: Illustration of the Self-Efficacy Theory (Burt, 2011). Retrieved from

http://sesp.northwestern.edu/masters-learning-and-organizational-change/knowledge-

lens/stories/2013/the-silent-team-member-how-a-lack-of-self-efficacy-can-lead-to-self-

limiting-behavior-in-the-context-of-team-decision-making.html

Review of literature indicates that self-efficacy is sometimes used interchangeably

with self-concept and self-confidence. It is important to note that Bandura (1997)

described self-concept as a person's perception of him/herself that is made up of

cognitive descriptions and affective evaluations of personal attributes. Self-concept is

continuously formed by experience and interactions with the environment. In as much as

self-concept and self-efficacy focus on mastery, performance or behavior and perception

of competence, self-efficacy is a uni-dimensional, prospective cognitive appraisal of

one's capabilities to perform a specific skill based on past performances (Choi, 2005 &

Scherer, 2013). Self-confidence, on the other hand, is the degree to which one "believes

in one's powers and abilities" (retrieved from www.merriam-webster.com/dictionary).

Stankov, Lee, Luo and Hogan (2012) describe self-confidence as a feeling of "certainty"

related to success at a given behavior or activity. It is also considered an important

personality trait that gives one the assuredness to respond in a particular manner in

comparison to other individuals. In contrast to self-efficacy, it does not define the specific

skills and abilities, which are related to the beliefs.

In clinical-based situations involving tasks beyond basic nursing skills (such as

advance practice nursing and task sharing in HIV settings from physicians to nurses),

self-efficacy is usually related to requisite clinical knowledge and skills. Often times,

additional education, competency based training, precepting and mentoring are built in to

enhance nurses' self-efficacy in performing such roles. Since self-efficacy is a belief that

is task or behavior specific, the empirical referents are context-dependent and are usually

measured through self-report.

Job Satisfaction

The concept of job satisfaction originated from management and organizational

psychology, which was exemplified by the work of Hoppock (1935). It is defined as "a

positive emotional state from the appraisal of one's job or job experiences" (Locke, 1976,

p.1304). Bush (1988) described job satisfaction as the extent to which a job allows the

fulfillment of one's important job values to the extent that those values synchronize with

one's needs. According to Judge and Klinger (2008), work is central to peoples' identity

and productive lifetime. These authors described the concept as multi-dimensional,

comprised of cognitive, affective psychological and behavioral responses to one's job.

The antecedents of job satisfaction as presented by Judge and Klinger are: a) Job situation or characteristics or the notion that the nature of the job and the work environment are associated with job satisfaction. This means that jobs with high motivational factors lead to higher job satisfaction. These job motivating characteristics include "task identity and significance, skill variety, autonomy and feedback" (p.399). b) Personal disposition which means that an individual's personality, values and make-up play important roles in job satisfaction. c) Interaction between job situation and personal disposition which supports the notion that satisfaction with a job is a balance between "role input (such as training, experience, time and effort) and role outcomes (pay, work condition and intrinsic factors)" (p.402).

In a recent systematic review, Ravari, Mirzaei, Kazemi and Jamalizadeh (2012) reported that the concept of job satisfaction has been studied in various disciplines and continues to be tested. Research on job satisfaction in nursing dates back to the mid-late 1930s with a study conducted at the University of Minnesota among 275 nurses working in "private, institutional and public health settings" within that state. The findings were presented in a seminal publication by Nahm, 1940 (see also Table 2). A recent meta-analysis of job satisfaction studies in nursing (Zangaro & Soeken, 2007) observed that numerous studies have examined job satisfaction among nurses in general and subsets depending on researcher interests. Some of these studies assessed organizational changes, quality of care, absenteeism, employee retention and turnover, migration, workforce disparities, role expansion and transitions, and advanced practice and faculty roles (Faris, Doglas, Maples, Berg & Thrailkill, 2010; Faye et al., 2013; Kacel, Miller & Morris,

2005; McAuliffe et al., 2009; Poronsky, 2013; Russel & Van Gelder, 2008, Tyler et al., 2012).

Herzberg's Two-Factor Theory of Job Satisfaction

One of the theoretical frameworks used for examining job satisfaction among nurses especially during role transitions is Herzberg's "two-factor" or "motivation-hygiene" theory (Kacel, Miller & Morris, 2005; Misener & Cox, 2001). This theory was developed from Herzberg's study in 1959 where he interviewed a group accountants and engineers about aspects of the job that pleased or displeased them. Herzberg (1959; 1966) described two distinct factors that contributed to job satisfaction, namely: "hygiene or extrinsic factors" and "motivator or intrinsic factors". The theory purports that: a) Extrinsic factors are related to the context or work environment. b) Intrinsic factors are related to the job task performance, which lead to success, achievement and growth (Herzberg, 1959, p.113). In a study to examine the drivers of nurse practitioners' job satisfaction, Kacel, Miller and Morris (2005) reiterated that the theory stipulates that "job satisfaction and dissatisfaction represent two separate domains" which often coexists (p.27). Although these two factors are dynamic, Herzberg (1959) claimed they are "distinct…that the opposite of job satisfaction would be "no job satisfaction," while the opposite of "job dissatisfaction would be no job dissatisfaction" (p.76).

The illustration in Figure 2, reproduced with permission from Web Books Publishing, shows the concepts identified by this theory as: 1) Motivator or intrinsic factors, which are those aspects of a job that energize employees and create long term incentives for high performance and productivity. They include opportunity for

promotion and growth, creative and challenging work, task achievements, recognition,

responsibilities on the job etc. Herzberg (1966) also called these factors "satisfiers" as

they are related to "growth or self-actualization" and contribute strongly to job

satisfaction (p.74-75). 2) The hygiene or extrinsic factors are contextual or environmental

aspects of a job, which are not strong contributors to job satisfaction but act as a critical

element. Herzberg proposed that their "absence to unacceptable levels lead to

dissatisfaction".
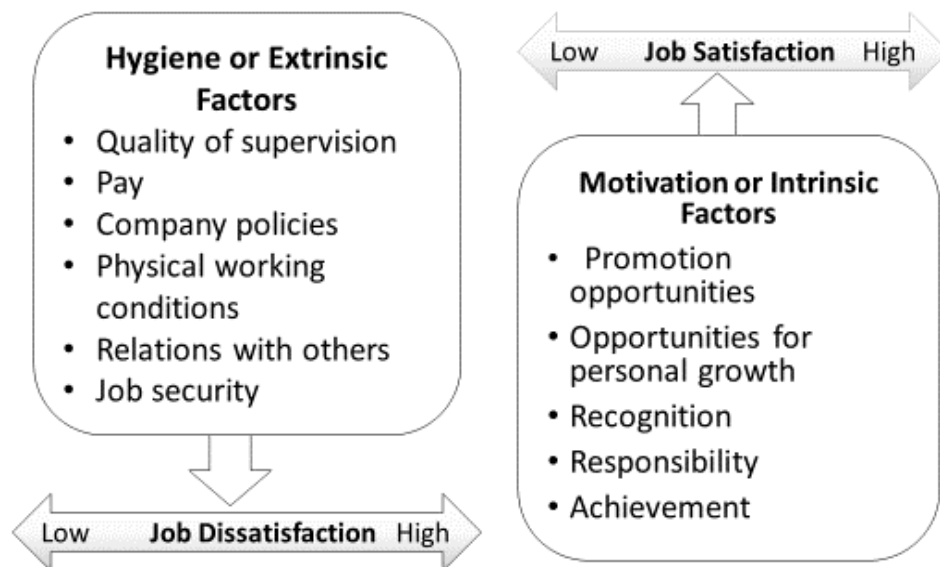
Figure 2: Illustration of Herzberg's Two-Factor Theory (Collins, 2009). Retrieved from

http://www.web-books.com/eLibrary/NC/B0/B66/057MB66.html)

These factors include: quality of supervision, pay or salary, company policies and

administration, physical and work conditions, employee relations, employee benefits, job

security etc. (Herzberg, 1959, p.113-115). Herzberg (1966) later referred to these as

"dissatisfiers or maintenance factors" ([p.74] & Akrani [2010, June 26] retrieved from

http://kalyan-city.blogspot.com/2010/06/frederick-herzberg-two-factor-theory.html).

Summary

In conclusion, this chapter presented a review of the literature and theoretical

frameworks guiding this study. Although little research has been conducted so far, on

nurse specific outcomes such as self-efficacy to perform task shifted roles in HIV care

and job satisfaction, based on the empirical referents from the two theories discussed, the

following assumptions were anticipated from the findings from this study: a) That task

sharing nurse demographic and setting characteristics such as training and mentoring

would significantly correlate with self-efficacy for HIV task sharing. b) That nurse

demographic and setting characteristics such as task sharing training and mentoring

would significantly correlate with job satisfaction. c) That nurse demographic and setting

characteristics such as task sharing training, mentoring and total self-efficacy score would

predict job satisfaction.

CHAPTER III

Introduction

This chapter presents a detailed overview of the methodology for the pilot and main studies, which include the setting, sampling frame, methods, ethical reviews and approval, instruments, data collection processes and analysis plan. The pilot study to assess the validity and utility of the study instruments in Nigeria are discussed. The main study, including the psychometric test of the study instruments' internal consistency, descriptive statistical and correlational analyses are presented. The chapter concludes with a review of anticipated limitations and possible strategies to overcome them.

METHODS

Aims

The overall aim of this study was to examine the correlations among nurse demographic factors, setting characteristics and Nigerian nurses' self-efficacy for management of HIV tasks shifted from physicians, and nurses' job satisfaction.

Design

This study consists of a pilot study which used a focus group methodology with 10 task sharing expert nurses to assess the content validity and utility of the study instruments. Since these instruments are being used for the first time in Nigeria, it was necessary to ensure they were suitable for the unique religious, cultural, linguistic and contextual aspects of practice in Nigeria. The main study was a cross-sectional, correlational study using self-administered, Likert format, questionnaires and a demographic checklist to collected data and examine nurses' perceived self-efficacy to perform HIV treatment tasks shifted from physicians and the nurses' job satisfaction.

This portion referred to as the "Main Study", consists of two phases: a) psychometric

analysis for internal consistency of the study instruments; and b) descriptive and

correlational analysis to test the study propositions. Ethical review and approval for both

phases of this study were obtained from Rutgers University, Institutional Review Board

(IRB) and Nigerian National Health and Research Ethics Committee (NHREC).

Study Questions

   The following research questions were explored:

1. What are the relationships among nurse demographic characteristics and:

   a. Nurses' perceived Self-Efficacy for HIV task sharing with physicians?

   b. Job Satisfaction?

2. What are the relationships among setting characteristics and:

   a. Nurses' perceived Self-Efficacy for HIV task sharing with physicians?

   b. Job Satisfaction?

3. What are the effects of the combined relationships among nurse demographics,

   setting characteristics and perceived self-efficacy on the job satisfaction of Nigerian

   nurses performing task sharing roles with physicians in HIV settings?

Additionally, group variations in relation to the dependent variables were also examined to

identify any variation that significantly associated with either self-efficacy for task sharing

or nurses' job satisfaction.

Research Setting

   The population of interest was African nurses who were performing HIV treatment

protocols previously carried out by physicians. The study was conducted in Nigeria in

collaboration with the Institute of Human Virology Nigeria (one of the largest President's

Emergency Program for AIDS Relief [PEPFAR] implementers in Nigeria), the Nigerian

Federal Ministry of Health (FMOH) and the Nigerian National Primary Health Care

Development Agency (NPHCDA). These collaborations will help to identify eligible

facilities staffed by nurses in task shifted HIV treatment roles and letters of collaboration

have been obtained for the study. A convenience sample of nurses performing task

shifted roles in HIV at tertiary, secondary and primary health facilities (PHC) were

surveyed. To gain access to faith based health facilities, permission will be sought

through the coordinating agencies or directly from the hospital administrators (where no

coordinating agencies are identified). The Principal Investigator (PI) took cognizance of

security risks and warnings by the United States Homeland Security and Department of

State to assure investigator safety in Nigeria.

The health facility referral network ("hub and spoke") system (Appendix A) was

used to reach out to as many nurses in task sharing roles as possible. A typical referral

network system in Nigeria consists of three to five PHC facilities which up-refer patients

to a hub (state tertiary/secondary facility). This structure is similar for faith based health

facilities in Nigeria. About four or five of the hub and spoke units usually refer patients to

a tertiary (teaching) hospital.

The Government of Nigeria has been implementing ART service decentralization to

all levels of public and faith based health systems for the past five years. This coupled

with intensified strategies to drill down prevention of mother-to-child transmission

(PMTCT) services to PHC due to high infant HIV infection, mortality and morbidity

rates (UNAIDS, 2013), increased the pool of nurses performing task sharing roles. There

are about 124,629 nurses and 88,796 midwives nationwide (Nigerian National Strategic

Health Development Plan [NSHDP], 2010) and an average distribution of one to three nurses per PHC (Nigerian Human Resource Strategic Framework, 2007). With a current national estimate of 23,640 health facilities out of which 20,200 are PHCs (NSHDP, 2010), one would expect that up to 50% of the nurses at out-patient tertiary and secondary hospital clinics provide task shifted HIV care, and at least 80% of those at PHCs provide a minimum package of PMTCT which includes ART initiation and monitoring. Since larger numbers of nurses are employed at secondary and tertiary facilities, extra efforts were made to recruit an equivalent number of nurses from the primary health centers so as to ensure a representative sample.

Pilot Study

Sample

A purposive sample of 10 male and female nurses performing task shifted HIV treatment roles at outpatient clinics in Federal Capital Territory (FCT) of Nigeria were invited to participate in this focus group. After seeking written permission from the hospital administrators, the PI visited six (6) health facilities (2 tertiary, 2 secondary and 2 primary health centers) to provide an overview and objective of the pilot study and encouraged nurses performing task shifted roles from physicians to participate in the focus group. The nurses were informed that participation was voluntary, all discussions would be kept confidential and no personal identifiers would be collected.

The health facilities were: National Hospital Abuja; Asokoro District Hospital; University of Abuja Teaching Hospital and Township Clinic in Gwagwalada; Comprehensive Health Center, Dagiri and General Hospital Nyanya (all in the Federal Capital Territory [FCT]). These facilities implemented task shifting of HIV treatment to

nurses for more than two years. The PI presented an overview of this study to the nursing

administrators and HIV clinic nurses. Copies of Rutgers University and Nigerian

National Health Research Ethics Committee (NHREC) approvals and protocol were

provided to the administrators. Only nurses and midwives performing expanded HIV

roles were invited to participate due to their clinical experience with task sharing. Four

nurses from the tertiary hospitals and three each from the secondary and primary health

facilities will be recruited. The PI's phone number was made available so that nurses who

wanted to participate could either call or send text messages for further information about

participation, recruitment letter (Appendix B), consent process, time, day/date and

directions to the venue.

Setting

A conference room at the Institute of Human Virology Nigeria, Abuja (IHVN -

FWA00014857) was used as the venue. This indigenous, non-governmental organization

that collaborates with federal, state and local government entities across Nigeria to

implement health projects. IHVN is a PEPFAR program implementers in Nigeria and a

collaborating organization for this research. All participants were requested to meet at

IHVN office on an agreed upon date and time for the focus group.

Measurement

Although the PI verbally introduced the purpose of the focus group, consent process

and expected outcomes of the content review/focus group (Appendix C), a typed content

reviewer guide with definition of terms and a four-point content validity index (CVI)

quantification scale for representativeness (Grant & Davis, 1997) were provided to

participants for rating the items (Appendix D). For representativeness, the 4-points were:

1= not representative; 2= needs major revision to be representative; 3= needs minor

revision to be representative and 4= representative. Other aspects rated were: clarity (a

dichotomous scale - 1= No and 2= Yes) and relevance to the concept (1= unable to rate,

2= not adequate and 3= adequate). The participants were requested to read and rate every

item on each scale and write comments or recommendations where necessary. These

comments included but were not limited to: the appropriateness of the items, readability

and ease of understanding, applicability to the setting and practice, recommendations to

remove or revise an item with rationales, additional areas of the concept that were

omitted.

All of the study instruments: 15-item Nurse and Facility Demographic checklist;

13-item Self-Efficacy Questionnaire for Task Shifting in HIV care (SEQTS-HIV); and

the 43-item Measure of Job Satisfaction (MJS) were reviewed by each expert nurse.

Although Nigerian nurses speak their individual native languages, general and nursing

education in Nigeria is taught in the English language. As a result, Nigerian nurses speak,

read and write English language fluently. There will be no need to translate the

directions, discussions or the study instruments into any local languages. However, it was

planned that, if there was any indication of limited understanding of the focus group

proceedings by any participants, this would be confidentially evaluated and addressed by

changing discussions in pidgin/broken English (a universally spoken language among

Nigerians which the PI speaks and writes fluently).

Study Procedure

On arrival to the venue, the participants were welcomed by the PI who presented an

overview of the two sessions of the focus group discussion: 1) An overview session for

provision and clarification of study information with the group and 2) Individual session

for content review and rating. The consent process emphasizing voluntary participation

was reviewed. Each participant was given 1:1 opportunity to review and ask the PI any

questions or clarifications prior to signing the consent form.

Session 1 (Group Overview, Questions and Clarifications):

Once the consent process was completed, the PI proceeded with detailed

information about the expectations and roles of expert content reviewers in addition to

ground rules for the focus group (Appendix C). Each participant was given a packet

containing: the content expert review guide and questionnaire (Appendix D) and the three

study instruments (Appendix F). To ensure confidentiality, participants were requested

not to write their names on any of the study instruments or content validity

questionnaires. Everyone was encouraged to speak freely during this group activity. The

PI and expert nurses reviewed and discussed the concept definitions and other

components of the content review guide to maximize group and individual understanding.

Also, clarifications with examples of any aspects of the concepts that were not being

measured by the study were discussed. Once all participants verbalized understanding of

the expectations and roles, they were given guidance for the second session and this the

group session.

Session 2 (Individual Content Review):

Using the four-point content validity index (CVI) quantification scale and processes

outlined by Grant & Davis, 1997; Polit & Beck, 2006, the participants individually rated

the items on each instrument. As indicated earlier, the ratings were in terms of

representativeness, clarity and relevance to the concepts and Nigerian practice context.

The expert nurses provided opinions and made recommendations in relation to the following key areas:

1. The comprehensiveness of the nurse and facility checklist in capturing important elements for describing the demographic factors of nurses and health facilities in Nigeria

2. The comprehensiveness of the task sharing training components and types

3. The completeness of the types and methods of task sharing mentoring

4. Additions to the list of other aspects of the concepts they believe were omitted

5. The appropriateness of the survey questions (or items) for both the Self-Efficacy and Job Satisfaction questionnaires for nursing practice settings in the context of Nigeria.

6. If the items were applicable to Nigerian practice environment (in terms of religious and cultural sensitivity)

7. If the survey language was easily readable and comprehensible

8. Provision of recommendations for removing, revising or adding items including the reasons for each recommendation

9. Finally, each expert nurse provided an overall rating for each measure's comprehensiveness.

Before concluding the review session, the participants were given the opportunity to ask questions about the pilot study. Payment of token for transport and communication were paid as the participants left the study venue.

Protection of Human Subjects

The nurses were informed that their participation was voluntary and confidential, and that they could withdraw from the study at any time without fear of repercussions. The participants were informed and provided with copies of the IRB approvals from Rutgers University and Nigerian National Health and Research Ethics Committee (NHREC) as well as the consent form. The PI reviewed the consent form and provided clarification when needed. All participants were given an opportunity to ask questions before they initialed all pages and signed the consent form.

The risks associated with this study were minimal and no more than those encountered during normal day-to-day activities. This detailed consent process was to ensure full comprehension, voluntary participation and freedom to withdraw at any time if desired without fear. The collected data was transported in sealed envelopes to the PI's office where they are kept in a locked file cabinet. The data was only made available to the research advisor/Co-PI. Since no identifiable information was collected during the focus group discussion (FGD), subsequent publications would not be able to identify individual subjects.

Analysis

Ratings, comments and recommendations were reviewed and analyzed across individual expert nurses to produce a summary item- and scale-content validity index (I-CVI and S-CVI). I-CVI were calculated by the ratio of expert nurses that rated each item as representative (4) or needs minor revision to be representative (3). Items with a range of 70% or higher inter-rater agreements (I-CVI) were accepted. Items with I-CVI below 70% were reviewed and revised (Polit & Beck, 2006; Grant & Davis, 1997) to make them more representative, easier to understand or relevant to the context based on expert

recommendations. Ratings in the areas of clarity and concept dimension and

recommendations will also be reviewed. Once all revisions were effected on the scales,

the instruments underwent a final review and editing by the PI and research advisor. With

concurrence from the dissertation committee, the instruments were finalized and

reproduced for use in the main study.

The Main Study

Sample

To obtain a representative sample, a convenience minimum sample of 300 nurses

and midwives were projected for the survey. Male and female nurses and midwives aged

18 years and above, who were performing HIV task shifted roles were invited to

participate. Nurses and midwives who did not meet these criteria were excluded. Using

the Nigerian FMOH HIV decentralization and PMTCT state saturation plan, national

prevalence and implementing partner collaborations as a guide, eight states were selected

for this study. Participants were drawn from the health facility "hubs-spokes" identified

(as task shifting or sharing sites) by the state Hospital Management Boards and Primary

Health Divisions of the following states and geo-political zones: Kano and Borno (North

East), Katsina (North West), Enugu (South East), Ogun (South West), Delta (South

South), Federal Capital Territory and Nassarawa (North Central). Nurses who performed

task shifted roles at government owned and faith-based health facilities in these states

were surveyed.

Taking into consideration the nursing staff distribution patterns at the various levels

of the health system in Nigeria, obtaining the target sample size entailed a projected

participant invitation from approximately 16 tertiary hospitals (at 7 nurses per site), 20

secondary facilities (at 5 nurses per site), and a minimum of 60 PHCs (at 2 nurses per site) from the four geographic regions of Nigeria. Extra efforts through personal contacts, were made to recruit an equivalent sample size from the primary health centers since larger numbers of nurses were employed at secondary and tertiary health facilities. Participating sites were identified through the federal and state Ministries of Health (MoH), National Primary Health Care Development Agency (NPHCDA) and HIV program implementing partner organizations. Considering the possible security risks involved with political elections and travels within Nigeria, warnings from the United States Homeland Security and Department of State were taken into account with site selection to assure investigator safety. This was highly necessary as questionnaires were hand delivered onsite and collected by the researcher and trained assistants. Therefore, in regions with safety concerns, local research assistants were trained to administer, collect and transport the surveys.

Power Analysis

With one measurement point and number of predictor variable sets of 6 and 4, an a priori sample calculation for a hierarchical multiple regression was calculated using a sample calculator (www.danielsoper.com/statcalc3) as follows: a probability level (alpha) of 0.05, anticipated effect size of 0.05 and desired statistical power level of 0.80. A sample size of 248 (two hundred and forty-eight) nurses and midwives was required for the study to achieve adequate power. Based on review of literature and the fact that questionnaires will be hand delivered and collected at participating facilities, it was projected that the response rate for this survey would be about 80%. This was higher than the projected average of 60% or below (Fincham, 2008). Therefore, an over-sampling

rate of 20% was built in to accommodate incomplete surveys or non-responses. Thus, 300

surveys were projected for distribution targeting at least 100 nurses and midwives from

each of the three levels of the health system.

Measures

Three instruments were used for data collection: a) A 15-item adapted demographic

checklist (Traynor & Wade, 1993); b) A 13-item, Likert format Self-Efficacy Scale for

Task Shifting in HIV care (SEQTS-HIV) adapted from the General Self-Efficacy scale

(Schwarzer & Jerusalem, 1995a); c) A 43-item Measure of Job Satisfaction scale

(Traynor & Wade, 1993).The assessment of these instruments' validity and utility in the

Nigerian practice setting was described in the pilot study. These surveys were produced

in English (the dominant language for nursing education in Nigeria) and completed by

the nurses (Appendix F). The nurses were also provided an opportunity to answer six

open-ended questions related to challenges with their current roles and job satisfaction as

well as additional comments about training and mentoring components.

Dependent Variables

Perceived Self-Efficacy for HIV Task Sharing

Perceived self-efficacy is theoretically defined as the "self-perception of one's

ability to perform competently and effectively in particular tasks or settings" (Bandura,

1982; 1989; 1997)**.** In order to identify a scale for measuring Nigerian nurses' perceived

self-efficacy to perform specific HIV tasks shifted from physicians in relation to the

identified training components, a review of literature was conducted. This search yielded

multiple self-efficacy instruments for various populations and purposes. However, none

matched the factors being examined in this study or seemed specific enough to

satisfactorily measure the variables of interest as related to task sharing in HIV care. The

utility and adaptability of the General Self-Efficacy scale (GSE) (Schwarzer & Jerusalem,

1995a) was assessed and deemed appropriate for adaptation. The GSE is a

comprehensive, 10-item instrument for predicting perceived self-efficacy to cope with

daily difficulties among adults who experience stressful life events. The GSE scale is

widely used internationally and had demonstrated consistent reliability (Cronbach's

(1951) alpha ranges from .76 to .90) in samples from twenty three studies. One major

drawback was the scale's generic nature, for which the developers (Schwarzer &

Jerusalem, 1995b) recommended adaptations and additional items to make the scale

specific for situations being measured. As a result, the 13-item, Likert format, Self-

Efficacy Questionnaire for Task Shifting in HIV care (SEQTS-HIV) was adapted for this

study. A similar adaptation measured self-efficacy as a predictor of job stress and burn-

out among teachers in Syria and Germany with an internal consistency of .87 and .86

respectively (Schwarzer & Hallum, 2008).

Nurse perceived self-efficacy for HIV task sharing with physicians was

operationalized as scores on the finalized Self-Efficacy Questionnaire for Task Shifting

in HIV care (SEQTS-HIV) scale (Appendix F). Each item on this scale was designed to

measure the nurse's perceived ability to perform specific skill sets (variables) based on

HIV task sharing training components. An illustration of the variables to be measured by

this scale are also presented in Table 3.

Job Satisfaction

Job satisfaction is theoretically defined as the extent to which a job fulfills an

individual's important job values; the degree to which those values are congruent with

the person's needs (Bush, 1988). Perceived job satisfaction was operationalized as the

nurses' scores on the Measure of Job Satisfaction scale (Traynor & Wade, 1993), a valid

and reliable 43-item, Likert format scale with seven sub-scales (Appendix F). This scale

performed reliably well in five African countries (Chirwa, et al., 2009) in HIV settings

with subscale Cronbach's (1951) alpha coefficient 0.84 to 0.89 (Table 3).

Independent Variables

Task Shifting/Sharing) Training

Task sharing training is theoretically defined as "competency-based activities using

standardized curricula designed to provide a cadre of health workers the necessary

knowledge and skills required to meet the roles, competency levels, and standards

expected of such trainees" (WHO, 2008, p.28). The training components include:

physical assessment, laboratory value interpretation, medication, symptom, side effects

and opportunistic infection identifications and management. (Cameron, Gerber, Mbatha,

Mutyabule, Swart, 2012; Georgeu, et al. 2012: WHO, 2013). Task sharing training was

operationalized as the nurses' responses to identified preparatory training activity items

on the adapted demographic checklist ([Traynor & Wade, 1993], Table 3 and Appendix

F).

Task Shifting/Sharing Clinical Mentoring

Clinical mentoring for task sharing in HIV care is theoretically defined as "a system

of practical training and consultation that fosters ongoing professional development to

yield sustainable high-quality clinical outcomes" (WHO, 2006c, and p.10). In this study

clinical mentoring for HIV task sharing between physicians and nurses was

operationalized as participants' responses to clinical mentoring items on the demographic

checklist (Table 3 and Appendix F).

Demographic Variables

Nurse Demographic Factors

Demographic factors are defined as socioeconomic characteristics of a population

([2014], Retrieved from http://www.businessdictionary.com/definition/demographic-

factors.html). The pertinent nurse demographic variables measured include: age, gender,

type of licensure, job title and duration of experience as a nurse. In this study nurse

demographic factors were operationalized as participants' responses to demographic

items on the adapted demographic data checklist ([Traynor & Wade, 1993] Table 3 and

Appendix F).

Health Facility Characteristics

Health facility characteristics is theoretically defined as geographic coverage and

service packages: primary, secondary or district and tertiary facilities provide (Hensher,

Price, & Adomakoh, 2006). The health facility characteristics of interest were the type

and ownership of the health facility the respondents work in. In the Nigerian, these would

include: government and non-government owned; tertiary, secondary or primary health

center (comprehensive or non-comprehensive PHC). Health Facility characteristics were

operationalized as nurses' responses to work setting and health facility items on the

demographic data form (Table 3 and Appendix F).

Table 3

Concepts, Variables and Measurement Scales

Concepts	Variables	Measurement Tools	References
Provider demographics	Age, Gender, Years of HIV Experience, Licensure, Cadre/Title	Demographic Checklist	Investigator adapted form (Traynor & Wade, 1993).
Setting characteristics	Setting/Type & Ownership of Facility; Type of Task Shifting; Training; Mentoring & Duration; Content of training	Demographic Checklist	WHO (2009): Task shifting guideline; WHO, (2006) Recommendations for clinical mentoring …; Nigerian Nat. Guideline for treatment of HIV (2010)and current literature
Nurses' Self-Efficacy in HIV Management	HIV Management Task Performance: Patient history, assessment, diagnostics, laboratory review, Medication and opportunistic infection counseling, documentation, role negotiation & team communication	Self-Efficacy Questionnaire for Task Shifting in HIV care (SEQTS-HIV)	Adapted from: Schwarzer, R., & Jerusalem, M. (1995a). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, Measures in health psychology: A user's portfolio. Causal and control beliefs (pp. 35-37). Windsor, UK: NFER-NELSON.
Nurses' Job Satisfaction	Personal satisfaction; Workload; Professional support; Training; Pay; Prospects; and Standard of Care	Measure of Job Satisfaction Scale (MJS)	Adapted from: Traynor & Wade, 1993 – designed for measuring fob satisfaction among groups of nurses. Applied in HIV settings in five African countries by Chirwa et al., 2009

Protection of Human Subjects

The study protocol was submitted for Institutional Review Board (IRB) approvals

from Rutgers University and Nigerian National Health Research Ethics Committee

(NHREC). Participants were informed that their participation was voluntary; none of the

data obtained would be shared with any of the employers; and they could withdraw from

the study at any time without fear of repercussions. Although general and nursing

education in Nigeria is in English and all nurses speak, read, write and comprehend

English, steps were taken by the PI (and trained assistants) to assess for comprehension

barriers. When noted, consent explanations were carried out in pidgin/broken English (a

universally spoken language in Nigeria). The participants were also be notified about and

provided with copies of IRB approvals from Rutgers University and Nigerian NHREC.

Although the consent statement is appended to each questionnaire, a full explanation of

the informed consent process was reviewed with each participant. Consent process

clarification was provided if needed. A token of $2.00 phone card was given to each

participant to offset any communication costs. Every participant that returned his/her

completed questionnaire received an additional $3.00 phone card. All tokens were in

local currency. The risks associated with this study were minimal and no more those

encountered during normal day-to-day activities. Data collected were transported in

sealed envelopes to the PI's office where they will be kept in a locked file cabinet. Data

were only made available Co-PI/advisor. Since no identifiable information was collected,

subsequent publications would be unable to identify individual subjects.

Also, there were no immediate benefits to the participants, but long term benefits

could be derived if findings from the study are used to design interventions that enhance

preparation and support for nurses and other health personnel in task sharing roles,

increase patient access to health services, improve work environment or facilitate policy

changes in support of expanded roles for nurses in the future.

Data Collection Procedures

Once IRB approvals were obtained from Rutgers University and Nigerian National

Health and Research Ethics Committee (NHREC), permission was sought from

participating States, and health facility administrators. A letter introducing the objectives

of the study (Appendix E), copies of the protocol and IRB approval letters were provided

to the administrators. The PI (or trained assistants in very high risk states) visited each

facility's medical and nursing administrators to answer any questions about the study.

Once permission was obtained from participating facility administrators, the researcher

(or trained assistant where necessary) visited the sites to provide details about this study,

discuss confidentiality and consent for the study and post recruitment flyers at the

outpatient clinic (Appendix G). Clinic nurses were encouraged to invite other nurses who

have performed task shifted roles, but have transferred out of the clinic, to participate.

Questionnaires were distributed onsite to nurses who voluntarily agreed to

participate. A token of $2.00 phone card was given to each participant to offset any

communication costs. To reduce incidence of missing data, completed questionnaires

were checked by the researcher (or trained assistant) prior to collection. Participants were

reminded to rectify any missing information if found. An extra $3.00 phone card was

given to each participant that returned his/her completed questionnaire. All completed

surveys were transported in sealed envelopes for storage in a locked file cabinet. All

electronic files are password protected and under the custody of the researcher.

Data Entry and Cleaning

The data was entered as the questionnaires were received using IBM Statistical

Package for Social Sciences (SPSS) version 21 (SPSS IBM, New York, U.S.A) software.

The data was double entered for data cleaning. Once completed, the data were cross-

checked against each other to identify and correct missing or mis-keyed items.

Data Analysis Plan

Data analysis was performed using SPSS version 21 (SPSS IBM, New York,

U.S.A.). There were two phases in the analyses. Phase one consisted of a psychometric

analysis for internal consistency of the measurement scales while phase two involved

descriptive and correlational analyses.

Phase 1 (Psychometric Analysis)

The internal consistency for both the SEQTS-HIV and the MJS scales were

assessed by calculating the Cronbach's alpha coefficient. Based on the criteria as

described by Nunnaly and Bernstein (1994), a Cronbach's alpha coefficient between .70

and .90 were considered acceptable internal consistency for each scale. Items may be

dropped from the surveys if it was necessary to ensure adequate alpha reliabilities.

Phase 2 (Descriptive and Correlation Analyses)

Exploratory descriptive statistics were conducted. Multi-level (step-wise) regression

analyses were used to examine the research questions, examine group and setting

differences as well as answer the study questions.

1. To examine the relationships among nurse demographic characteristics and

   nurses' perceived self-efficacy, a Pearson's product-moment correlations and

regression analyses were conducted with nurse demographics as predictor variables; and self-efficacy as the dependent variable.

2. To examine relationships among nurse demographic characteristics and job satisfaction, a Pearson's product-moment correlations and regression analyses were conducted with nurse demographics as predictor variables and job satisfaction as the dependent variable.

3. The relationships among setting (or facility) characteristics perceived self-efficacy were examined using a Pearson's product-moment correlations and regression analyses with setting characteristics as predictor variables and self-efficacy as the dependent variable.

4. The relationships among setting (or facility) characteristics and job satisfaction were examined using a Pearson's product-moment correlations and regression analyses with setting characteristics as predictor variables and job satisfaction as the dependent variable.

5. To examine the overall multivariate effect of nurse demographics, setting characteristics and self-efficacy on job satisfaction, a hierarchical regression model was fitted using nurse demographic variables, setting characteristics and self-efficacy total scores as predictor variables and job satisfaction as the dependent variable.

Group variations in relation to the dependent variables were examined using independent T-test and one-way analysis of variance (ANOVA) to identify any significant variations associated with self-efficacy for task sharing or job satisfaction.

Finally, statistical interpretations and conclusions were made using the analytical outputs to answer the study questions and theoretical assumptions.

Timeline

The timeline for this study is presented in (Appendix A). It was projected that the IRB approval process should be completed by the middle of October, 2014. This would be followed by the pilot study (site approval and recruitment, FGD, data analysis and instrument finalization) from October to early November. The main study site preparation, data collection and data entry were projected to run concurrently through January 2015. Writing were to start during data analyses and continue after dissertation defense for the purpose of manuscript preparation, submission and publishing.

Study Limitations

A major limitation of this study would be the fact that perhaps, the most dissatisfied nurses and those with lowest self-efficacy levels may have left the task sharing roles. It is most likely that they could have transferred from the outpatient clinics to other units especially at tertiary and secondary facilities and out of the facility in PHCs. They may not have the opportunity to participate in the study since recruitment would be done at outpatient clinics. However, attempts were made to extend invitations to them through snowball recruitment strategies. Another foreseeable limitation was the lack of access to nurses in task sharing roles in parts of Nigeria deemed highly unsafe for subject recruitment. This situation could eliminate these nurses from the sample pool, however, wherever possible, local trained assistants were used to overcome this challenge.

Summary

In conclusion, this chapter described the plan for sample recruitment, data collection, data entry and analysis within the projected timeline. It was important for the researcher and assistants to remain consistent but flexible and ready to adapt to unforeseen progress and challenges alike. Government approved holidays, political, physical infrastructural, social and other situational challenges beyond the researcher's control had to be accommodated. Bi-weekly debriefing with Co-PI/advisor were necessary to discuss progress and ensure challenges are addressed promptly.

CHAPTER IV

Introduction

In this chapter, the results of statistical analyses and findings for the pilot and main studies are discussed. The pilot study was conducted to ensure the content and applicability of all three measurement scales (the Nurse and Facility Demographic checklist; Self-Efficacy Questionnaire for Task Shifting in HIV care (SEQTS-HIV); and the Measure of Job Satisfaction (MJS) were appropriate for the population and context being studied. Once this step was completed and the content validity was deemed adequate, the questionnaires were deployed to the target states for distribution to nurses in HIV task sharing roles.

ANALYSIS OF DATA

Pilot Study: Content Validity and Contextual Appropriateness

Thirteen Nigerian expert nurses from tertiary, secondary and primary health facilities in north central Nigeria were invited to participate in a focus group to determine the appropriateness and content validity of the surveys. Although eleven nurses responded to the invitation, only 10 participated. One nurse traveled out of the area and did not return in time for the focus group. Using the four-point CVI quantification scale (Grant & Davis, 1997; Appendix D), the participants rated each item for representativeness, clarity and relevance to the concepts. The data were entered into a Microsoft Excel spreadsheet and total ratings for each item were computed. The ratings are presented for each questionnaire.

Nurse and Facility Demographic Checklist – Each item on this checklist received a rating of 3 (needs minor revision) or 4 (relevant) for relevance or representativeness.

The inter-rater (IR) agreement or item content validity (I-CVI) was 10/10 (1.0). In terms

of clarity, all 15 items were also rated as 2 (Yes) resulting to an IR score of 10/10 (1.0).

For completeness, the demographic checklist had an IR score of 8/10 for one item; 9/10

for 6 and 10/10 for eight items. These resulted to an IR/I-CVI of 0.80 – 1.0. The values

for all three categories were within acceptable ranges of >0.70. The proportion of items

rated as 3 or 4 for relevance (i.e. the scale's CVI), was calculated as 15/15 = 1.0 or 100%.

A suggestion from the participants was to include "faith-based" in parenthesis next to

"non-government owned" category under job setting. This suggestion was incorporated

into the checklist.

Self-Efficacy Questionnaire for Task Shifting in HIV care (SEQTS-HIV - In the

area of relevance or representativeness, all 13 items received ratings of 3 (needs minor

revision) or 4 (relevant) resulting to an IR/I-CVI score of 10/10 (or 1.0). For Clarity, the

IR/I-CVI ranged from 9/10 (0.90) for one item to 10/10 (1.0) for twelve items.

Completeness had an IR range of 9/10 (0.90) for three items to 10/10 (1.0) for 10 items.

The content validity index (CVI) for this scale was calculated as 13/13 = 1.0 or 100%.

The participants suggested to consider adding the following statements: a) I am confident

in my ability to practice independently; b) I can confidently initiate antiretroviral therapy;

c) I am well versed in the right combinations and dosing of ARTs without fear.

Measure of Job Satisfaction (MJS) –This 43-item scale IR for relevance or

representativeness were 9/10 (0.90) for two items and 10/10 (1.0) for the remaining 41

items resulting to an IR/I-CVI range of 0.9 – 1.00. Clarity ratings were 8/10 (0.80) for 1

item, 9/10 (0.90) for seven items and 10/10 (1.0) for the remaining 35 items. The overall

IR/I-CVI ranged from 0.80 – 1.0, while the CVI was calculated as 41/43 = 0.95. The

suggestions for modification were to: a) Remove the first item on the scale ("payment for

the hours I work") because nurses in Nigeria are not paid by the hour and there were

other items that captured satisfaction with salary. This item may confuse participants and

answers may not reflect the intended outcome. b) Consider including these statements to

capture boredom: "Are you getting bored with your job? Is your job becoming

monotonous? Will you need a change from your present role?" The first recommendation

was accepted and incorporated thereby making the adapted scale a 42 item scale.

Summary of Pilot Study

Data from the pilot study supported that the three instruments had acceptable

interrater agreements and content validity. There were suggestions for minor revisions

which were discussed. The suggestions to add "faith-based hospital" to the question on

facility ownership and to remove the question about satisfaction with hourly pay were

accepted and incorporated. The instruments were considered acceptable and ready for use

in Nigeria and were printed for distribution.

<div align="center">

Main Study

</div>

Data Collection and Management

Some security challenges were encountered during the data collection phase. Due to

security concerns related to militant insurgence by Boko Haram especially in northern

Nigeria, coupled with election-related riots, there were warnings and travel restrictions

from the United States Homeland Security. This situation was made worse due to a

nationwide health worker strike. This led to the decision to train local nurses as data

collection team leads within the eight states. The collaboration with the Federal Ministry

of Health facilitated access to state Ministries of Health and lead HIV program

implementing agencies. This made it easier to gain access to all HIV treatment facilities in each state.

Concerted efforts were made to recruit participants from the North Eastern Nigerian state of Borno where some of the health workers and clients had been displaced due to Boko Haram militant attacks. For instance, in Borno state, the data collection team leader printed and distributed the surveys to health facilities through road transport workers to motor parks where site based data collection teams from the hospitals picked them up and returned them in sealed envelopes after completion by the nurses. The site based assistants were very instrumental to the distribution of the surveys to nurses who only maintained skeletal but short schedules at clinics to ensure ART refills. All surveys were pooled by state data collection team leaders and returned to Abuja for shipment to the PI in New Jersey.

A total of 508 surveys were distributed targeting 100% of nurses in task sharing roles in eight (8) of the 36 states in Nigeria. Out of 454 surveys returned, fifty five (55) which were completed by non-nurse respondents were rejected. A total of 399 (N=399) surveys met criteria for analyses with a response rate of 78.5%. All data were entered and cleaned as described by Polit and Beck (2014) identifying, reviewing and correcting any mis-keyed values and outliers. The data were analyzed using SPSS Version 21 (SPSS IBM, New York, U.S.A.) software.

Study Findings

Demographic Description of Study Sample

A total of 399 Nigerian nurses and midwives (N=399) performing HIV task sharing roles in eight states of Nigeria (Borno, Delta, Enugu, the Federal Capital Territory, Kano,

Nasarawa, Katsina, and Ogun) participated in the study. Their gender distribution was 76% females and 24% males. The mean age and years of nursing practice were 41.97 (*SD* 9.1) and 17 (*SD* 9.2) years respectively. While smaller proportions had single license as Registered Midwife (3%) or Registered Nurse (27%), 70% were licensed as Registered Nurse/Midwives (Figure 3).

Figure 3: Licensure
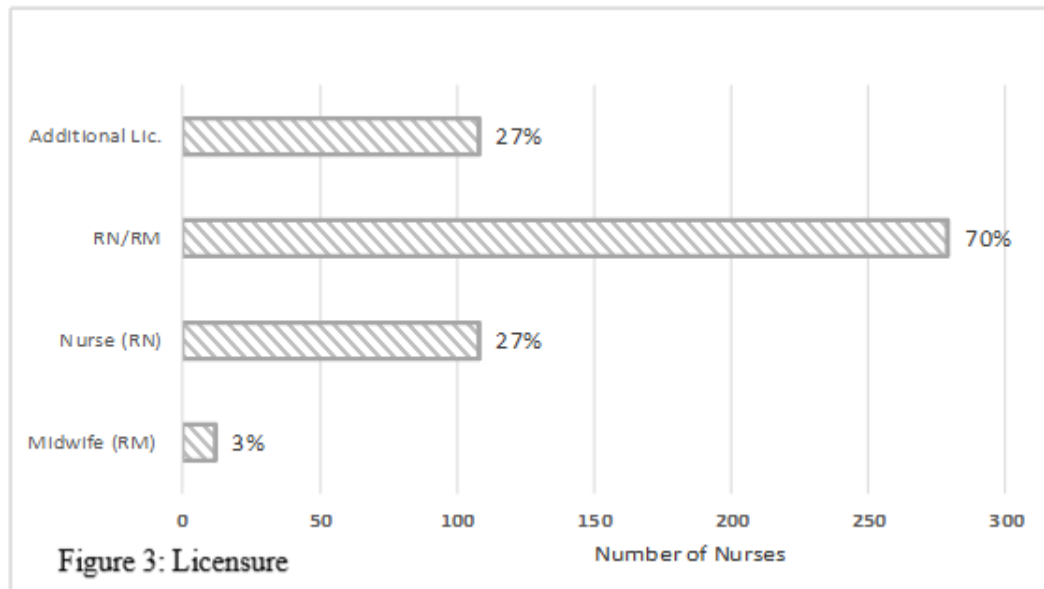
About one third of the nurses had either a baccalaureate degree and/or specialty certification in fields such as public health, community health, operating room, ophthalmology, orthopedics, psychiatry and pediatrics. A majority (82%) reported prior HIV nursing experience. The nurse demographic characteristics are shown in Table 4.

Table 4.

Demographic Characteristics of Nurses in Task Sharing Roles (n=399)

Variables	Mean	Standard Deviation
Age (years)	41.97	9.1
Years in Nursing Practice	16.75	9.2
Duration HIV Experience (years)	3.79	3.4
	Frequency	**Percentage (%)**
Previous HIV Experience	328	82.2
Gender		
Male	94	24
Female	305	76
Licensure		
Registered Midwife (RM) only	12	3.0
Registered Nurse (RN) only	108	27.1
Registered Nurse/Midwife (RN/RM)	279	69.9
Additional (Specialty) License	108	27.1

Facility and Setting Characteristics

The three levels of health facilities within the Nigerian health system were represented in the following proportions: 26% from Tertiary hospitals, 46% from Secondary hospitals and 28% from Primary Health Centers. By engaging the lead implementing partners appointed by the FMOH for state HIV programs, it was possible to obtain lists of health facilities providing HIV services in these states. With the exception of Borno where access to some facilities was impeded by the Boko Haram militant riots and displacements, states with very low numbers of nurse respondents at primary care level had only community health workers at those centers (Figure 4).

Figure 4: Nurses per State
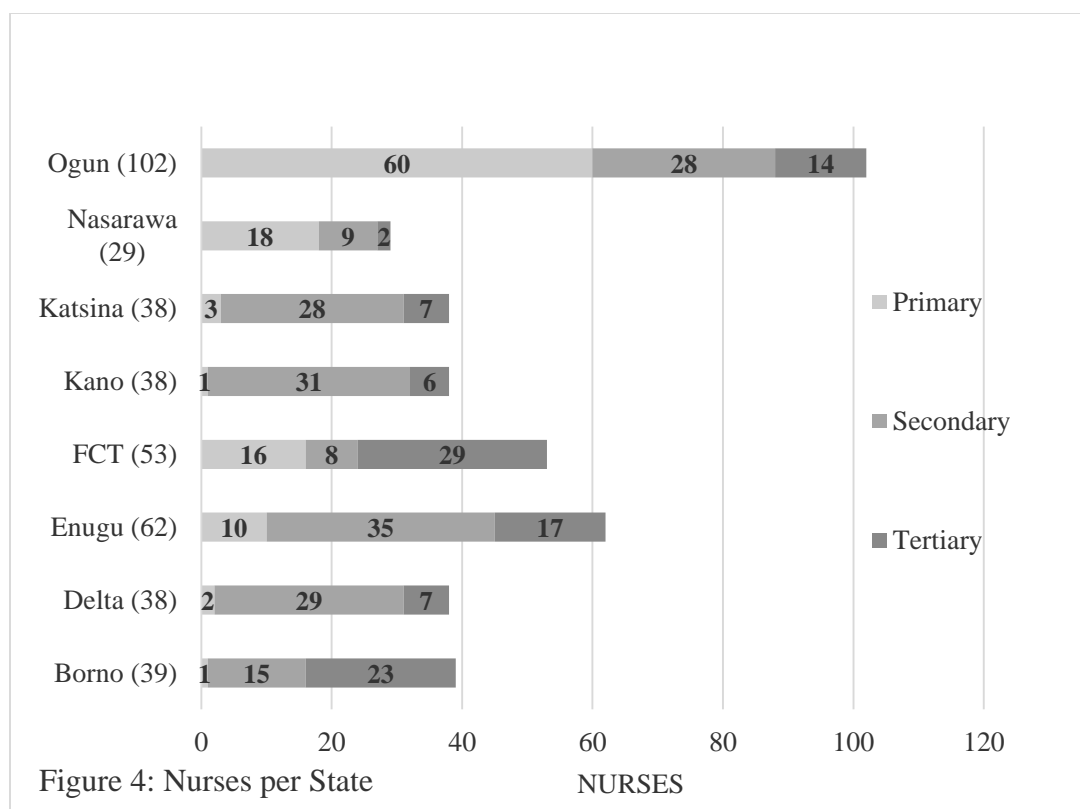
As illustrated in Table 5 and Figures 4 and 5, majority of the nurse respondents (86%) worked in Government-owned facilities and the proportion who received task sharing training was 98%. Clinical practicum was the most frequent method of training and constituted 67% of all training. The mean training duration was 7 days with a standard deviation of 5 days. Also, 96% of the nurses received clinical mentoring from either physicians (42%), nurses (38%) or both (16%).

A small proportion of nurses (3%) did not receive any mentoring. Onsite mentoring was the most frequent method of mentoring (94%) followed by phone calls (8.9%). Some of the nurses were mentored both onsite and by phone.

Table 5

Facility/Setting Characteristics of Nurses in Task Sharing Roles (n=399)

Variables		Mean	SD
Training			
	Duration of Training (days)	7.04	5.1
		Frequency	**Percentage (%)**
	Received Training	389	97.5
Type of Training*	Classroom/Lecture	179	44.9
	Clinical Practicum	265	66.6
	Interactive Case Reviews	53	13.3
Mentoring			
	Received Mentoring	381	95.5
Cadre of Mentor*	Physician only	167	41.9
	Nurse only	150	37.6
	Physician & Nurse	65	16.3
Mentor Availability*	All the Time	126	31.6
	Sometimes	254	63.7
	Not at all	18	4.5
Methods used by Mentors**	Onsite	376	94.2
	Phone	35	8.9
Job Setting			
Facility Ownership	Public (Govt. Owned)	343	86
	Faith-Based (Non-Govt.)	56	14
Type of Facility	Tertiary	103	25.8
	Secondary	184	46.1
	Primary Health Centers	112	28.1
State of Employment			
Borno		39	9.8
Delta		38	9.5
Enugu		62	15.5
Fed. Capital Territory		53	13.3
Kano		38	9.5
Katsina		38	9.5
Nasarawa		29	7.3
Ogun		102	25.6

*Values do not add to100% due to missing data. **Some nurses were mentored Onsite and by phone.*

Figure 5: Mentor Cadre; Availability & Method Used
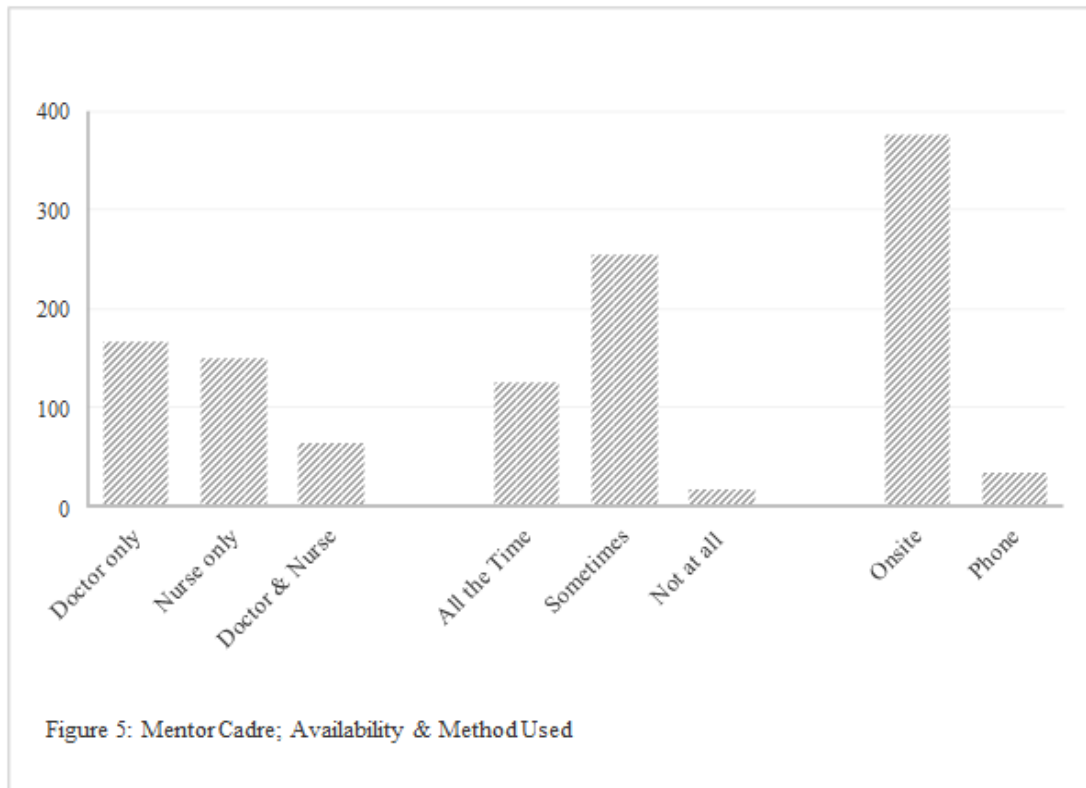
Dependent Variables: Self-Efficacy and Job Satisfaction

The frequency distributions of the total Self-Efficacy and Job Satisfaction scores are presented in Table 6 and Figures 6 and 7. The median total self-efficacy score was 49 (*IQR* 7); the minimum and maximum scores were 17 and 52 out of possible scores of 13 - 52. The mean job satisfaction score was 156 (*SD* 21.7) while the minimum and maximum scores were 77 and 215 out of possible scores of 43 –215. The total Self-Efficacy score was found to be negatively skewed as illustrated by the histogram and statically significant Kolmogrov-Smirnov (0.231, *p*< 0.001) and Shapiro-Wilk (0.687, *p*< 0.001) tests. The total job satisfaction scores, on the other hand, had a normal distribution and neither of the normality tests was statistically significant.

Table 6

Descriptive Statistics of Dependent Variables

Variables	Range	Median	Mean	SD/IQR	Skewness
Self-Efficacy for HIV Task Sharing	17 - 52	49.0	47.1	7.0	-3.2
Job Satisfaction	77 - 215	156.0	156.0	21.7	0.12
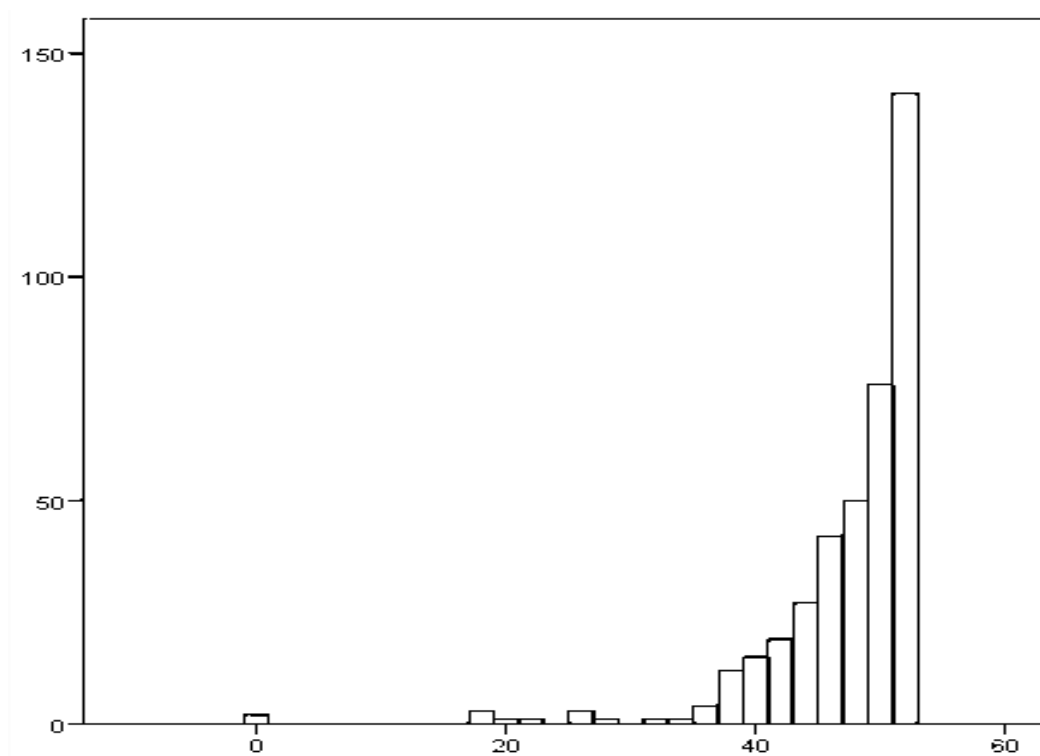
Figure 6: Total Self-Efficacy Score Distribution
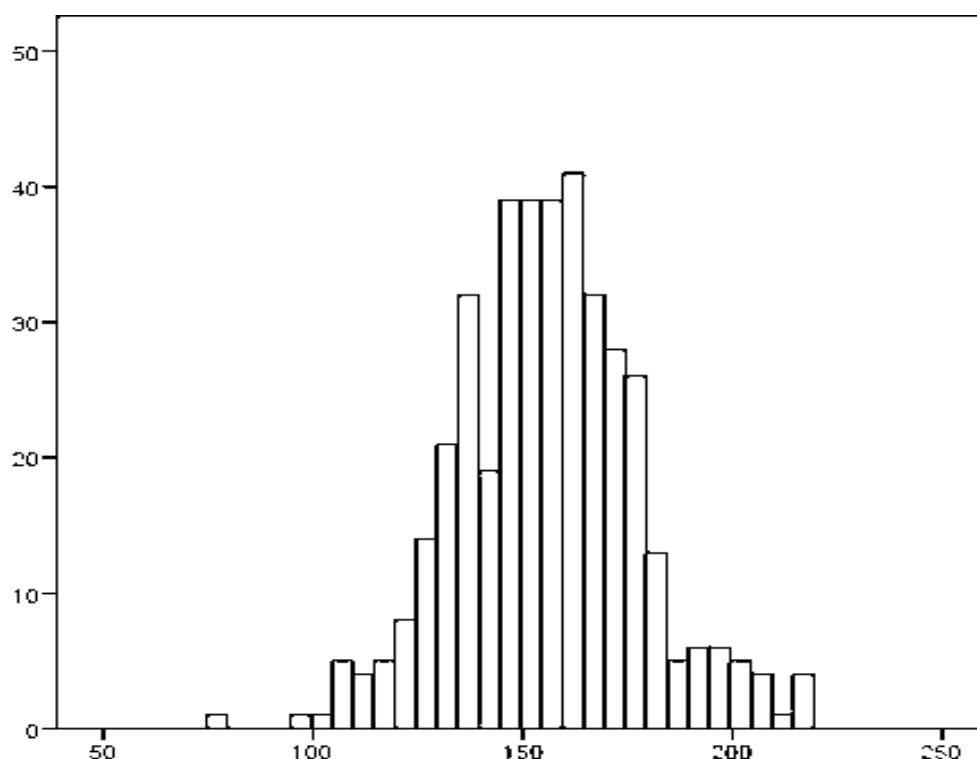
Figure 7: Total Job Satisfaction Score Distribution

The nurse and facility demographic survey captured 66-98% of the task sharing training components. Only 29.3 % of the participants reported additional topics which were covered during their training sessions (Table 7). However, some of the topics were purposely not included in the survey since they were considered components of "basic or fundamental" HIV training for nurses as opposed to "advanced" HIV training. These topics include HIV counseling and testing, adherence counseling, sexually transmitted Infections, PMTCT, collecting "dry blood spot" samples for early infant diagnoses and TB-HIV Co-infection. Program management skills, data reporting, and quality improvement were also identified as additional topics by the respondents.

Table 7

Task Sharing Training Content (n=398 - 399)

Training Content	Frequency	Percent (%)
Take Patient History	369	92.5
Identify Opportunistic Infections	369	92.5
Identify Conditions to Refer to Doctor	364	91.2
Physical Assessment	359	90.0
Identify Medication Side Effects & Adverse Reactions	353	88.5
Documentation of Pt. Encounter	349	87.5
Triage for Doctor's Visit	388	84.7
Immunologic & WHO Staging	318*	79.7
Identify Signs of Treatment Failure	318	79.7
Lab Testing & Result Review	310	77.7
Team Building Skills	291	72.9
Task Sharing Role & Scope of Practice	284	71.2
Review of Systems	265	66.4
Additional Contents (not listed above)	117	29.3

n=398.

Psychometric Properties of Scales

Since minor modifications were made to the survey after the pilot study, it was important to determine the extent to which these current data fit the existing factor structures from previous studies with the original scales. Thus, Confirmatory Factor Analyses (CFA) were conducted for both the self-efficacy and job satisfaction scales. The item correlations and factor loadings were examined and presented below.

Self-Efficacy Questionnaire for Task Shifting in HIV care (SEQTS-HIV)

The scale's item descriptive statistics based on these data are shown in Table 8. It was evident based on the evaluation of the item total scores and means, that the lowest

scores were related to the following topics or items: Identifying normal and abnormal

laboratory values (item #4); Identifying the signs of HIV treatment failure (Item #8);

Competently identifying medication side effects or adverse reactions (item #9);

Accurately stage the HIV disease using the WHO staging guideline (#6) and Conducting

thorough physical examination and correctly identifying abnormalities (item #5).

Table 8

Self-Efficacy for Task Sharing with Physicians in HIV Care: Item Descriptive Statistics

Item #	Item Description	N	Mean	SD
11	Confident in my ability to identify abnormal conditions that require referral to the doctor	397	3.79	0.5
12	Confident in my ability to work effectively with my interdisciplinary colleagues in my task shifting role	397	3.72	0.6
2	Confident that I can conduct a comprehensive patient history	397	3.7	0.6
7	Convinced that I can identify opportunistic infectious (OIs) conditions	397	3.69	0.6
1	Confident that I can triage a patient for a doctor's visit	396	3.68	0.6
3	Confident that I can interview my patient(s) to identify problems with the body systems	396	3.67	0.6
13	Confident in my ability to withstand any pressure to practice beyond the scope of practice as a task shifting nurse	397	3.65	0.6
10	Convinced that my documentation is always complete and accurate	396	3.62	0.6
6	Confident that I can accurately stage the HIV disease using the WHO staging guideline	397	3.6	0.7
5	Confident that I can conduct a thorough physical examination and correctly identify any abnormalities	397	3.6	0.7
9	Convinced that I can competently identify medication side effects and/or adverse reactions	397	3.59	0.6
8	Confident that I can identify the signs of HIV treatment failure	397	3.56	0.7
4	Confident in my ability to identify normal and abnormal laboratory values	395	3.5	0.7

It is important to note that, these are all "advanced HIV nursing functions" associated

with their new roles. However, the scoring tasks or items were: Identifying abnormal

conditions that require referral to the doctor (item #11); Working effectively with

interdisciplinary colleagues (item #12); Conducting comprehensive patient history (item

#2); and Identifying opportunistic infectious conditions (item #7).

Factor Analysis: Self-Efficacy for Task Sharing in HIV Care Scale

Although the original General Self-Efficacy scale (Schwarzer & Jerusalem, 1995a)

was a one-factor, 10-item, four point Likert scale with reliability coefficients between

0.76 – 0.90, it was necessary to include three additional items for this study. This

modification was critical to adequately measure the nurses' perceived self-efficacy in all

identified aspects of task sharing training. To reassess the scale's factor structure,

especially with additional items, a principal component analysis was conducted. The

result indicated the sample size as adequate with the Kaiser-Meyer-Olkin (KMO)

measure as 0.94 and the Bartlett's test statistically significant ($p<0.001$). The

recommended KMO is ≥ 0.60 and a statistically significant Bartlett's test with $p<0.05$

according to Williams, Brown and Onsman (2010). All item correlations were above 0.3

and the individual item communalities ranged from 0.44 to 0.61. The scree plot (Figure

8) and component matrix (Table 9) revealed that one component was extracted with

Eigenvalue > 1.0. This single component had an Eigenvalue of 6.745 and explained

51.89% of the total variance.
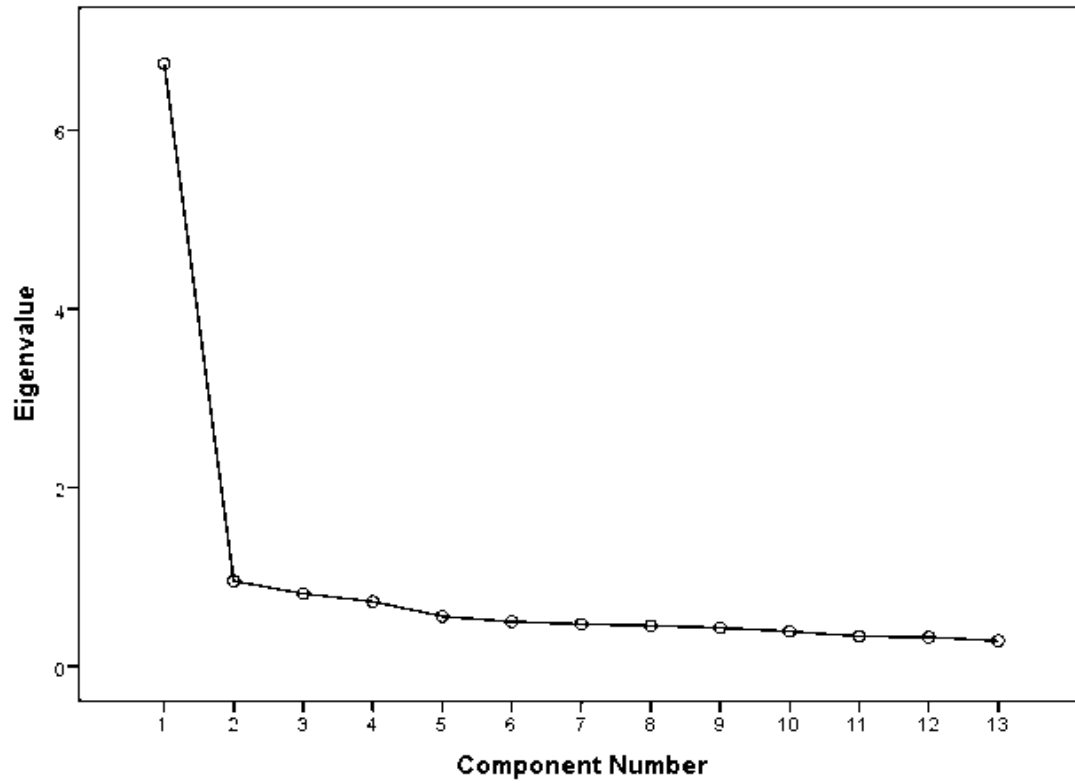
Figure 8: Scree Plot for Self-Efficacy Questionnaire for Task Shifting

Table 9

Self-Efficacy for Task Sharing in HIV Care: Factor Analysis (n=399)

Item No	Item Description	Factor 1: Loading	Communalities
9	Convinced that I can competently identify medication side effects and/or adverse reactions	0.781	0.61
3	Confident that I can interview my patient(s) to identify problems with the body systems	0.769	0.591
11	Confident in my ability to identify abnormal conditions that require referral to the doctor	0.747	0.558
5	Confident that I can conduct a thorough physical examination and correctly identify any abnormalities	0.74	0.548
6	Confident that I can accurately stage the HIV disease using the WHO staging guideline	0.728	0.53
1	Confident that I can triage a patient for a doctor's visit	0.727	0.528
2	Confident that I can conduct a comprehensive patient history	0.727	0.528
12	Confident in my ability to work effectively with my interdisciplinary colleagues in my task shifting role	0.727	0.529
7	Convinced that I can identify opportunistic infectious (OIs) conditions	0.706	0.499
8	Confident that I can identify the signs of HIV treatment failure	0.693	0.481
4	Confident in my ability to identify normal and abnormal laboratory values	0.671	0.45
10	Convinced that my documentation is always complete and accurate	0.671	0.45
13	Confident in my ability to withstand any pressure to practice beyond the scope of practice as a task shifting nurse	0.667	0.445
	Eigenvalues	6.75	
	Percent (%) Variance	51.89	

* One component was extracted with cumulative sums of squared Eigenvalue % variance of 52.0%

Reliability of Self-Efficacy Scale

The internal consistency coefficient of the Self-Efficacy for Task Shifting (SEQTS-HIV) scale was assessed using the generally preferred Cronbach's alpha according to Waltz, Strickland, and Lenz, 2010. This scale performed reliably well with a Cronbach's alpha coefficient of 0.91 which exceeded the reliability range of the original scale of 0.76 – 0.90.

The Measure of Job Satisfaction (MJS) Scale

The item total scores, means, standard deviation are shown in Table 10. The lowest scoring items included #3 (Salary/Pay scale), #4 (Being funded for courses), #19 (Overall staffing levels), #25 (Time off for in-service training) and #35 (Amount of pay received). Among the highest scoring items were: the Degree to which nurses felt they were part of a team (item#1); Standard of care given to patients/clients (item#7); Quality of work with patients/clients (item#6); Standard of care nurses are currently able to give (item #16); Patients are receiving the care they need (item #42); and Contact with colleagues (Item #41).

Table 10

Measure of Job Satisfaction: Item descriptive statistics

Item No	Item Description	N	Mean	SD
41	Contact I have with colleagues	398	4.1	0.6
7	Standard of care given to patients/clients	399	4.1	0.7
42	Patients are receiving the care that they need	398	4.1	0.7
6	Quality of work with patients/clients	399	4.1	0.7
12	People I talk to and work with	398	4.1	0.7
16	Standard of care that I am currently able to give	399	4.1	0.7
1	The degree to which I feel part of a team	399	4.1	0.8
10	Way that patients/clients are cared for	399	4.0	0.7
37	Extent to which I can use my skills	399	4.0	0.7
43	Overall, how satisfied are you with your job?	398	4.0	0.8
32	General standard of care given in this unit	399	4.0	0.7
34	Overall quality of the supervision I receive in my work	399	3.9	0.8
27	Extent to which my job is varied and interesting	399	3.9	0.7
29	Amount of independent thought and action I can exercise in my work	399	3.9	0.8
39	Time available for patient/client care	398	3.9	0.8
23	What I have accomplished when I go home at the end of the day	398	3.8	0.8
21	Degree of respect and fair treatment I receive from my boss	398	3.8	0.9
26	Amount of personal growth and development I get from my work	399	3.8	0.8
2	The opportunities I have to discuss my concern	399	3.8	1.0
33	Outlook for any professional group/branch of nursing	397	3.7	0.7
15	Prospects for continued employment	399	3.7	1.0
20	Feeling of worthwhile accomplishment I get from my work	399	3.7	0.9
18	Extent to which I have adequate training for what I do	399	3.6	0.9
31	Possibilities for a career in my field	397	3.6	0.8
28	Support available to me in my job	399	3.6	0.9

Table 10

Measure of Job Satisfaction: Item descriptive statistics

Item No	Item Description	N	Mean	SD
17	Opportunities I have to advance my career	398	3.6	1.0
38	Amount of challenge in my job	397	3.6	0.9
22	Degree of time available to finish everything that I have to do	399	3.5	0.9
40	How secure things look for me in the future of this organization	398	3.5	1.0
9	Amount of support and guidance I receive	398	3.5	1.0
13	Amount of time spent on administration	398	3.5	0.9
24	Amount of job security I have	399	3.5	1.0
5	Time available to get through my work	399	3.5	1.0
36	Hours I work	399	3.4	1.1
11	My prospects for promotion	399	3.4	1.1
14	My workload	399	3.1	1.1
8	Degree to which I am fairly paid for what I contribute to this organization	398	3.1	1.1
30	Opportunity to attend courses	398	3.0	1.2
25	Time off for in-service training	398	3.0	1.1
3	My Salary/Pay scale	399	3.0	1.2
19	Overall staffing levels	399	2.9	1.2
35	Amount of pay I receive	399	2.9	1.2
4	Being Funded for courses	399	2.8	1.2

Factor Analysis: Measure of Job Satisfaction Scale

The original instrument is a 43-item, 5 point Likert scale with seven subscales with Cronbach's alpha ranges between 0.85 – 0.90 and an overall scale reliability

coefficient of 0.95 (Traynor and Wade, 1993). The seven sub-scales were: personal

satisfaction; workload; professional support; training; pay; prospects; and standard of

care. With one item deleted following assessment of content validity, the adapted

questionnaire consisted of the remaining 42 items each of which sums up to give the total

(or global) satisfaction score. Principal component analyses were performed using both

orthogonal and oblique rotations to examine the scale's factor structure for this group of

nurses. All results indicated the sample was adequate for CFA as the Kaiser-Meyer-Olkin

(KMO) measures was 0.91 (or above) with statistically significant Bartlett's tests ($p <$

0.001). Over 50% of the inter-item correlations were above 0.30 (average was 0.322)

which were all within acceptable ranges.

The analysis that gave the best structure result was conducted with Promax

rotation. There were eight components with initial Eigenvalues > 1.0, but the first three

had the highest explained variance (10.41 [30.62%], 2.65 [7.8%] and 1.95 [5.73%]) after

which there was a notable drop in explained variance to 3.9% or less. Since these three

components had a cumulative variance of 44.2% as shown in Table 11, they were chosen

as the component structures (or subscales) for this sample. The scree plot (Figure 9)

illustrates the three components before the slope dropped.

Factor 1 – Pay: Six items (3, 4, 8, 11, 25 and 30) describing employer financial

investments such as salary, promotion, paid time off and funding for continuing

education clustered to form the first factor. Three of these items were from the original

training (#4 - being funded for courses; #25 - time off for in-service training and #30 -

opportunity to attend courses) and one from prospects components (#11 - prospects for

promotion) loaded on the pay component. These items are all associated with salary and

pay structures for nurses in Nigeria.

Table 11

Measure of Job Satisfaction: Factor Analysis (n=399)

Item No	Item Description	Factor 1 (Pay)	Factor 2 (Workload)	Factor 3 (Quality of Care)	Communalities
8	The degree to which I am fairly paid for what I contribute to this organization	.949			.680
3	My Salary/Pay scale	.818			.733
11	My prospects for promotion	.815			.602
4	Being Funded for courses	.721			.599
25	Time off for in-service training	.625			.627
30	The opportunity to attend courses	.565			.667
5	The time available to get through my work		.785		.662
13	The amount of time spent on administration		.726		.663
14	My workload		.721		.631
19	The overall staffing levels		.687		.592
22	The degree of time available to finish everything that I have to do		.603		.638
7	Standard of care given to patients/clients			.767	.606
16	Standard of care that I am currently able to give			.726	.569
6	Quality of work with patients/clients			.706	.604
10	Way that patients/clients are cared for			.716	.654
	Eigenvalues	10..412	2.653	1.947	
	% Variance	30.624	7.803	5.728	

Cumulative extraction sums of squared Eigenvalue % variance for all 3 factors was 44.2%
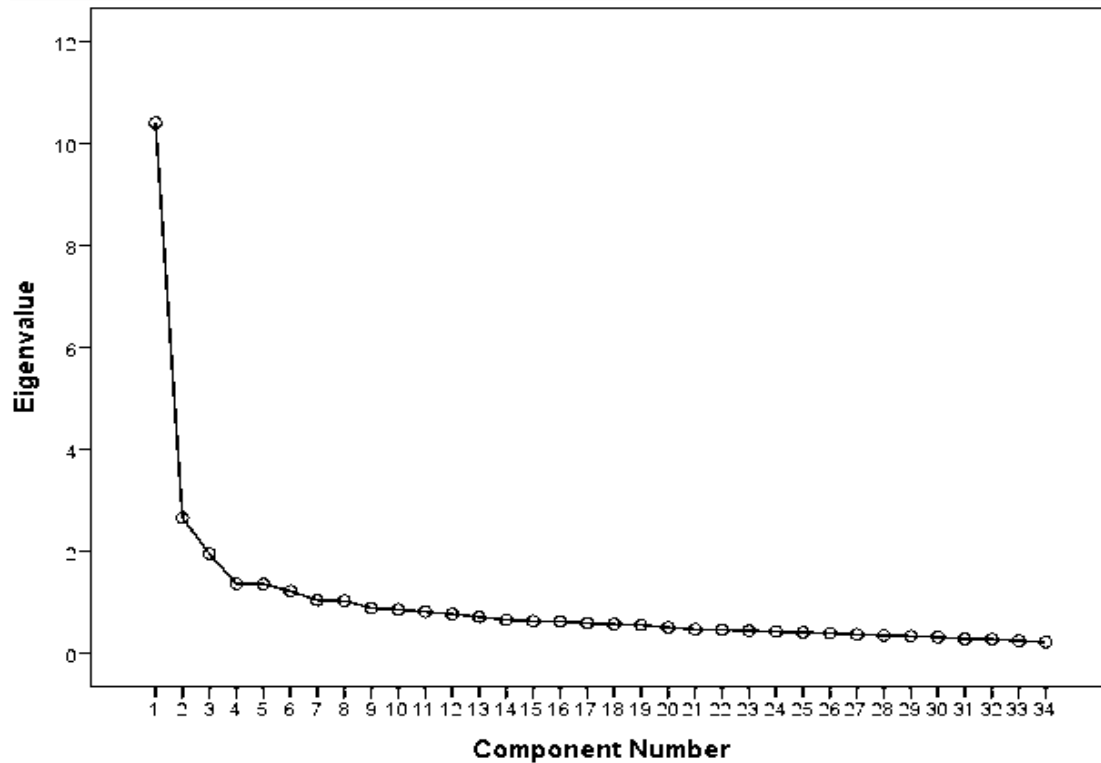
Figure 9: Scree Plot for Measure of Job Satisfaction Questionnaire

Factor 2 – Workload: This component had five items (5, 13, 14, 19 and 22) describing quantity of work, staffing level and time available to accomplish work.

Factor 3 – Quality/Standard of Care: This component consisted of four items (6, 7, 10 and 16) related to the quality of care provided for patients.

Overall, only three out of the seven components identified in the original scale were retained for this study. A total of twenty seven items that made up the following original components namely: personal satisfaction, professional support, training and prospects were not supported in this study. A list of these items are presented in Table 12.

Table 12

Job Satisfaction Items (grouped by Subscales) not Retained due to Lack of Loading

Subscale: Item No	Item Description
Personal Satisfaction	
20	The feeling of worthwhile accomplishment I get from my work
26	The amount of personal growth and development I get from my work
27	The extent to which my job is varied and interesting
29	The amount of independent thought and action I can exercise in my work
37	The extent to which I can use my skills
38	The amount of challenge in my job
Satisfaction with Workload	
23	What I have accomplished when I go home at the end of the day
36	The hours I work
39	The time available for patient/client care
Satisfaction with Professional Support	
1	The degree to which I feel part of a team
2	The opportunities I have to discuss my concerns
9	The amount of support and guidance I receive
12	The people I talk to and work with
21	The degree of respect and fair treatment I receive from my boss
28	The support available to me in my job
34	The overall quality of the supervisions I receive in my work
41	The contact I have with colleagues
Satisfaction with Training	
17	The opportunities I have to advance my career
18	The extent to which I have adequate training for what I do
Satisfaction with Pay	
35	The amount of pay I receive
Satisfaction with Prospects	
15	My prospects for continued employment
24	The amount of job security I have
31	The possibilities for a career in my field
33	The outlook for my professional group/branch of nursing
40	How secure things look for me in the future of this organization

Table 12

Job Satisfaction Items (grouped by Subscales) not Retained due to Lack of Loading

Subscale: Item No	Item Description
Satisfaction with Standard of Care	
32	The general standard of care given in this unit
42	Patients are receiving the care that they need

Reliability of the Measure of Job Satisfaction Scale

The reliability of the MJS scale and sub-scales (Pay, Workload and Quality of care) were assessed using the Cronbach's alpha coefficient. The Cronbach's alpha coefficient for: a) the overall (global) job satisfaction was 0.94; b) the sub-scale reliability coefficients were: Pay - 0.86; Workload – 0.82 and Quality of Care – 0.77. These reliability estimates are above the recommended minimum range of 0.70 (Nunnally & Bernstein, 1998). They were also comparable to the original scale reliability (Traynor & Wade, 1993 [0.95 and 0.85 – 0. 90]) as well as other studies that used the scale (Chou, Bouldy & Lee, 2002 [0.86 – 0.95] and Chirwa et al., 2009 [0.84 – 0.89]).

In summary, both the Self-Efficacy for HIV Task Shifting (SEQTS-HIV) and Job Satisfaction questionnaires had acceptable construct validity and internal reliability index. A tabular summary of these results is presented in Table 13.

Table 13

Summary of Measurement Scales and Sub-Scale Reliability (n=399)

No.	Scale	Items	Mean (SD)/ Median (IQR)*	Eigenvalue	Percent Variance	Inter-Class Correlation (95% C.I)	Cronbach's Alpha
1	Self-Efficacy	13	49.0 (7)*	6.74	52.0%	0.45 [.41-.49}	0.91
2	Job Satisfaction	42	156.3 (21.6)	20.99	61.75%	0.28 [.25-.31]	0.94
	Sub-Scale 1: Pay	6	18.3 (5.3)	10.41	30.62%	0.51 [.46-.55]	0.86
	Sub-Scale 2: Workload	5	16.5 (3.9)	2.65	7.80%	0.47 [.43 -.51]	0.82
	Sub-Scale 3: Quality of Care	4	16.3 (2.1)	1.95	5.73%	0.45 [.40-.50]	0.77

Study Questions

To examine the proposed assumptions and answer the study questions, the following statistical procedures were conducted: 1) Pearson's Product-Moment Correlation coefficients to examine the relationships between study variables; 2) Independent T-tests and One-Way Analysis of Variance to examine group means and differences in relation to the dependent variables; and 3) Multiple Regression analyses to examine if the independent variables were predictors of nurses' self-efficacy for HIV task sharing and job satisfaction. To ensure the assumptions of normality is met for parametric analyses, the negatively skewed total self-efficacy scores (Kolmogorov – Smirnov test = 0.687, p <0.05) were transformed using the "Reflect and Log 10 transformation" techniques as described by O'Toole, 2012 (https://www.youtube.com/watch?v=TINQZ2l9QSU), & Rocky Mountain University of Health, 2012 (https://www.youtube.com/watch?v=CbD1rUd-

]. The histogram and

Q-Q Plots of the total self-efficacy scores after reflection and Log transformation are

presented in Figures 10 and 119.
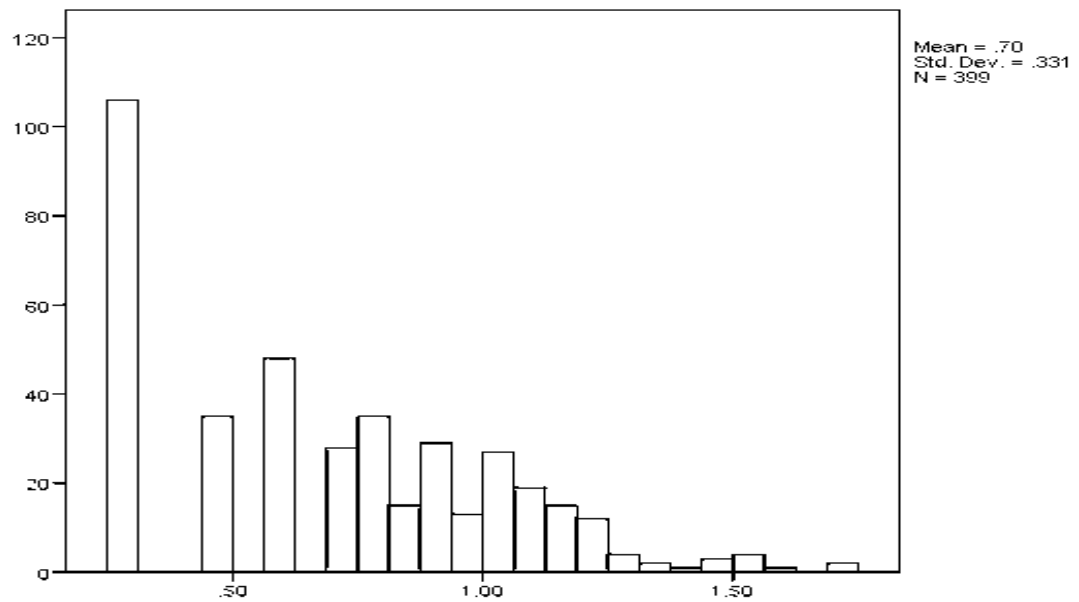
Figure 10: Histogram of Total Self-Efficacy Scores (After Log-Transformation)
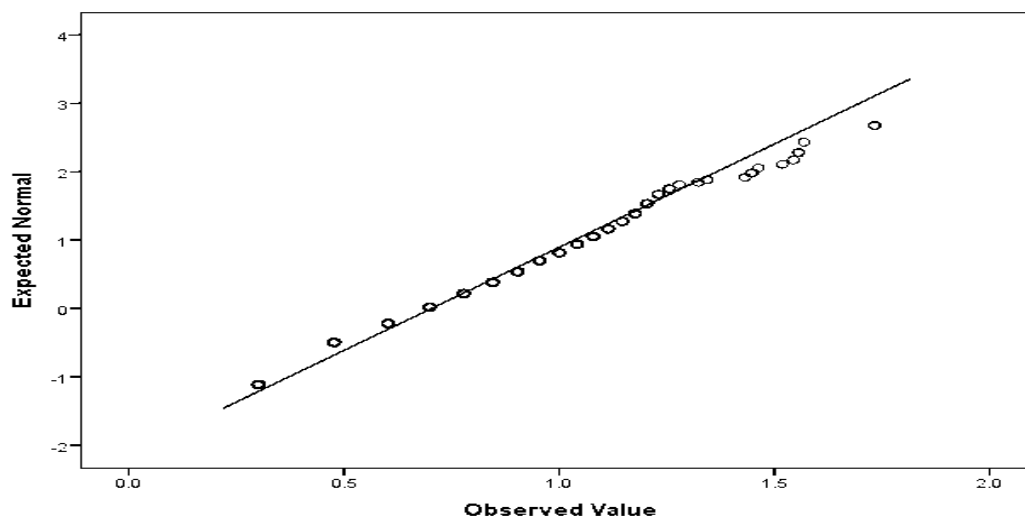
Figure 11: Q-Q Plot of Total Self-Efficacy Scores (After Log-Transformation)

Study Question 1

What are the relationships among nurse demographic characteristics and: a) nurses' perceived Self-Efficacy for HIV task sharing with physicians; and b) Job Satisfaction?

Nurse Demographics and Self-Efficacy for HIV Task Sharing

A Pearson's Product-Moment Correlation analysis was conducted to examine the relationships between nurse demographic variables and the log of self-efficacy scores. These findings are presented in Table 14.

The only nurse demographic variable which significantly but negatively correlated with the log of total Self-Efficacy scores was Years in nursing practice (r= -0.143, n= 396, *p*= 0.004). No statistically significant correlation was found between the log of total Self-Efficacy scores and nurses' Age; Gender; Licensure; Previous HIV experience; or Duration of HIV experience.

Table 14

Correlations among Nurse Demographics and Self-Efficacy

Variables		1	2	3	4	5	6	7
1. Age (Years)	Pearson Correlation	1	-0.043	-0.108	0.865**	0.105*	0.330**	-0.081
	Sig. (2-tailed)		0.395	0.031	0.000	0.036	0.000	0.107
	N		398	398	395	397	363	398
2. Gender	Pearson Correlation		1	-0.712**	-0.08	-0.055	-.119*	0.081
	Sig. (2-tailed)			0.000	0.113	0.275	0.023	0.106
	N			399	396	398	364	399
3. Licensure (RN/RM)	Pearson Correlation			1	-0.084	0.059	0.049	0.012
	Sig. (2-tailed)				0.093	0.238	0.355	0.814
	N				396	398	364	399
4. Years in Nursing Practice	Pearson Correlation				1	0.063	.341**	-.143**
	Sig. (2-tailed)					0.214	0.000	0.004
	N					395	363	396
5. Previous HIV Experience	Pearson Correlation					1	.544**	-0.077
	Sig. (2-tailed)						0.000	0.123
	N						364	398
6. Duration HIV Experience (Years)	Pearson Correlation						1	-0.062
	Sig. (2-tailed)							0.24
	N							364
7. Total Self-Efficacy Score	Pearson Correlation							1

*Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).*

A multiple regression analysis was conducted to identify the nurse demographic predictors of Self-Efficacy for task sharing. The findings which are illustrated in Table 15, indicate that, controlling for all other variables, Gender (β = 0.120, t(361) = 2.046, p= 0 .041) and Years in nursing practice (β = -0.010, t(361) = -2695, p= 0.007) were statistically significant predictors and explained 4.4% variance [F(6, 355) = 2.720, p= 0.014], R=0.210, R^2= 0.044] for the log of Self-Efficacy scores. However, years in nursing practice negatively predicted self-efficacy for HIV task sharing.

Table 15

Regression Analysis of Nurse Demographics as Predictors of Self-Efficacy for Task Sharing

Independent Variables	Dependent Variable: Task Sharing Self-Efficacy							
	t	*p*	β	F	df	*p*	R²	Adjusted R²
Nurse Demographic Characteristics				2.720	6	0.014*	0.044	0.028
Gender	2.046	.041*	0.120					
Age	1.892	.059	0.007					
Licensure (RN/RM only)	1.691	.092	0.096					
Years in Nursing Practice	-2.695	.007**	-0.010					
Previous HIV Experience	-1.401	.162	-0.073					
Duration HIV Experience	.369	.712	0.002					
Total Variance Explained							0.044 (4.4%)	

*Note: *p<0.05; **p<0.01.*

Nurse Demographics and Job Satisfaction

The Pearson's correlation matrix presented in Table 16 indicates that Nurses' Age (r= 0.124, n=398, p= 0.014); Licensure (r= 0.112, n=399, p= 0.025) and Years in nursing practice (r= 0.183, n=396, p= 0.000) were positively correlated with job satisfaction.

Table 16

Correlations among Nurse Demographics and Job Satisfaction

Variables		1	2	3	4	5	6	7
1. Age (Years)	Pearson Correlation	1	-0.043	-0.108	0.865**	0.105*	0.330**	0.124*
	Sig. (2-tailed)		0.395	0.031	0.000	0.036	0.000	0.014
	N		398	398	395	397	363	398
2. Gender	Pearson Correlation		1	-0.712**	-0.08	-0.055	-.119*	-0.107*
	Sig. (2-tailed)			0.000	0.113	0.275	0.023	0.032
	N			399	396	398	364	399
3. Licensure (RN/RM)	Pearson Correlation			1	-0.084	0.059	0.049	0.112*
	Sig. (2-tailed)				0.093	0.238	0.355	0.025
	N				396	398	364	399
4. Years in Nursing Practice	Pearson Correlation				1	0.063	.341**	0.188**
	Sig. (2-tailed)					0.214	0.000	0.000
	N					395	363	396
5. Previous HIV Experience	Pearson Correlation					1	.544**	-0.049
	Sig. (2-tailed)						0.000	0.325
	N						364	398
6. Duration HIV Experience (Years)	Pearson Correlation						1	0.074
	Sig. (2-tailed)							0.161
	N							364
7. Total Job Satisfaction Score	Pearson Correlation							1

*Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).*

A weak but negative correlation was found between Gender and Job satisfaction (r= -0.107, n=399, p= 0.032). However, no statistically significant correlation was found

between Previous HIV nursing experience or Duration of HIV nursing experience and

Job Satisfaction.

A multiple regression analysis (Table 17) identified Years in nursing practice (β =

0.565, t(361) = 2.321, p= 0.021) as the only statistically significant demographic

predictor, explaining 5.4% of the variance for Job Satisfaction [F(6, 355) = 3.347, p=

0.003], R=0.231, R^2= 0.054].

Table 17

Regression Analysis of Nurse Demographic Predictors of Job Satisfaction

Independent Variables				Dependent Variable: Job Satisfaction				
	t	*p*	β	F	df	*p*	R²	Adjusted R²
Nurse Demographic Characteristics				3.347	6	0.003**	0.054	0.038
Gender	-0.259	.796	-1.000					
Age	-.875	.382	-0.214					
Licensure (RN/RM only)	1.275	.203	4.785					
Years in Nursing Practice	2.321	.021*	0.565					
Previous HIV Experience	-1.742	.082	-6.021					
Duration HIV Experience	1.123	.262	0.478					
Total Variance Explained							0.054 (5.4%)	

*Note: *p<0.05; **p<0.01.*

Study Question 2

What are the relationships among setting characteristics and: a) Nurses' perceived Self-

Efficacy for HIV task sharing with physicians; and b) Job Satisfaction?

Setting Characteristics and Self-Efficacy for HIV Task Sharing

The results of Pearson's product-moment correlations analyses performed to

examine the relationships among the health facility characteristic or setting variables and

the log of self-efficacy for task sharing is presented in Table 18. No statistically

significant correlations were found between any of the setting characteristics and self-

efficacy for HIV task sharing.

Table 18

Correlations among Setting Characteristics and Self-Efficacy

Variables		1	2	3	4	5	6	7	8
1. Facility Ownership	Pearson Correlation	1	.106*	0.02	0.005	0.083	0.064	0.055	-.096
	Sig. (2-tailed)		.034	.693	.933	.104	.202	.274	.055
	N		399	399	313	386	399	399	399
2. Type of Facility	Pearson Correlation		1	.088	.170**	.017	-.138**	.048	-.058
	Sig. (2-tailed)			.080	.003	.735	.006	.343	.249
	N			399	313	386	399	399	399
3. Received Training	Pearson Correlation			1	.084	.01	.042	.031	.007
	Sig. (2-tailed)				.136	.839	.402	.537	.893
	N				313	386	399	399	399
4. Duration of Training	Pearson Correlation				1	.023	.192**	.194**	-.084
	Sig. (2-tailed)					.696	.001	.001	.140
	N					301	313	313	313
5. Received Mentoring	Pearson Correlation					1	.168**	.376**	.022
	Sig. (2-tailed)						.001	.000	.661
	N						386	386	386
6. Type of Training	Pearson Correlation						1	.257**	0.019
	Sig. (2-tailed)							.000	.70
	N							399	399
7. Onsite Mentoring	Pearson Correlation							1	-.086
	Sig. (2-tailed)								.085
	N								399
8. Total Self-Efficacy Score	Pearson Correlation								1

*Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).*

These results were consistent with the findings from the Multiple Regression analyses performed to identify setting characteristic predictors of Self-Efficacy for HIV task sharing. All seven setting variables entered into the regression model explained a very small proportion of the variance (2.3%). None of the variables was a statistically significant predictor of Self-Efficacy for HIV task sharing in this study (Table 19).

Table 19

Regression Analysis: Facility/Setting Predictors of Self-Efficacy for HIV Task Sharing

Independent Variables				Dependent Variable: Task Sharing Self-Efficacy				
	t	*p*	β	F	df	*p*	R^2	Adjusted R^2
Facility/Setting Characteristics				0.999	7	0.432	0.023	0.000
Facility Ownership	-1.212	.227	0.703					
Type of Facility	-1.270	.205	-0.066					
Received Training	0.481	.631	-0.055					
Duration of Training (days)	-0.717	.474	0.002					
Type of Training (Practicum)	1.557	.121	-0.003					
Received Mentoring	0.171	.864	0.063					
Onsite Mentoring	-0.102	.918	0.027					
Total Variance Explained							0.023 (2.3%)	

*Note: *p<0.05; **p<0.01.*

Setting Characteristics and Job Satisfaction: As illustrated by the Pearson's correlation matrix in Table 20, the following setting characteristics: Facility ownership (r= 0.103, n= 399, p= 0.039); Type of facility (r= 0.233, n= 399, p= 0.000); Duration of training (r= 0.293, n= 313, p= 0.000) and Received mentoring (r= 0.155, n= 386, p= 0.002) had statistically significant correlation with Job Satisfaction. No significant correlation was

found between the other setting variables (Received training, Type of training or Onsite mentoring) and Job Satisfaction.

Table 20

Correlations among Setting Characteristics and Job Satisfaction

Variables		1	2	3	4	5	6	7	8
1. Facility Ownership	Pearson Correlation	1	.106*	0.02	0.005	0.083	0.064	0.055	0.103*
	Sig. (2-tailed)		0.034	0.693	0.933	0.104	0.202	0.274	0.039
	N		399	399	313	386	399	399	399
2. Type of Facility	Pearson Correlation		1	.088	.170**	.017	-.138**	.048	.233**
	Sig. (2-tailed)			0.08	0.003	0.735	0.006	0.343	0.000
	N			399	313	386	399	399	399
3. Received Training	Pearson Correlation			1	0.084	0.01	0.042	0.031	0.044
	Sig. (2-tailed)				.136	.839	.402	.537	.377
	N				313	386	399	399	399
4. Duration of Training	Pearson Correlation				1	.023	.192**	.194**	.293**
	Sig. (2-tailed)					.696	.001	.001	.000
	N					301	313	313	313
5. Received Mentoring	Pearson Correlation					1	.168**	.376**	.155**
	Sig. (2-tailed)						.001	.000	.002
	N						386	386	386
6. Type of Training	Pearson Correlation						1	.257**	-0.027
	Sig. (2-tailed)							.000	.588
	N							399	399
7. Onsite Mentoring	Pearson Correlation							1	0.074
	Sig. (2-tailed)								.14
	N								399
8. Total Job Satisfaction Score	Pearson Correlation								1

*Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).*

These findings were consistent with results of the multiple regression analysis presented

in Table 21 which indicate that holding all other variables constant, Type of facility (β =

10.523, t(300) = 3.734, p= 0.000); Duration of training (β = 1.168, t(300) = 4.779, p=

0.000); and Received mentoring (β = 26.123, t(300) = 2.522, p= 0.012); were significant

predictors of Job satisfaction. Thereby, explaining 17.0% of the total variance for Job

Satisfaction [F(7, 293) = 8.545, p= 0. 0.000], R=0.412, R^2= 0.170]. The other setting

variables (Facility ownership, Received training, Type of training and Onsite mentoring)

were not significant predictors.

Table 21

Regression Analysis of Setting Predictors of Job Satisfaction

Independent Variables				Dependent Variable: Job Satisfaction				
	t	**P**	β	**F**	**df**	**p**	R^2	**Adjusted R^2**
Facility/Setting Characteristics				8.545	7	0.000***	0.170	0.150
Facility Ownership	1.306	.192	4.611					
Type of Facility	3.734	.000***	10.523					
Received Training	.100	.921	.021					
Duration of Training (days)	4.779	.000***	1.168					
Type of Training (Practicum)	-1.157	.248	-3.015					
Received Mentoring	2.522	.012*	26.123					
Onsite Mentoring	.770	.442	5.716					
Total Variance Explained							0.170 (17.0%)	

*Note: *p<0.05; **p<0.01; ***p<0.001*

Study Question 3

What are the multivariate relationships among nurse demographics, setting characteristics and perceived self-efficacy on the job satisfaction of Nigerian nurses performing task sharing roles in HIV settings?

Using the enter method, a multivariate regression analysis was conducted to identify the overall predictor variables for job satisfaction. The result presented in Table 22 illustrates that holding all other variables constant, four out of fourteen variables entered in the model were significant predictors and explained 21.0% of the total variance for job satisfaction [$F(14, 266) = 5.040$, p= 0.000], R=0.458, R^2= 0.210]. These four variables were: a) Previous HIV nursing experience (β = -8.859, t(280) = -2.206, *p*= 0. 028); b) Type of Facility (β = 10.721, t(280) = 3.682, *p*= 0.000); c) Duration of training (β = 1.056, t(280) = 4.218, *p*= 0.000); and 4) Received Mentoring (β = 22.505, t(280) = 2.146, *p*= 0.033). Among these variables, HIV nursing experience was found to have a negative influence on job satisfaction because the longer the years of HIV nursing experience, the higher the likelihood for job dissatisfaction.

Table 22

Multivariate Regression Analysis to identify Overall Predictors of Job Satisfaction

Independent Variables	Dependent Variable: Job Satisfaction							
	t	*p*	β	F	df	*p*	R^2	Adjusted R^2
Nurse Demographic Characteristics				5.040	14	0.000**	0.210	0.168
Gender	0.040	.968	.176					
Age	-0.204	.838	-.055					
Licensure (RN/RM only)	0.667	.505	2.837					
Years in Nursing Practice	1.449	.148	.392					
Previous HIV Experience	-2.206	.028*	-8.859					
Duration HIV Experience	1.121	.263	0.580					
Facility/Setting Characteristics								
Facility Ownership	1.088	.278	3.999					
Type of Facility	3.682	.000***	10.721					
Received Training	-0.200	.842	-.045					
Duration of Training (days)	4.218	.000***	1.056					
Type of Training (Practicum)	-0.781	.435	-2.156					
Received Mentoring	2.146	.033*	22.505					
Onsite Mentoring	0.953	.341	7.137					
Task Sharing Self-Efficacy	-0.356	.722	-1.446					
Total Variance Explained						0.210 (21.0%)		

*Note: *p<0.05; **p<0.01; ***p<0.001*

Group Variations

Since various types of group variations have been reported in the literature

especially in relation to job satisfaction as discussed in chapter two, it was necessary to

explore such differences for this group of nurses. The group variations in relation to the

dependent variables (self-efficacy and job satisfaction) were examined using the Student

T-Test and One-Way Analysis of Variance (ANOVA).

Group Variations in Self-Efficacy for Task Sharing

Results of T-Tests and analysis of variance (ANOVA) conducted to identify the differences in means and standard deviations of the log of Self-Efficacy scores are presented in Table 23. Although the process of reflection and log transformation made the normalized self-efficacy total scores appear reversed, significant differences were found between nurses who received training ($M = 5.0$, $SD = 2.1$) and those who did not receive training ($M = 10.9$, $SD = 2.1$), $t(396) = 3.07$, $p = 0.002$. A one-way ANOVA identified a statistically significant difference between groups by mentor cadre. A post hoc comparison using Bonferroni test, revealed that the log of self-efficacy scores for nurses mentored by both Doctors and Nurses ($M = 3.7$, $SD = 2$) significantly differed from scores of nurses mentored by either Doctors only ($M = 5.5$, $SD = 2.1$) or Nurses only ($M = 5.0$, $SD = 2.2$), $F(2,383) = 7.03$, $p = 0.001$. The nurses mentored by both cadres of providers scored 0.173 points higher than nurses mentored by doctors alone ($p = 0.001$) and 0.129 than those mentored by nurses alone ($p = 0.01$). No significant differences in self-efficacy were found among licensure groups, types of facility, facility ownership, gender groups, mentor availability categories and methods used by mentors.

Table 23
Differences in Demographic Means for Self-Efficacy (T-Test and ANOVA)

Groups		N	Task Shifting Self-Efficacy				
			Mean***	SD***	t/F	df	p
Gender	Male	94	4.5	2.2	-1.6	397	.10
	Female	305	5.2	2.2			
Licensure	RN/RM	279	5.0	2.1	0.48	397	.63
	RN or RM only	120	5.2	2.2			
Training	No Training	9	10.9	2.1	3.07	396	.002**
	Received Training	389	5.0	2.1			
Type of Training	Clinical Practicum	265	5.1	2.1	-.37	242	.71
	Lecture or Cases only	134	4.9	2.2			
Facility Ownership	Non-Govt.	56	6.1	2.1	1.9	397	.05
	Govt. Owned	343	5.0	2.1			
Type of Facility	Primary	112	5.2	2.0	0.67	2	1.0
	Secondary	184	5.2	2.2			.85
	Tertiary	103	4.7	2.3			
Mentoring	Not Mentored	5	4.3	1.9	-0.44	384	.66
	Received Mentoring	381	5.0	2.1			
Cadre of Mentor	Doctor	167	5.5	2.1	7.03	2	.001**
	Nurse	150	5.0	2.2			.01**
	Doctor & Nurse	69	3.7	2.0			
Mentor Availability	No	18	6.6	2.2	1.35	2	.30
	Sometimes	254	5.1	2.1			1.0
	All the Time	126	4.8	2.2			
Method used by Mentors	Onsite & Phone	376	5.0	2.1	1.73	397	.08
	Phone only	23	6.6	2.3			

*The mean difference is significant at 0.05. **The mean difference is significant at 0.01. *** Back transformed values

Group Variations in Job Satisfaction

The findings of the T-Tests and ANOVA tests illustrated in Table 24 indicate that statistical significant differences in Job Satisfaction exist among some nurse groups. For nurse demographic variables: a) Male nurses ($M = 160$, $SD = 22$) were significantly more satisfied than Female nurses ($M = 155$, $SD = 21$); t(397) = 2.2, p= 0.03); b) Licensure:

nurses with single license as registered nurse only or midwife only ($M = 160$, $SD = 20$) were more satisfied with overall job satisfaction ($M = 154$, $SD = 22$); t(397) = 2.4, $p=$ 0.01) than the dual licensed Nurse/Midwives. Other significant areas of difference in satisfaction were workload and quality of care.

For setting characteristics, significant differences were found among: a) Facility Ownership as nurses working in Government owned hospitals were more satisfied in terms of Pay ($M = 3.1$, $SD =0.9$) and total satisfaction ($M = 157$, $SD = 21$) than those from non-Government or Faith-based facilities ($M = 2.8$, $SD =0.9$) and ($M = 150$, $SD = 25$); t(397) = -2.1, $p< 0.05$) respectively. b) For Types of Facility: Post hoc comparison using Bonferroni test revealed that nurses working in Tertiary hospitals were significantly more satisfied with: Pay ($M =3.3$, $SD = 1.1$) than Secondary hospitals ($M =2.9$, $SD = 0.8$); F(2, 396) = 3.9, $p= 0.03$; workload ($M =3.7$, $SD = 0.8$) than Secondary ($M =3.7$, $SD = 0.8$) and Primary facilities ($M =3.1$, $SD = 0.7$); F(2, 396) = 14.9, $p= 0.00$. Those working in tertiary hospitals also scored higher in overall job satisfaction ($M =165$, $SD = 28$) compared to nurses from Secondary ($M = 153$, $SD = 19$) and Primary Health facilities ($M =153$, $SD = 15$); F(2, 396) = 11, $p= 0.00$. c) For Mentor Availability: nurses whose mentors were available at all times (M = 163, SD = 24) were more satisfied than nurses whose mentors were available sometimes ($M = 153$, $SD = 19$), $F(2, 395) = 9.2$, $p= 0.00$. No significant differences in job satisfaction were found among nurse groups with regards to receiving training or type of training, mentoring or cadre of mentors and methods used by the mentors.

Table 24

Differences in Demographic Means for Total Job Satisfaction Scores (T-Test and ANOVA)

Groups		Total Job Satisfaction					
		n	M	SD	t/F	df	p
Gender	Male	94	160	22	2.2	397	.03*
	Female	305	155	21			
Licensure	RN/RM	279	154	22	2.4	397	.01*
	RN or RM only	120	160	20			
Training	No Training	9	144	21	-1.6	396	.10
	Received Training	389	156	22			
Type of Training	Clinical Practicum	265	156	24	.58	396	.55
	Lecture & Cases only	134	157	24			
Facility Ownership	Non-Govt.	56	150	25	-2.1	397	.04*
	Govt. Owned	343	157	21			
Type of Facility	Primary	112	153	15	11	2	.00**
	Secondary	184	153	19			.00**
	Tertiary	103	165	28			
Mentoring	Not Mentored	5	126	38	-2	4	.14
	Received Mentoring	381	156	21			
Cadre of Mentor	Doctor	167	154	17	1.5	2	.59
	Nurse	150	158	24			1.0
	Doctor & Nurse	69	158	27			
Mentor Available	No	18	151	30	9.2	2	.08
	Sometimes	254	153.	19			.00**
	All the Time	126	163	24			
Method used by Mentors	Onsite & Phone	376	156	21	-1.4	396	.16
	Phone only	22	150	29			

*The mean difference is significant at 0.05. **The mean difference is significant at 0.01

Qualitative Findings

To gain additional insight into the nurses' perceptions of task sharing in HIV care and the effects, participants were asked to respond to the following questions at the end of the surveys: a) How did your role as a task sharing nurse affect your job satisfaction? b) What types of challenges do you encounter in your task sharing role? c) How do you overcome the challenges? 4) If no longer performing task sharing roles, what are the main reasons for that (if known)? They were also invited to provide any personal comments regarding their experiences. The most recurring responses are hereby summarized.

Effects of Task Sharing Role on Job Satisfaction

Majority of the nurses reported that task sharing had positive effects on their job satisfaction due to their enhanced clinical roles and participation in patient care. Both the training and the advanced level of competence required for HIV task sharing role helped to improve nurses' self-confidence, knowledge and clinical skills. The role itself improved their professional image and recognition among peers and other team members. They believed that the accompanying leadership and mentor roles, gave nurses the opportunity to demonstrate that nurses have the ability to improve patient outcomes and the health systems in general. Task sharing enhanced team work and made HIV management less cumbersome. The clinics are less congested and work hours have been reduced tremendously due to task sharing. Majority of the nurses believed that the role challenged them to clinically apply themselves and generally increased their professional zeal and desire for self-improvement through continued learning. They also felt satisfied

because their role has expanded the clients' access to treatment, reduced patients' waiting time for care and enhanced patients' trust and respect for nurses.

Challenges encountered with Task Sharing Roles

Excessive workload, feeling of overwhelming stress, fatigue and burn-out due to the demand associated with the role which affected the nurses' personal lives were identified as the challenges. Some attributed these to inadequate staffing and lack of complementary psycho-social support for clients that leave nurses to manage more than nursing roles. Other negative aspects were non-commensurate pay in light of added responsibilities; longer work hours and double shifts for those who still performed their regularly assigned duties. Inadequate supply of necessary equipment; excessive documentation, plus lack of support and appreciation from employers were also reported. However, the nurses reported that the professional and patient related benefits helped to ameliorate the negative effects of the challenges.

Strategies for addressing Challenges

To overcome some of the challenges, nurses relied on their supervisors and mentors for support during difficult cases or situations. The supervisors helped to trouble-shoot staffing and other systems related challenges. Some nurses coped by managing their time better. In some situations, volunteers, students and peer educators were trained by nurses to perform some appropriate roles under supervision. Additional reading and use of internet resources helped many of the nurses to update their clinical knowledge. They highlighted the need for certification and clinical updates through continuing educational activities.

Reasons for Leaving Task Sharing Role

A few participants who were no longer performing HIV task sharing roles cited "poor salary", "acceptance of a different job", "temporarily filling in until striking doctors returned to work" and "displacement due to regional security problems" as the main reasons for leaving the role.

Summary

In general, the findings revealed that only one nurse demographic variable (years in nursing practice) significantly (but negatively) predicted self-efficacy. None of the setting variables was a significant predictor of self-efficacy for task sharing in HIV care. Some group variations in self-efficacy suggest that nurses who received training had higher self-efficacy scores; and nurses who were mentored by both doctors and nurses reported higher self-efficacy scores than nurses mentored by doctors only or nurses only.

In the area of job satisfaction, only one nurse demographic variable (previous HIV nursing experience) was a significant, but negative predictor. This indicates that, longer HIV nursing experience was associated with the likelihood for job dissatisfaction. Three setting characteristics (type of facility, duration of training and mentoring) significantly predicted job satisfaction. A disparity in job satisfaction was identified among gender, licensure, and facility levels

, facility ownership and mentor availability groups. A critical area of disparity which could have deleterious implications for nurse outcomes is the finding that nurses from tertiary hospitals were more satisfied with their jobs than nurses from secondary and primary care facilities.

Additional comments provided by the participants revealed that task sharing in HIV care has been beneficial in challenging nurses to apply their clinical and leadership skills and improving nurses' knowledge of HIV disease management. Task sharing highlighted nurses' professional capability to strengthen the health system and improve patient outcomes. Some challenges with the role include excessive workload, non-commensurate remuneration, overwhelming stress and feeling of burn-out. The nurses relied on their mentors and supervisors to help them overcome some of the challenges. In some situations nurses shifted some tasks to trained volunteers, students and peer educators. They expressed a need for additional support through clinical updates and ongoing continuing education activities.

CHAPTER V

Introduction

This chapter presents an overall summation of the study significance, methods,

findings, summary, conclusions, limitations, and implications.

STUDY RESULTS

Significance

Shifting HIV treatment from physicians to nurses in sub-Sahara African has been

identified by both the UNAIDS and WHO as one of the viable strategies for

strengthening the health system and improving access to antiretroviral treatment. At a

recent International AIDS Society (IAS, 2015) pre conference workshop, the officials of

the UNAIDS celebrated the achievement of a 2013 goal to place 15 million people living

with HIV on ART by the year 2015. In this session and several others throughout the

conference, the UNAIDS team elaborated on the next campaign for ending AIDS called

"90-90-90". With this agenda, the UNAIDS clearly recommended institutionalization of

innovative strategies stating that "particular efforts are needed to further implement task-

shifting in clinical settings… to improve health service delivery" (UNAIDS, 2015a.

p.44). The goal of "90-90-90" campaign is to "test 90% of all people living with HIV;

treat 90% of all persons diagnosed as HIV positive with ART; and have 90% of all

persons on ART achieve viral suppression" (UNAIDS, 2015b. p.1). While this is a

laudable agenda, in most sub-Sahara African countries affected by severe health worker

shortages, task sharing no longer appears to be a short term intervention. In order to

achieve community ART delivery for the targeted 90% on ART, task sharing will need to

extend beyond nurses and community health workers. It therefore, becomes essential to

disseminate and apply evidence and lessons from the experiences of nurses and community health workers. Doing so would help to maintain quality of service delivery, prevent drug resistance and avoid future transmission of resistant HIV.

The findings from this and other studies continue to establish the advantages of task sharing for efficient HIV service delivery. They also uncover valuable lessons and implications which should be addressed to avoid negative consequences for both clients and service providers. Given the UNAIDS' (2014) call to end AIDS and mitigate other health conditions competing for the limited health workforce in sub-Sahara Africa, future task sharing implementation needs to be evidence-based. The strain exerted by the recent Ebola viral disease outbreak on West African health systems and workforce exemplifies the fragility of the region's health workforce. As such, government and non-government agencies need to take measures to address factors that negatively affect workforce retention or promote health worker attrition. Above all, the preparation of the workforce for the future requires evidence-based professional education and clinical practice that appropriately responds to current population health needs.

This study was guided by two theoretical frameworks: the Self-Efficacy Theory (Bandura, 1982) and the Two-Factor Job Satisfaction Theory (Herzberg's (1959). Self-efficacy is an individual's perception of his/her ability to perform competently in a given task. Table 25 presents the linking between the variables, concepts in both theories and the measures. The antecedents include: a) Mastery experiences in which success acts as a motivator and overcoming failures build resilience; b) Social modeling where one observes others in similar roles; c) Social persuasion or expressions of belief in one's capabilities to perform a task; and d) Perception of emotional and physical reactions

where repeatedly overcoming stressful obstacles reinforces one's self-efficacy (Bandura,

1997).

Table 25

Variables, Concepts and Measures

	Variables	Concepts	Measures
Provider demographics	Age, Gender, Years in Nursing Practice; Years of HIV Experience, Licensure	Demographics, Mastery experience	Demographic Checklist
Setting characteristics	Type of Facility; Facility Ownership; Training (type & duration); Mentoring (type & cadre)	Social Persuasion & Modeling, Intrinsic & Extrinsic factors	Demographic Checklist
HIV Treatment Task Performance:	Patient history, assessment, diagnostics, laboratory review, Medication and opportunistic infection counseling, documentation, role negotiation & team communication	Mastery experience, Emotional & Physical reaction, Intrinsic factors	Self-Efficacy Questionnaire for Task Shifting in HIV care (SEQTS-HIV)
Setting Policies and Components	Personal satisfaction with Workload, Professional support, Training support, Pay, Prospects and Standard of Care	Intrinsic & Extrinsic Factors	Measure of Job Satisfaction Scale (MJS)

Job satisfaction on the other hand is a favorable emotional appraisal of an

individual's job experience (Locke, 1976). It describes the extent to which a job fulfills

an individual's important job values and needs (Bush, 1988). Judge and Klinger (2008)

identified the antecedents of job satisfaction as: a) Job situation or characteristics (i.e. the

nature of the job and its environment); b) Personal disposition or the individual's

personality, values and make-up; and c) The interaction between job situation and

personal disposition. Herzberg's two-factor theory posits that two distinct factors

contribute to job satisfaction: a) the "Extrinsic or Hygiene factors" which are related to the context of work or environment; and b) the "Intrinsic factors" which relate to job performance and contribute to success, achievement and growth (Herzberg, 1959, p.113).

Methods

In the pilot phase, the instrument content validity was established using a focus group of ten expert nurses from north central Nigeria. This was done to ascertain the contextual appropriateness of the survey instruments which were being used for the first time in Nigeria. The inter-rater agreement and content validity index for the scales were found to be within acceptable ranges. The items were also culturally and linguistically appropriate.

The main study consisted of a cross-sectional, descriptive, correlational study in which convenience sampling procedures were used to survey 508 nurses and midwives performing HIV task sharing roles in eight of the 36 states in Nigeria. To ensure a representative sample the states were drawn from all geographic zones of Nigeria. Despite a nationwide health worker strike and some security related challenges encountered during the survey distribution, the response rate was 78.5%. Among 399 nurses whose completed surveys met criteria for analysis, the mean age was 41.97 years (SD = 9.1), 76% were females and 86% worked in government owned facilities. A larger proportion (46%) worked in secondary hospitals while 26% and 28% worked in tertiary and primary health facilities. More than 95% received training and mentoring for HIV task sharing and 82% reported prior HIV nursing experience.

Results from the 13-item Self-Efficacy Scale revealed that the nurses were most confident in identifying opportunistic infections and conditions requiring physician referral, managing collegial relationships and taking patient history. They were least

confident in the skills related to advanced HIV nursing such as interpreting laboratory

values; identifying signs of treatment failure, medication side effects and adverse

reactions; and performing physical assessment skills. The psychometric analysis of the

self-efficacy scale resulted in a one factor solution and a reliability estimate (Cronbach's

alpha) of 0.91 which was comparable with its reliability from previous studies. The

median self-efficacy score was 49 (IQR = 7).

The highest item mean scores on the 42-item Job Satisfaction Scale (similar to

findings by Chirwa, et al., 2009) were related to quality of care while lowest scoring

items related to salary, funding for courses, overall staffing levels and time off for

training. The factor analysis identified three factors: Pay, Workload and Quality of Care.

The overall scale reliability obtained was 0.94 while the sub-scale Cronbach's alphas

were 0.86, 0.82 and 0.77 respectively. The mean job satisfaction score was 156.3 (SD =

21.6).

A. Findings

Study Question 1: What are the relationship between demographic variables and Self-Efficacy for HIV Task Sharing with Physicians and Job Satisfaction?

The first part of question 1 examined the relationships among nurse demographic

variables (age, gender, licensure, years in nursing practice, previous HIV experience and

duration of HIV experience) and Self-Efficacy for HIV task sharing.   Previous research

has documented the relationship between demographic variables and self-efficacy

(Bandura, 1982, 1989 and 1997). Variables that have been significantly related to self-

efficacy include: clinical knowledge and skill acquisition (competence), duration and

type of nursing education, specialty or licensure, prior associated experience, progressive

experience and duration of experience, race; nationality and social status, hierarchical or power positions (Colvin et al., 2013; Corless, et al. (2012); Gilmartin, 2013; Hunter, Pitt, Croce and Roche, 2013; Lipner, Hess and Phillips, 2013; Meretoja, Leino-Kilpi and Kaira, 2004; Oranye, Ahmad and Bakar, 2012; Poronsky, 2013; Takase, Nakayoshi, Yamamoto, Teraoka and Imai, 2014).

The findings from this study also demonstrate some selected relationships between demographic variables and self-efficacy. There was a weak negative correlation ($r = -0.143$, $p = 0.004$) between years in nursing practice and self-efficacy for HIV task sharing. Gender i.e. being a female nurse ($B = 2.046$, $p = 0.041$) and years in nursing practice ($B = -2.695$, $p = 0.007$) predicted self-efficacy for HIV task sharing. Note that years of nursing practice or nursing experience was negatively correlated with self-efficacy. Although these variables contributed a small proportion (4.4%) of the overall variance for this dependent variable, this finding contributes to the body of evidence supporting the relationship between select nurse demographic variables and self-efficacy for HIV task sharing.

The second part of question 1 examined the relationships among nurse demographic variables and job satisfaction. The evidence for this hypothesized relationship was derived from the theoretical proposition which posits that factors which promote job performance motivate workers (Herzeberg, 1966; Herzberg, Mausner, and Snyderman, 1959). This relationship has been supported by previous studies which revealed that personnel demographic attributes such as education level, gender, marital status and length of job experience were either correlated with job satisfaction or

dissatisfaction (Akinnawo, Akinbobola and Ahmefule, 2013; Faris, Douglas, Maples, Berg and Thrailkill, 2010; Nahm, 1940; and Ndiwane, 1999).

In this study, nurses' age (r = 0.124, p = 0.014), dual licensure as registered nurse/midwife (r = 0.112, p = 0.025) and years in nursing practice (r = 0.183, p = 0.000) had weak positive correlation with job satisfaction. Gender (i.e. being a female nurse) had a weak negative correlation (r = -0.107, p = 0.032) with job satisfaction. Only years in nursing practice (B = 2.321, p = 0.021) predicted job satisfaction and accounted for a small proportion (5.4%) of the overall variance.

In general, the evidence from this study reveals that nurse demographic factors had weak associations and accounted for small proportions of the total variance for both self-efficacy and job satisfaction. In other words, other factors may have accounted for the larger proportion of the nurses' self-efficacy HIV for task sharing and job satisfaction in HIV settings.

Study Question 2: What are the relationships between setting characteristics and Self-Efficacy for HIV Task Sharing with Physicians and Job Satisfaction?

The first part of question 2 examined the relationships among setting variables: training (duration and type); mentoring (received mentoring, cadre of mentors, methods used for mentoring and availability of mentors); job setting (type of facility and ownership) and self-efficacy for HIV task sharing. The assumption for this relationship arose from the theoretical propositions that social modeling, and persuasion are critical sources of self-efficacy development (Bandura, 1982; 1989; 1997). Previous research in clinical practice revealed that environmental factors such as training, precepting and mentoring often preceded self-efficacy for clinical role performance (Opacic, 2003;

Young et al., 2012). In this study, none of the setting variables measured had statistically

significant correlations with self-efficacy for HIV task sharing. Therefore the theoretical

assumption was not supported by the study results.

The second part of question 2 examined the relationships among setting variables

and job satisfaction. The premise for this assumption stemmed from the theoretical

proposition that factors which promote performance of a job motivate workers and lead

to high levels of job satisfaction (Herzeberg, 1966; Herzberg, Mausner and Snyderman,

1959). This relationship was supported by previous studies which identified that reliance

on mid-level health providers, increased workload, perceived job prospects, pay, training,

HIV stigma, inadequate resources, and other work environment factors were associated

with health workers' job satisfaction. (Bodilenyane and Motshegwa, 2012; Chirwa, et al.,

2009; Cohen et al., 2009; McAuliffe, et al. 2009; Faye, Fournier, Diop, Philibert,

Morestin and Dumont, 2013).

In this study, duration of training (r = 0.293, p = 0.000), mentoring (r = 0.155, p =

0.002) government facility ownership (r = 0.103, p = 0.039) and the type of facility i.e.

working in tertiary hospitals (r = 0.233, p = 0.000) positively correlated with job

satisfaction. All of these variables (with the exception of facility ownership) predicted job

satisfaction and accounted for 17% of the total variance. These results also corroborates

findings reported by Cohen et al. (2009) that training and mentoring for nursing in task

sharing roles improved their morale.

Although the evidence did not support the proposed theoretical relationships with

self-efficacy for HIV task sharing, the findings add to the body of evidence in support of

the relationship between setting characteristics and job satisfaction or dissatisfaction. The

results revealed that nurses working at government owned hospital and those from tertiary hospitals were less likely to be dissatisfied with their jobs.

Study Question 3: What are the multi-variate relationships of demographic variables, setting characteristics and Self-Efficacy for HIV Task Sharing with Physicians on Job Satisfaction?

This question examined the effects of the combined relationships among nurse demographic variables, setting characteristics and self-efficacy for HIV task sharing on job satisfaction. Fourteen independent variables were tested using a hierarchical regression model. The results revealed that previous HIV nursing experience ($\beta = -8.859$, $p = 0.028$), duration of training ($\beta = 1.056$, $p = 0.000$), mentoring ($\beta = 22.505$, $p = 0.033$) and type of facility ($\beta = 10.721$, $p = 0.000$), were significant predictors of job satisfaction and contributed 21% of the total variance. Theoretically, the assumptions presented by Herzberg (1966) and Herzberg, Mausner and Snyderman (1959) that factors which promote job performance motivate workers, were strongly supported by these findings. Three health facility characteristics: working in tertiary health facilities with more complementary staffing mix, more resources and less bureaucratic administration; longer duration of training; and receiving mentoring reduced the likelihood for job dissatisfaction among nurses in this study. This finding also supports the conclusion by Cohen et al. (2009) that training and mentoring improved the morale among nurses in HIV task sharing role. Conversely, a longer duration of HIV nursing experience was associated with decreased job satisfaction. This means that the longer the nurses worked in HIV settings, the higher their likelihood for job dissatisfaction.

Review of Theoretical Assumptions

Self-Efficacy for Task Sharing in HIV Care

Contrary to the proposition that mastery experience should act as a motivator for self-efficacy judgement, the findings from this study revealed the opposite. Mastery experiences represented by longer duration of nursing experience or years in nursing practice was found to have a negative influence on self-efficacy for HIV task sharing. Nurses with fewer years of experience reported higher self-efficacy scores. This meant that past experiences with overcoming challenges and building resilience through clinical practice, did not provide the more experienced nurses an edge over less experienced nurses in terms of perceived confidence to perform HIV task sharing. Therefore, this assumption was not supported. Social modeling and social persuasion and overall perception of emotional and physical reactions were not significantly associated with the nurses' self-efficacy to perform HIV task sharing. Illustrations of Bandura's Self-Efficacy theoretical framework and the retained components based on these findings are summarized in Figures 12 and 13.
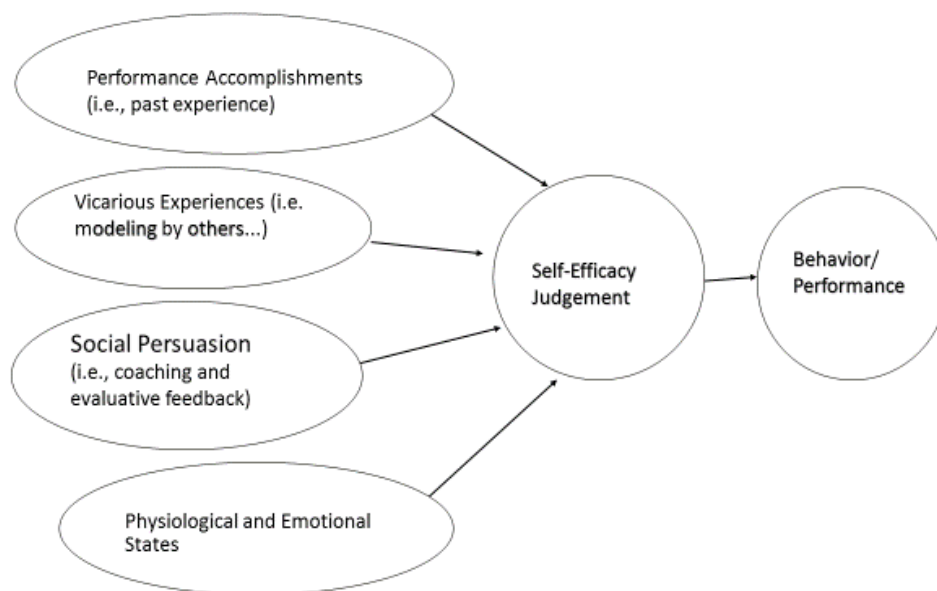
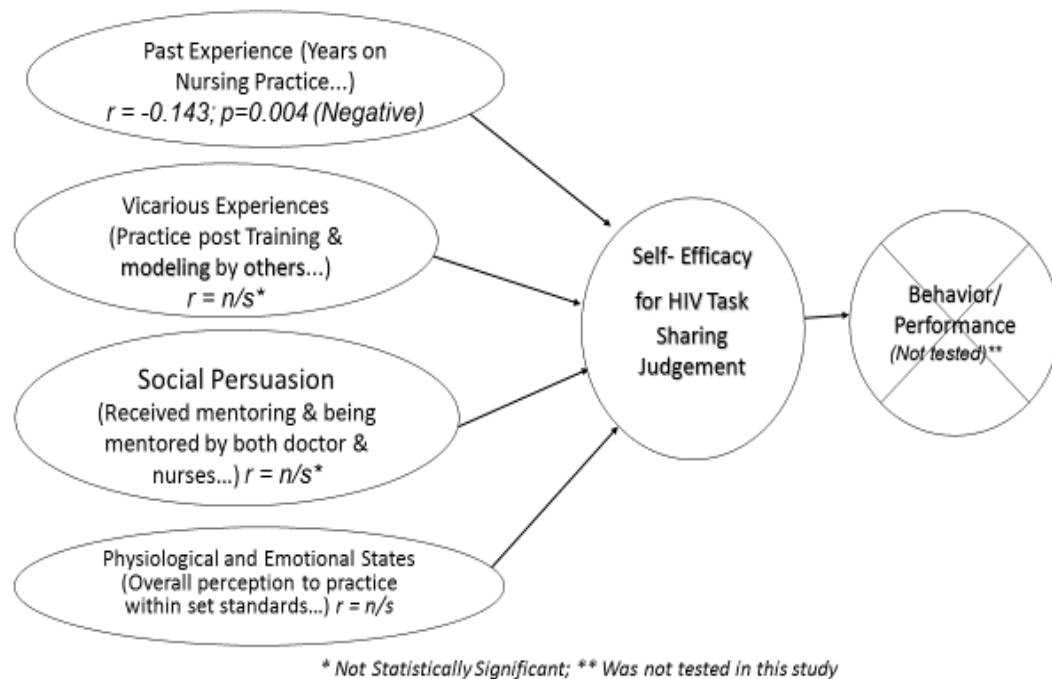Figure 12: Illustration of the Self-Efficacy Theory (Burt, 2011).

Figure 13: Retained components of the Self-Efficacy Theoretical assumptions

Job Satisfaction

The Two-Factor Job Satisfaction theory, posits that two separate factors contribute to job satisfaction. The extrinsic factors which are related to the context or work environment and the intrinsic factors which relate to the job task performance (Herzberg, 1959; 1966). Although these factors co-exist, Herzberg (1959) described them as very "distinct" to the extent that "the opposite of job satisfaction would be no job satisfaction" while the opposite of "job dissatisfaction would be no job dissatisfaction" (p.76). He further explained that even though the work environment factors do not strongly contribute to job satisfaction, they remain critical because their "absence to unacceptable levels lead to dissatisfaction". These extrinsic factors include: quality of supervision, pay or salary, company policies and administration, physical and work conditions, employee relations, employee benefits and job security (Herzberg, 1959, p.113-115). The theory identified intrinsic factors as aspects related with job performance itself. These

factors energize employees and create long term incentives for high performance. They include:

opportunity for promotion and growth, creative and challenging work, task achievements,

recognition and responsibilities (Herzberg, 1966). An illustrations of Herzberg's Two-Factor Job

Satisfaction theory as presented by Collins (2009) is shown in Figure 14 while the components
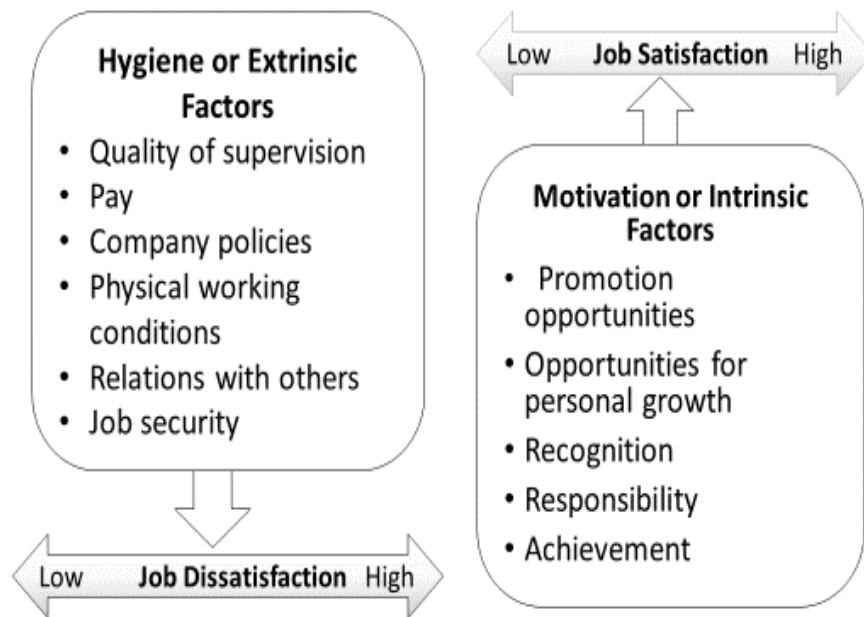
tested in this study are presented in Figure 15.

Hygiene or Extrinsic Factors
- Quality of supervision
- Pay
- Company policies
- Physical working conditions
- Relations with others
- Job security

Low   **Job Dissatisfaction**   High

Low   **Job Satisfaction**   High

Motivation or Intrinsic Factors
- Promotion opportunities
- Opportunities for personal growth
- Recognition
- Responsibility
- Achievement

Figure 14: Herzberg's Two Factor Theroy of Job Satisfaction (Collin, 2009)
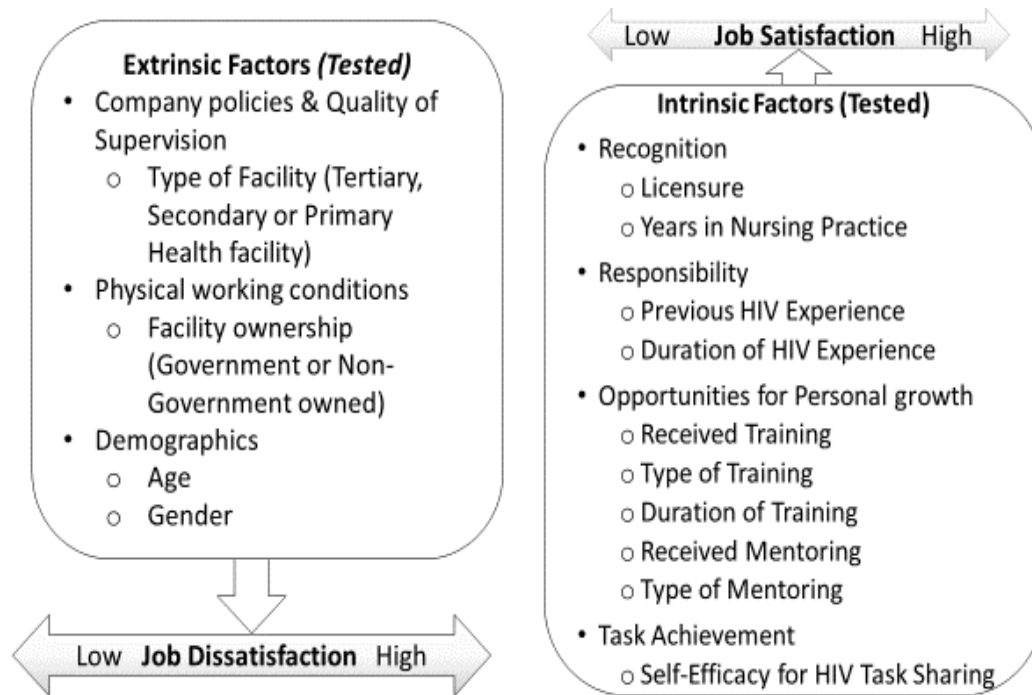
Figure 15: Components of Herzberg's Two Factor Theory of Job Satisfaction tested

As predicted by the theory, the intrinsic factors which were significant positive predictors of job satisfaction included: recognition (i.e. dual licensure as registered nurse/midwife and years in nursing practice) and opportunities for personal growth (training duration and receiving mentoring). However, responsibility (i.e. previous HIV nursing experience) was negatively associated with job satisfaction because longer HIV nursing experience was associated with low job satisfaction.

Using low job satisfaction as a proxy for job dissatisfaction, the extrinsic factors which significantly correlated with reduced likelihood for job dissatisfaction were company policies and quality of supervision (working in tertiary health facilities); physical working condition (working in government owned facilities) and select nurse demographics (older age and male gender). Thus, working in secondary and primary health facilities, non-government owned facilities and being a female nurse were

associated with high likelihood for job dissatisfaction. These findings contribute to the

body of evidence in support of the proposed theoretical relationships. The retained

components of Herzberg's two-factor job satisfaction theory based on these findings is
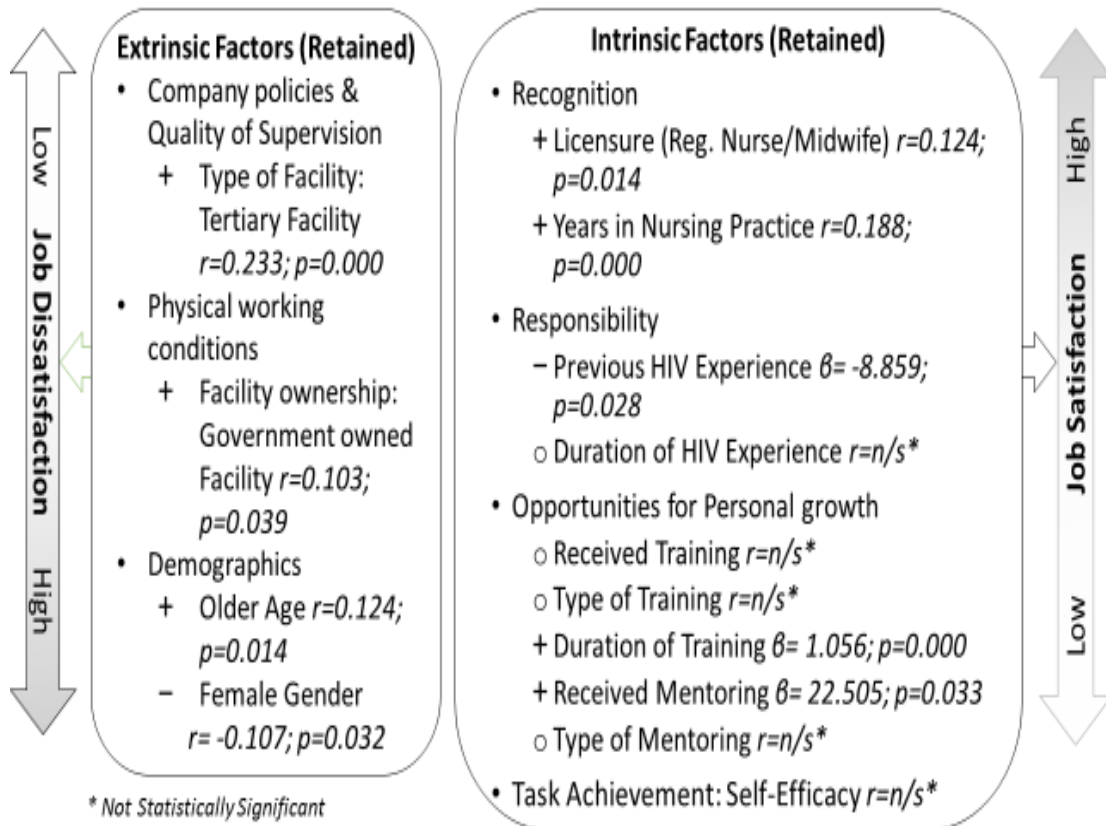
illustrated in Figure 16.

Figure 16: Retained components of Herzberg's Two Factor Job Satisfaction theory:
Factors (positively and negatively) associated with Job Dissatisfaction and Job
Satisfaction.

Qualitative Results:

A concept mapping of qualitative responses by the participants who voluntered

comments revealed that the most prevalent challenges included: excessive workload and

documentation; feelings of overwhelming stress, fatigue and burnout; inadequate supply

of equipments and non-commensurate remuneration. The nurses highlighted that lack of

complementary psycho-social support for patients presented additional burdens for nurses

who were left with managing more than nursing responsibilities. Some nurses who were

still performing their primary nursing duties worked double shifts on clinic days (without

additional pay) to accommodate their new roles. In spite of these challenges, the majority

of nurses in this study reported that enhanced clinical role and participation in patient

care have positively affected their job satisfaction. The composite training, mentoring and

advanced competence required for HIV task sharing role also improved their self

confidence. To overcome some of the challenges, nurses worked with their supervisors,

mentors and peers on ideas and solutions. They also used time management skills,

training of volunteers, students and peer educators to assist with appropriate clinic duties

as additional coping mechanisms. Internet and other reading resources were used for

knowledge update.

B. Summary

This study examined the associations among nurse demographics (gender, age,

licensure, years in nursing practice and previous HIV nursing experience), setting

characteristics (facility ownership and type, training, and mentoring) and two nurse

outcome variables (self-efficacy for HIV task sharing and job satisfaction). The

population of interest were nurses and midwives who performed HIV medical tasks

shifted from physicians to nurses in Africa. Guided by Bandura's self-efficacy and

Herzberg's two-factor job satisfaction theories, measures of nurse and health facility

demographics, self-efficacy for HIV task sharing and job satisfaction were validated in a

pre-study pilot. Using a convenience sampling technique, 508 nurses and midwives were surveyed in 8 Nigerian states out of which 399 completed surveys were analyzed.

Descriptive statistics, Pearson's r and multiple regression analyses were computed using IBM SPSS version 21 (SPSS IBM, New York, U.S.A.) software to test the following research questions tested:

1. What are the relationships among nurse demographic characteristics and:

   a. Nurses' perceived Self-Efficacy for HIV task sharing with physicians?

   b. Job Satisfaction?

2. What are the relationships among setting characteristics and:

   a. Nurses' perceived Self-Efficacy for HIV task sharing with physicians?

   b. Job Satisfaction?

3. What are the effects of combined relationships among nurse demographics, setting characteristics and perceived self-efficacy on the job satisfaction of Nigerian nurses performing task sharing roles with physicians in HIV settings?

Group variations in relation to the dependent variables were also examined in addition to concept mapping of participants' qualitative responses during the survey to identify the most prevalent challenges, coping strategies and perceived impact of the role on job satisfaction.

The key findings were: 1) A small but statistically significant correlation was found between two nurse demographic variables (years in nursing practice and female gender) and self-efficacy for HIV task sharing (which accounted for less than 5% variance). Years of nursing practice had a negative correlation with self-efficacy for HIV task sharing. 2) No statistically significant relationship was found among any of the health

facility or setting characteristics tested and self-efficacy for HIV task sharing. 3) A weak

statistical significant correlation was found among four nurse demographic variables

(age, dual licensure, years in nursing practice and (male) gender) and job satisfaction.

However only one variable (years in nursing practice) accounted for a small proportion of

variance (5.4%) as a statistically significant predictor of job satisfaction. 4) A statistically

significant correlation was found among four health facility or setting variables (duration

of training, mentoring, government facility ownership and type of health [i.e. tertiary]

facility) and job satisfaction. All except facility ownership, accounted for 17% variance

as predictors of job satisfaction. 5) Four out of the fourteen independent variables tested

(previous HIV nursing experience, type of facility, duration of training and mentoring)

were the overall predictors of job satisfaction contributing 21% of the total variance.

C. Conclusions

In conclusion, longer duration of nursing experience had the greatest negative impact

on self-efficacy which was contrary to the theoretical prediction. Although female nurses

were more likely to report higher self-efficacy scores in HIV task sharing role, the male

nurses were more satisfied with their jobs. Nurses who worked in tertiary hospitals where

there are more complementary staffing mix, resources and less bureaucratic

administration were more satisfied with their jobs than those who worked in secondary

and primary hospitals. Nurses from faith-based hospitals were more likely to be

dissatisfied than those in government owned facilities. While the study supported a good

number of the proposed theoretical relationships for job satisfaction, prior HIV nursing

experience was the only intrinsic factor that had a significant negative influence on job

satisfaction. Longer duration of HIV nursing experience increased the likelihood for job

dissatisfaction among the nurses. Some of the reasons for this relationship could be related to excessive workload, documentation, overwhelming stress, fatigue and burnout, non-commensurate pay and other identified challenges associated with the role. Although training and mentoring were not significant correlates of self-efficacy, they were significant predictors of job satisfaction. The nurses highlighted that training, higher level of competence required for the role and increased clinical participation in patient care helped to cushion the negative effects of HIV task sharing on nurses' job satisfaction.

D. Limitation

Nigeria is a very diverse country in terms of socio-demographic and religious characteristics. Therefore, content validity of the instruments was very important to overcome this challenge. That notwithstanding, many health workers misconstrued formal, out-of-station, and didactic in-service capacity development as "being trained" especially in programs implemented by donor agencies because such activities attract incentives like per diem and time off from work. This misconception affected the nurses' perceptions and responses to the question regarding HIV task shifting training and duration. A total of 86 (21.5%) respondents who received onsite hands-on practicum training or case reviews only did not regard these as "being trained" so they answered no training and left duration of training blank. While entries were corrected for training, training duration could not be corrected because this required actual number imputation by respondents. Even though this was a systemic error, the variable was a crucial indicator that could not be dropped. This missing data was addressed during analyses by using listwise (casewise) deletion and including only subjects who had no missing information for the analyses, bearing in mind the effect this may have on sample size.

As anticipated during the study plan: there was limited access to nurses who already left HIV task sharing roles (possibly due to dissatisfaction) and security challenges related to Boko Haram terrorists attacks and political tensions limited access to nurses in north eastern and central parts of Nigeria. To accommodate these challenges immediate steps were taken to train and use local nurses for subject recruitment and data collection. It is anticipated that: successful recruitment of a large sample size far beyond the projected 300 nurses; sampling from all six geographic regions of Nigeria; and inviting all nurses who performed task sharing roles in the past to participate; would offset the negative impact of this limitations.

Another limitation may be that the self-efficacy construct may not have been the most appropriate theoretical framework for this study given the setting. The finding was a direct opposite of the proposed relationship in terms of mastery experiences (years of nursing practice) being a motivator for self-efficacy. Further research is definitely needed to examine the most appropriate construct for this relationship in this setting and population.

E. Implications and Recommendations

Health Systems

As a health systems strategy to address shortages in human resources for health, future implementation of task sharing requires careful consideration for empirical data supporting current interventions. While scale up of positive outcomes is necessary, health systems interventions are needed to ameliorate negative effects on patients and health workers alike. Although ample evidence in favor of patient-related outcomes exist, findings from this and similar studies represent a tip of the iceberg in terms of the need to avoid further detrimental effects on the fragile workforce reserve of sub-Sahara Africa. Zachariah et al. (2009)

identified challenges such as health professional group and health institutional resistance; and the need to nurture the providers' motivation for the role as consequences requiring system level interventions. Despite the fact that 95% of the nurses in this study received the WHO recommended training and mentoring to support their new role, they were not shielded from the negative implications. The longer they worked in HIV care, the higher their likelihood for job dissatisfaction. While HIV treatment task sharing successfully reduced physicians' workload, nurses who provided qualitative responses identified excessive workload, excessive documentation, lack of supplies, no remuneration for additional responsibilities, longer working hours, overwhelming stress and burnout as challenges. It is obvious that implementation of HIV task sharing in spite of existing nursing shortages in Africa amplified existing stressful working conditions for the nurses. Considering recent calls to institutionalize and further expand task sharing "to empower community health workers to undertake tasks currently assumed by the limited number of physicians, nurses, pharmacists and other professional medical cadres" in lieu of 90-90-90 agenda and the universal health access and other sustainable development goals (SDGs) for health (UNAIDS, 2015 p.44; United Nations, 2015, & WHO, 2015), ignoring these red flags may have worse outcomes for nurses.

Systemic paradigm shift, political will and supportive policies are needed to enable acculturation of health workers towards inter-professional practice to alleviate excessive burden on any one group of workers. There is a need to institute a mechanism of incentives for nurses and doctors from tertiary facilities to visit and nurture HIV treatment skills of nurses (and community health workers) at lower level facilities and faith based hospitals. Providing a forum for continuing education that cuts across all disciplines and facility

levels could help to cross-fertilize knowledge and expertise as well as encourage collaborations among providers and health facilities.

Increasing the investments for the welfare of health workers remains one of the weakest links in human resource for health planning in Africa. According to the WHO (2015), in middle and low income countries, "insufficient investment in the health workforce has often translated into endemic shortages" (p.11) which continues to fuel migration and workforce maldistribution. The disparities in job satisfaction between facility levels is an indicator of a serious gap in supportive work environment for urban versus rural health centers. The government needs to take measures to reduce these gaps by institutionalizing effective mechanisms for complementary staffing mix, skills development, certification, recognition and logistics for necessary supplies. Ongoing advocacy for improved staffing, deployment benefits and equalized remuneration across board (including non-government owned facilities) could go a long way to improve job satisfaction and retention of nurses and other health workers in these facilities. Most of all, ongoing research will be required to monitor and understand the long-term effects of task sharing on health workers.

Nursing Practice

The study findings raise concerns in terms of necessary support for nurses in task sharing roles especially in light of existing nursing shortage, high patient-to-nurse ratios and workload as a result of HIV disease burden in Sub Sahara Africa. The disparity in job satisfaction across facility levels and types of ownership are clear signs that strategies to reduce the negative impact of task sharing on nurses working in facilities with limited staffing and resources are very much needed. These nurses definitely require additional support to cushion the effects of task sharing. With the drive to institutionalize task sharing,

policy makers, nursing and hospital administrators have important roles to play in identifying and implementing supportive mechanisms to enhance the job fulfillment among nurses in task sharing roles.

These strategies must include a structured mechanisms for continuing education and skills update that includes information about HIV, related co-morbid and other emerging diseases. They should address the need for a complementary staff mix and availability of necessary resources to reduce the stress of HIV service provision, especially at lower level facilities. Other strategies should include: supportive administrative environment; re-evaluation of remuneration processes and other incentive systems to ensure nurses' adequately compensated; and the recognition of advanced HIV nursing skills and expertise for promotion. Non-financial incentives could include the recruitment of nurses with task sharing experience as national and local resource persons for clinical education and mentoring. These in addition, to inter-professional training and practice may reduce inter-disciplinary strife, improve team work and minimize the current gaps in job satisfaction across facility levels.

Nursing Education

Although the Nigerian nursing and midwifery council has taken measures to revise and standardize HIV disease and management contents of the curriculum, current and future nursing education should prepare students with skills necessary for the job market. They should be job-ready especially with the Nigerian midwives service scheme, a national program in which graduates from midwifery schools are posted to work in primary health centers for one year (Okeke, et al., 2015). A newly graduated midwife could be the lone clinician in a rural primary health center expected to initiate and maintain antiretroviral

treatment for PMTCT. Task sharing in HIV care by nurses is currently a national practice in Nigeria, therefore graduating students should have the requisite knowledge and skill to properly assess and respond to the needs of patients infected with HIV especially pregnant mothers to minimize transmission to the unborn child.

The nursing and midwifery council and nursing education stakeholders could consider instituting an advanced practice nursing program or a certificate HIV nurse specialty program. Under such a program, task sharing role can be properly couched so that graduates will serve a wider array of advanced clinical roles. Although the process for instituting a new cadre of health professionals is an arduous ordeal, especially in a rigid bureaucratic system like Nigeria, the educators require clinical updates in areas related to advanced HIV nursing. These will include pathophysiology, advanced physical assessment, pharmacology, laboratory and other diagnostic testing for HIV and co-morbid conditions.

To reduce the strain on nursing faculty, enhance team work and minimize inter-professional dissention in practice, nursing programs can liaise or collaborate with faculty and clinicians from the departments where these courses are already taught, to teach them as inter-professional courses. To enhance pre-licensure acculturation, clinical rotations for all professional students should include health facilities and clinics providing task sharing services. School based and national licensure examinations should test knowledge and clinical proficiency in these advanced skills prior to students' graduation. Considering the dynamics of HIV research, biannual clinical updates must be built in for nurse educators' professional development.

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Appendix A

Health Facility Referral Network & Study Timeline
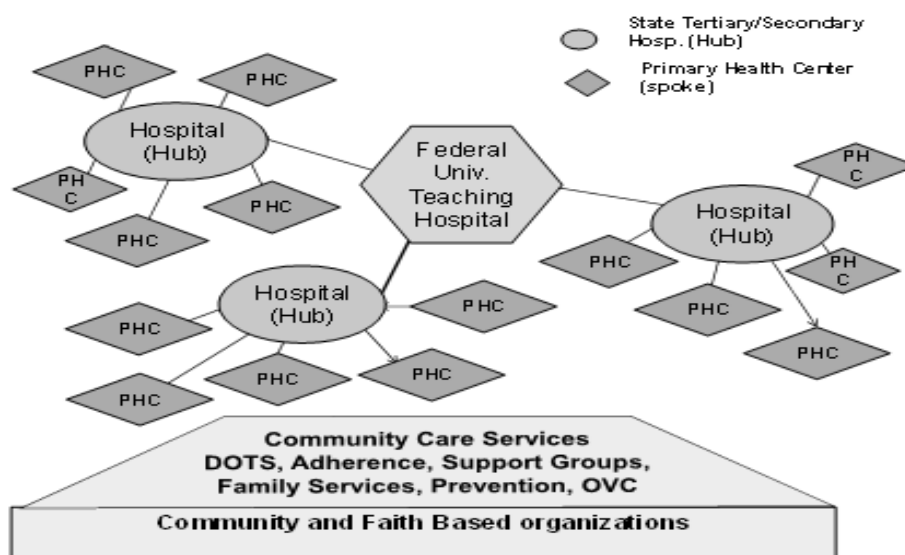
Activity	2014							2015					
	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun-Dec
Protocol Development	▓	▓	▓										
IRB Review & Approval			▓	▓	▓								
PILOT STUDY													
Focus Group/Content Validity					▓	▓							
Analysis; Revise & Finalize Scale					▓	▓							
MAIN STUDY													
Staff Recruitment					▓	▓							
Train Staff & Prepare Site					▓	▓	▓	▓					
Enrollment & Data Collection					▓	▓	▓	▓					
Data Entry & Cleaning					▓	▓	▓	▓	▓	▓			
Analysis								▓	▓	▓	▓	▓	
Approval & Defense										▓	▓	▓	▓
Writing										▓	▓	▓	▓

Table 4: Study Timeline

Appendix B

Pilot Study Recruitment Letter

Date: November 24, 2014

Title of Research: Shifting HIV Management Tasks from Physicians to Nurses in Africa: A Correlation Study examining Relationships among Task Shifting Training, Mentoring, Demographic Factors, Nurses' Self Efficacy and Job Satisfaction.

Sir/Madam,

I am developing a demographic checklist and self-efficacy questionnaires for task shifting in HIV Care which will be used to measure nurses' perceived mastery and competence in performing HIV treatment tasks previously performed by doctors in Nigeria. I have also adapted a measure of job satisfaction survey for use among nurses in these task shifting roles. This survey has been used in other countries (including Africa) but not in Nigeria. With the implementation of task shifting in HIV care, many nurses have taken on additional patient management roles to alleviate the impact of physician shortages on HIV infected clients who present for care and treatment. The purpose of this research is to identify factors related to the nurses' perceived ability (or confidence) to perform this role and their job satisfaction.

I would like to invite you to serve as a content expert in a focus group at Institute of Human Virology Nigeria office, Abuja to review these questionnaires and checklist because of your clinical experience with task shifting in HIV care. As a content expert, you will be required to determine the relevance and clarity of items on the questionnaires and recommend revisions where necessary. You will also evaluate the comprehensiveness of the surveys.

Your voluntary participation is a critical preliminary step for future research to evaluate how task shifting relates to nurses' self-efficacy to manage HIV and the job satisfaction among nursing in task shifted roles.

Please note that all discussions will be kept confidential and no personal identifying information will be collected. Kindly contact me by phone/text at +234 539 9446 or email at eiwu@ihvnigeria.org or iwu@rutgers.edu if you would like to participate.

Thank you for your time.

Sincerely,

Emilia Iwu MSN, APNC, FWACN

PhD Candidate, Rutgers College of Nursing, Newark NJ, 07102, USA

Appendix C

Pilot Study: Focus Group Guide

Principal Investigator/Moderator: Setting up

Provide brief welcome and give an overview of the purpose of the focus group discussion.

Ground rules: The information discussed in this focus group is confidential and no one should talk about what they have heard outside of the group. Your inputs are very valuable. Therefore, everyone is encouraged to ask questions and request clarifications before and during the group activity. Treat everyone with respect; do not interrupt but hold on to the thoughts until it is your chance to speak. If one or more persons are dominating the conversation, I will gently remind them to give others a chance to talk. (*Regroup after consent process*)

PI/Moderator:

The objective of this pilot study is to seek the expert opinions of a small group of nurses performing expanded roles in HIV care about three measurement tools (surveys).These expanded roles include HIV treatment tasks which were previously performed by physicians such as ordering and reviewing HIV diagnostic and monitoring tests, initiating of maintaining patients on antiretroviral medications, physical examination, identifying signs of opportunistic infections or drug side effects etc.

These surveys will be used in a research study among nurses performing HIV treatment tasks which have been shifted from physicians to nurses in Nigeria. Approximately ten expert nurses/midwives are participating in this focus group. This

activity will be done in two parts: 1) A group overview and clarification session to ensure everyone understands what the activity entails; 2) An individual content review session during which each participant will review and rate the checklist and questionnaires. The PI/Moderator will be present during both sessions which are expected to last approximately 2 hours. Your opinions are being sought in the following areas:

1) The comprehensiveness of the Nurse and Facility Checklist in capturing important elements for describing the demographic factors about nurses and health facilities in Nigeria

2) The comprehensiveness of the Task Shifting Training Components and Types of Training (please list other training components you believe were omitted)

3) The completeness of the Types and Methods of Task Shifting Mentoring

4) The appropriateness of the survey questions on the Self-Efficacy Questionnaire for Task Shifting in HIV Care (SEQTS-HIV) in relation to nursing practice in Nigeria

5) The appropriateness of the survey questions on the Measure of Job Satisfaction (MJS) in relation to nursing practice in Nigeria.

6) Are the questions (items) applicable to Nigerian practice environment (in terms of religion and culture)?

7) The survey language: if the sentence construction and wording are easy to read and understand.

8) Provision of recommendations (where necessary) for removing or adding questions (items) with ***reasons for each recommendation.***

Do you have any questions about our discussions?

Thank you for your time and contributions.

Appendix D

Pilot Study: Content Expert Review Guide and Questionnaire

Title of Research: Shifting HIV Management Tasks from Physicians to Nurses in Africa: A Correlational Study examining Relationships of Task Shifting Training, Mentoring, Demographic Factors, Nurses' Self Efficacy and Job Satisfaction.

Purpose: The purpose of this focus group is to enable expert nurses with clinical experience in task shifting roles in HIV Care to evaluate the demographic checklist and questionnaires which will be administered to nurses performing task shifted roles in Nigeria. The first instrument is intended to capture the demographic characteristics of the nurse and the health facility, while the other two will measure the respondents' perceived self-efficacy to manage HIV treatment and their job satisfaction.

Definitions of Terms

Demographic Factor is defined as the socioeconomic characteristics of a population (N.D., Retrieved from http://www.businessdictionary.com/definition/demographic-factors.html). Therefore, nurse demographic factors are the socioeconomic characteristic of a population of nurses.

Healthcare Facility is defined as places that provide health care which include hospitals, clinics, out-patient and specialized care centers (NIH, 2013, retrieved from:

http://www.nlm.nih.gov/medlineplus/healthfacilities.html).

Health Facility Characteristics are the geographic coverage and service packages provided by a health institution or facility namely: primary, secondary or district and tertiary facilities (Hensher, Price, & Adomakoh, 2006).

Task Shifting Training is defined by the WHO (2008) as: "competency-based activities using standardized curricula designed to provide a cadre of health workers the necessary knowledge and skill required to meet the roles, competency levels, and standards expected of such trainees" (p.28).

Task Shifting Clinical Mentoring is "a system of practical training and consultation that fosters ongoing professional development to yield sustainable high-quality clinical outcomes" (WHO, 2006c, p. 10).

Job Satisfaction is the extent to which a job fulfills an individual's important job values. The degree to which those values match the person's needs (Bush, 1988). It also refers to the perception of fulfillment derived from one's job.

Perceived Self-Efficacy is defined as the "self-perception of one's ability to perform competently and effectively in particular tasks or settings" (Bandura, 1982; 1989; 1997).

Role of Expert Content Reviewer

As an expert content reviewer, you are required to read each statement (item) on each of the three study instruments:

1) The 15-item Nurse and Facility Demographic checklist

2) The 13-item Self-Efficacy Questionnaire for Task Shifting in HIV care (SEQTS-HIV)

3) The 43-item Measure of Job Satisfaction (MJS)

You are expected to evaluate each item bearing in mind, the religious, cultural, linguistic and clinical practice perspectives of Nigeria using the following criteria:

    A. **Representativeness**: Does the item measure or reflect the concept or phenomenon as intended (by the Nurse and Health Facility Characteristic; Self-Efficacy and Job Satisfaction respectively)?

    B. **Clarity**: Is the item well written at a reading level that is easy to understand by the nurse respondents?

    C. **Comprehensiveness**: Are the components or dimensions of the concept or phenomenon included in each of the instruments?

Using this guide and the table below, kindly review and rate each instrument (the checklist and two questionnaires). Please print legibly the number that corresponds with your rating for each item.

Concept Review: Nurse and Health Facility Demographic Factors

Item Number	Rating for Representativeness *(Choose only one)*	Rating for Clarity *(Choose only one)*	Rating for Components/Dimensions *(Choose only one)*	Recommendation for Revision
	1 = The item is **not representative** of the concept/phenomenon. **2** = The item **needs major revision** to be representative. **3** = The item **needs minor revision** to be representative. **4** = The item is **representative** of the concept/phenomenon.	**1** = No **2** = Yes	**1** = Unable to rate **2** = Not Adequate **3** = Adequate	
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Use the space below to write your suggestions on how to make the items clear:

_____
_____
_____
_____

Should any other item(s) be added? If Yes, please use this space to indicate the item(s) and reasons for your suggestion.

_____
_____
_____
_____

Thank you for your time.

Content Review: Measure of Job Satisfaction

Item Number	Rating for Representativeness (Choose only one)	Rating for Clarity (Choose only one)	Rating for Components/Dimensions (Choose only one)	Recommendation for Revision
	1 = The item is **not representative** of the concept/phenomenon. **2** = The item **needs major revision** to be representative. **3** = The item **needs minor revision** to be representative. **4** = The item is **representative** of the concept/phenomenon.	**1** = No **2** = Yes	1 = Unable to rate **2** = Not Adequate **3** = Adequate	
1				
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11				

Item Number	Rating for Representativeness (Choose only one)	Rating for Clarity (Choose only one)	Rating for Components/Dimensions (Choose only one)	Recommendation for Revision
	1 = The item is **not representative** of the concept/phenomenon. **2** = The item **needs major revision** to be representative. **3** = The item **needs minor revision** to be representative. **4** = The item is **representative** of the concept/phenomenon.	**1** = No **2** = Yes	1 = Unable to rate **2** = Not Adequate **3** = Adequate	
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				

Item Number	Rating for Representativeness (Choose only one)	Rating for Clarity (Choose only one)	Rating for Components/Dimensions (Choose only one)	Recommendation for Revision
	1 = The item is **not representative** of the concept/phenomenon. **2** = The item **needs major revision** to be representative. **3** = The item **needs minor revision** to be representative. **4** = The item is **representative** of the concept/phenomenon.	**1** = No **2** = Yes	1 = Unable to rate **2** = Not Adequate **3** = Adequate	
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				

Use the space below to write your suggestions on how to make the items clear:

_____
_____
_____

Should any other item(s) be added? If Yes, please use this space to indicate the item(s) and reasons for your suggestion.

_____
_____
_____

Thank you for your time.

Content Review: Self- Efficacy to Perform HIV Treatment Tasks Shifted from Physicians to Nurses

Item Number	Rating for Representativeness *(Choose only one)*	Rating for Clarity *(Choose only one)*	Rating for Components/Dimensions *(Choose only one)*	Recommendation for Revision
	1 = The item is **not representative** of the concept/phenomenon. **2** = The item **needs major revision** to be representative. **3** = The item **needs minor revision** to be representative. **4** = The item is **representative** of the concept/phenomenon.	**1** = No **2** = Yes	1 = Unable to rate **2** = Not Adequate **3** = Adequate	
1				
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13				

Use the space below to write your suggestions on how to make the items clear:

_____
_____
_____

Should any other item(s) be added? If Yes, please use this space to indicate the item(s) and reasons for your suggestion.

_____
_____
_____
_____

Thank you for your time.

Appendix E

Sample Letter to Health Facility Administrator

November 24, 2014

The Chief Medical Director/Director Health Dept.,

_____

Health Research Ethics Committee,

_____, Nigeria.

Sir/Madam,

REF: Shifting HIV Management Tasks from Physicians to Nurses in Africa: A Correlation Study Examining Relationships among Task Shifting Training, Mentoring, Demographic Factors, Nurses' Self Efficacy and Job Satisfaction

I am writing to thank you for your cooperation with implementation of Task Shifting of HIV Care tasks from doctors to nurses at your health facility. I am a PhD nursing student at Rutgers University in Newark, New Jersey, USA. I am interested in examining the impact of task shifting on the health system. I write to seek your permission to conduct a survey to assess how task shifting training and mentoring relate with nurses' perceived ability to manage HIV treatment tasks and their job satisfaction.

This study will be carried out as part of my Dissertation Research Project in order to meet the requirements for my PhD. The goal is to identify key correlates among nurse participants' demographics, training, mentoring and their perceived self-efficacy to perform task shifted roles and job satisfaction.

The data will be gathered through anonymous survey. The plan, methodology, data collection, analysis and report will be supervised by my academic advisor, Dr. William Holzemer Dean & Professor at Rutgers University, College of Nursing, New Jersey, USA.

I will personally visit your facility to present an overview of the study and invite all nurses performing task shifting roles at the HIV clinics to voluntarily participate. Attached are copies of NHREC's Approval No. NHREC/01/01/2007 and Rutgers University IRB approval No. Pro2014000435

Thank you in anticipation for your cooperation.

Sincerely,

Emilia Ngozi Iwu RN, MSN, APNC, FWACN

Principal Investigator

Contact: +234 806 539 9446; +1856 625 0041; Email – iwu@rutgers.edu OR eiwu@ihvnigeria.org

Appendix F

Measurement Scales

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*This survey has been designed to assess how groups of nurses feel about different aspects of their job. Completion of this anonymous questionnaire indicates your willingness to participate in this research. You may withdraw your participation at any time without repercussions. Please answer **EACH** question and fill in all areas as indicated. Be sure to answer all questions even though some may look similar. You do not need to give your name as all answers are confidential. You will receive N350 phone card for calls to the researcher. If you complete and return your survey, an additional N500 phone card will be given to you as a token for your time. Remember: You will NOT BE identified.*

*Thank you for your time. **If any questions, please contact: Emilia Iwu RN MSN; GSM: +234 806 539 9446; +234 705 622 9279; Cell: +1 856-625-0041 (Email: eiwu@ihvnigeria.org Or iwu@Rutgers.edu)***

Nurse and Health Facility Demographic Checklist

1. Age (years): _____

2. Gender: Male   ☐   Female   ☐

3. License: RN/RM ☐   RM ☐   RN ☐

    Additional License(s):   _____

4. Number of years in nursing practice   _____

5. Job Title: _____

6. Job Setting: ☐ Government Owned   ☐ Non-Government Owned (Faith Based)

7. Type of Health Facility: (check one)

    ☐   Tertiary Facility   ☐   Secondary Facility

    ☐   Comprehensive Primary Health Center   ☐   Primary Health Center

Training and Experience: (Check all that apply)						
8. Prior HIV Experience:	☐	No	☐	Yes	If yes: Duration (years): _____	
9. Task Shifting Training:	☐	No	☐	Yes		
10. **If Yes to Training (#9 above),** Duration (days): _____						
11. Type of training:	☐	Classroom / Lecture	☐	Mentored Clinical / Practicum	☐	Interactive Case Reviews
12. Mentored By:	☐	Doctor	☐	Nurse	☐	None
13. Mentor(s) Available Onsite:	☐	No	☐	Sometimes	☐	All the time

14. Type of Mentoring:	☐ Phone	☐ Onsite	☐ No Mentoring at All

Nurse and Health Facility Demographic Checklist

15. **Contents of Task Shifting Training: (check all that apply)**

1. ☐ Triage for Doctor's Visit

2. ☐ Take Patient History

3. ☐ Review of Systems

4. ☐ Laboratory Review (Normal & Abnormal Ranges)

5. ☐ Physical Assessment

6. ☐ Immunologic and WHO Staging

7. ☐ Identifying Opportunistic Infections

8. ☐ Review of signs of Treatment Failure

9. ☐ Conditions and Findings to Refer to Doctor

10. ☐ Documentation of Patient Encounter

11. ☐ Identifying Medication Side Effect or Adverse Reaction

12. ☐ Task Shifting Role/Scope of Practice Negotiation

13. ☐ Team Building Skills

14. Other Training Contents not Mentioned (Please Specify):_____

_____

*Is there any other information you would like to share about your task shifting **Training**?*

_____

_____

*Is there any other information you would like to share about your task shifting **Mentoring**?*

_____

_____

*This survey has been designed to assess how groups of nurses feel about different aspects of their job. Completion of this anonymous questionnaire indicates your willingness to participate in this research. You may withdraw your participation at any time without repercussions. Please answer **EACH** question and fill in all areas as indicated. Be sure to answer all questions even though some may look similar. You do not need to give your name as all answers are confidential. You will receive N350 phone card for calls to the researcher. If you complete and return your survey, an additional N500 phone card will be given to you as a token for your time. Remember: You will NOT BE identified.*

*Thank you for your time. **If any questions, please contact: Emilia Iwu RN MSN; GSM: +234 806 539 9446; +234 705 622 9279; Cell: +1 856-625-0041 (Email: eiwu@ihvnigeria.org Or iwu@Rutgers.edu)***

Self-Efficacy Questionnaire for Task Shifting in HIV Care (SEQTS-HIV)
(Adapted from the original General Self-Efficacy Scale (Schwarzer, R. and Jerusalem, M., 1995a &1995b)

Please rate your ability to perform the following tasks:	Not At All True	Hardly True	Moderately True	Exactly True
1. I am confident that I can triage a patient for a doctor's visit.	☐	☐	☐	☐
2. I am confident that I can conduct a comprehensive patient history.	☐	☐	☐	☐
3. I am confident that I can interview my patient(s) to identify problems with the body systems.	☐	☐	☐	☐
4. I am confident in my ability to identify normal and abnormal laboratory values.	☐	☐	☐	☐
5. I am confident that I can conduct a thorough physical examination and correctly identify any abnormalities.	☐	☐	☐	☐
6. I am confident that I can accurately stage the HIV disease using the WHO staging guideline.	☐	☐	☐	☐
7. I am convinced that I can identify opportunistic infectious (OIs) conditions.	☐	☐	☐	☐
8. I am confident that I can identify the signs of HIV treatment failure.	☐	☐	☐	☐
9. I am convinced that I can competently identify medication side effects and/or adverse reactions.	☐	☐	☐	☐
10. I am convinced that my documentation is always complete and accurate	☐	☐	☐	☐
11. I am confident in my ability to identify abnormal conditions that require referral to the doctor.	☐	☐	☐	☐
12. I am confident in my ability to work effectively with my interdisciplinary colleagues in my task shifting role.	☐	☐	☐	☐
13. I am confident in my ability to withstand any pressure to practice beyond the scope of practice as a task shifting nurse	☐	☐	☐	☐

Self-Efficacy Questionnaire for Task Shifting in HIV Care (SEQTS-HIV)
(Adapted from the original General Self-Efficacy Scale (Schwarzer, R. and Jerusalem, M., 1995))

What types of challenges do you encounter in your role as a Task Shifting nurse?

_____

_____

_____

How do you overcome the challenges?

_____

_____

_____

If you are no longer performing Task Shifting roles, what are the main reasons for that (if known)?

_____

_____

_____

*This survey has been designed to assess how groups of nurses feel about different aspects of their job. Completion of this anonymous questionnaire indicates your willingness to participate in this research. You may withdraw your participation at any time without repercussions. Please answer **EACH** question and fill in all areas as indicated. Be sure to answer all questions even though some may look similar. You do not need to give your name as all answers are confidential. You will receive N350 phone card for calls to the researcher. If you complete and return your survey, an additional N500 phone card will be given to you as a token for your time. Remember: You will NOT BE identified.*

Thank you for your time. ***If any questions, please contact: Emilia Iwu RN MSN; GSM: +234 806 539 9446; +234 705 622 9279; Cell: +1 856-625-0041 (Email: eiwu@ihvnigeria.org Or iwu@Rutgers.edu)***

The Measure of Job Satisfaction Questionnaire
(Adapted with permission from original authors: Traynor, M. & Wade, B. (1993))

How satisfied are you with these aspects of your work?	Very Satisfied	Satisfied	Neither Satisfied Nor Dissatisfied	Dissatisfied	Very Dissatisfied
1. The degree to which I feel part of a team	☐	☐	☐	☐	☐
2. The opportunities I have to discuss my concerns	☐	☐	☐	☐	☐
3. My salary/pay scale	☐	☐	☐	☐	☐
4. Being funded for courses	☐	☐	☐	☐	☐
5. The time available to get through my work	☐	☐	☐	☐	☐
6. The quality of work with patients/clients	☐	☐	☐	☐	☐
7. The standard of care given to patients/clients	☐	☐	☐	☐	☐
8. The degree to which I am fairly paid for what I contribute to this organization	☐	☐	☐	☐	☐
9. The amount of support and guidance I receive.	☐	☐	☐	☐	☐
10. The way that patients/clients are cared for	☐	☐	☐	☐	☐
11. My prospects for promotion	☐	☐	☐	☐	☐
12. The people I talk to and work with	☐	☐	☐	☐	☐
13. The amount of time spent on administration	☐	☐	☐	☐	☐
14. My workload	☐	☐	☐	☐	☐
15. My prospects for continued employment	☐	☐	☐	☐	☐

The Measure of Job Satisfaction Questionnaire

(Adapted with permission from original authors: Traynor, M. & Wade, B. (1993))

How satisfied are you with these aspects of your work?	Very Satisfied	Satisfied	Neither Satisfied Nor Dissatisfied	Dissatisfied	Very Dissatisfied
16. The standard of care that I am currently able to give	☐	☐	☐	☐	☐
17. The opportunities I have to advance my career	☐	☐	☐	☐	☐
18. The extent to which I have adequate training for what I do.	☐	☐	☐	☐	☐
19. Overall staffing levels.	☐	☐	☐	☐	☐
20. The feeling of worthwhile accomplishment I get from my work	☐	☐	☐	☐	☐
21. The degree of respect and fair treatment I receive from my boss.	☐	☐	☐	☐	☐
22. The degree of time available to finish everything that I have to do.	☐	☐	☐	☐	☐
23. What I have accomplished when I go home at the end of the day.	☐	☐	☐	☐	☐
24. The amount of job security I have.	☐	☐	☐	☐	☐
25. Time off for in-service training.	☐	☐	☐	☐	☐
26. The amount of personal growth and development I get from my work.	☐	☐	☐	☐	☐
27. The extent to which my job is varied and interesting.	☐	☐	☐	☐	☐
28. The support available to me in my job.	☐	☐	☐	☐	☐
29. The amount of independent thought and action I can exercise in my work.	☐	☐	☐	☐	☐
30. The opportunity to attend courses.	☐	☐	☐	☐	☐
31. The possibilities for a career in my field.	☐	☐	☐	☐	☐
32. The general standard of care given in this unit.	☐	☐	☐	☐	☐
33. The outlook for any professional group/branch of nursing.	☐	☐	☐	☐	☐

The Measure of Job Satisfaction Questionnaire
(Adapted with permission from original authors: Traynor, M. & Wade, B. (1993))

How satisfied are you with these aspects of your work?	Very Satisfied	Satisfied	Neither Satisfied Nor Dissatisfied	Dissatisfied	Very Dissatisfied
34. The overall quality of the supervision I receive in my work.	☐	☐	☐	☐	☐
35. The amount of pay I receive.	☐	☐	☐	☐	☐
36. The hours I work.	☐	☐	☐	☐	☐
37. The extent to which I can use my skills.	☐	☐	☐	☐	☐
38. The amount of challenge in my job.	☐	☐	☐	☐	☐
39. The time available for patient/client care.	☐	☐	☐	☐	☐
40. How secure things look for me in the future of this organization.	☐	☐	☐	☐	☐
41. The contact I have with colleagues.	☐	☐	☐	☐	☐
42. Patients are receiving the care that they need.	☐	☐	☐	☐	☐
43. Overall, how satisfied are you with your job?	☐	☐	☐	☐	☐

You are invited to make comments in the space below including how your role as a Task Shifting Nurse affects your job satisfaction.

_____
_____
_____
_____
_____
_____

Thank you for your time.

Appendix G

Recruitment Flyer

VOLUNTEER FOR NURSING RESEARCH STUDY MAKE YOUR EXPERIENCE COUNT!

Participate in a 30-60 minute Anonymous Survey of Nurses performing Task Shifting or Sharing Roles in Nigeria. This research seeks to identify factors related to nurses' perceived ability (or confidence) to perform this role and their job satisfaction.

Receive a token Recharge Card when you complete and return the survey.

To Find out More, Please contact:

> **Mrs. Emilia Iwu RN MSN FWACN** *(Rutgers University, School of Nursing, New Jersey, USA)*

GSM: 08065399446; 0705 622 9279

Email: eiwu@ihvnigeria.org

> **OR**

> **iwu@Rutgers.edu**

Thank You in Advance!

Appendix H

Rutgers IRB Approvals

DHHS Federal Wide Assurance Identifier: FWA00003913

IRB Chair Person: Robert Fechtner

IRB Director: Carlotta Rodriguez

Effective Date: 11/17/2014

eIRB Notice of Approval

STUDY PROFILE

Study ID:	Pro20140000435
Title:	Shifting HIV Management Tasks from Physicians to Nurses in Africa: A Correlation Study Examining Relationships among Task Shifting Training, Mentoring, Demographic Factors, Nurses' Self Efficacy and Job Satisfaction
Principal Investigator:	Emilia Iwu
Co-Investigator(s):	William Holzemer
Sponsor:	Sigma Theta Tau International
Approval Cycle:	Twelve Months
Risk Determination:	Minimal Risk
Review Type:	Expedited
Expedited Category:	7
Subjects:	13

CURRENT SUBMISSION STATUS

Submission Type:	Research Protocol/Study	**Submission Status:**	Approved with Stipulations
Approval Date:	10/20/2014	**Expiration Date:**	10/19/2015
Pregnancy Code:	No Pregnant Women as Subjects	**Pediatric Code:**	No Children As Subjects

Prisoner Code No Prisoners As Subjects

Pilot Study Recruitment
Letter.pdf

Pilot Study Content Review
Guide.pdf

Pilot Study Content Review
Questionnaire. pdf

Pilot Study Focus Group Guide.pdf

Other Materials:

Plain Language Summary Shifting
HIV Management tasks from
Physicians to Nurses in
Africa.docx.pdf

Recruitment Flyer_Task
Shiftin_Main Study.docx.pdf

Sample Letter to Health Facility
Admin_Main Study.docx.pdf

Sample Letter to Health Facility
Admin_Task Shifting_Pilot
Study.docx.pdf

Protocol: IRB Protocol_ Shifting HIV Management Tasks from Physicians to Nurses_Correlation Study_090614.docx.pdf

Consent: Consent Form_Pilot Study_Content Review_Task Shifting_Revised

Study Performance Sites:

Rutgers School of Nursing, Ackerson Hall, 180 University Avenue, Newark New Jersey

Government Owned and Faith Based Hospitals (Tertiary, Secodary and Primary Health Centers) in 7 States of Nigeria	Kano & Borno - North East Region; Katsina - North West Region; Federal Capital Territory & Nasarawa - North Central Region; Enugu - South East Region; Ogun - South West Region Delta - South Southern Region

ALL APPROVED INVESTIGATOR(S) MUST COMPLY WITH THE FOLLOWING:

1. Conduct the research in accordance with the protocol, applicable laws and regulations, and the principles of research ethics as set forth in the Belmont Report.

2. **Continuing Review:** Approval is valid until the protocol expiration date shown above. To avoid lapses in approval, submit a continuation application at least eight weeks before the study expiration date.

3. **Expiration of IRB Approval:** If IRB approval expires, effective the date of expiration and until the continuing review approval is issued: **All research activities must stop unless the IRB finds that it is in the best interest of individual subjects to continue. (This determination shall be based on a separate written request from the PI to the IRB.) No new subjects may be enrolled and no samples/charts/surveys may be collected, reviewed, and/or analyzed.**

4. **Amendments/Modifications/Revisions**: If you wish to change any aspect of this study, including but not limited to, study procedures, consent form(s), investigators, advertisements, the protocol document, investigator drug brochure, or accrual goals, you are required to obtain IRB review and approval prior to implementation of these changes unless necessary to eliminate apparent immediate hazards to subjects.

5. **Unanticipated Problems**: Unanticipated problems involving risk to subjects or others must be reported to the IRB Office (45 CFR 46, 21 CFR 312, 812) as required, in the appropriate time as specified in the attachment online at: http://rbhs.rutgers.edu/hsweb

6. **Protocol Deviations and Violations**: Deviations from/violations of the approved study protocol must be reported to the IRB Office (45 CFR 46, 21 CFR 312, 812) as required, in the appropriate time as specified in the attachment online at: http://rbhs.rutgers.edu/hsweb

7. **Consent/Assent**: The IRB has reviewed and approved the consent and/or assent process, waiver and/or alteration described in this protocol as required by 45 CFR 46 and 21 CFR 50, 56, (if FDA regulated research). Only the versions of the documents included in the approved process may be used to document informed consent and/or assent of study subjects; each subject must receive a copy of the approved form(s); and a copy of each signed form must be filed in a secure place in the subject's medical/patient/research record.

8. **Completion of Study:** Notify the IRB when your study has been stopped for any reason. Neither study closure by the sponsor or the investigator removes the obligation for submission of timely continuing review application or final report.

9. The Investigator(s) did not participate in the review, discussion, or vote of this protocol.

Appendix I

Nigerian NHREC Approval

National Health Research Ethics Committee of Nigeria (NHREC)

Promoting Highest Ethical and Scientific Standards
for Health Research in Nigeria

Federal Ministry of Health

NHREC Protocol Number NHREC/01/01/2007-04/11/2014
NHREC Approval Number NHREC/01/01/2007-13/11/2014
Date: 20th November, 2014

Re: Shifting HIV Management Tasks from Physicians to Nurses in Africa: A Correlation Study Examining Relationships among Task Shifting Training, Mentoring, Demographic Factors, Nurses' Self Efficacy and Job Satisfaction

Health Research Ethics Committee (HREC) assigned number: NHREC/01/01/2007

Name of Student Investigator: Emilia Ngozi Iwu

Address of Student Investigator: PhD Candidate
College of Nursing, Rutgers University
Newark, New Jersey
eiwu@ihvnigeria.org
+1 856-625-0041; +234 806 539 9446

Date of receipt of valid application: 04-11-2014
Date when final determination of research was made: 13-11-2014

Notice of Full Committee Review and Approval

This is to inform you that the research described in the submitted protocol, the consent forms, advertisements other participant information materials have been reviewed and *given full committee approval by the National Health Research Ethics Committee.*

This approval dates from 13/11/2014 to 12/11/2015. Note that no participant accrual or activity related to this research may be conducted outside of these dates. *All informed consent forms used in this study must carry the HREC assigned number and duration of HREC approval of the study.* In multiyear research, endeavour to submit your annual report to the HREC early in order to obtain renewal of your approval and avoid disruption of your research.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the HREC. No changes are permitted in the research without prior approval by the HREC except in circumstances outlined in the Code. The HREC reserves the right to conduct compliance visit your research site without previous notification.

Signed

Clement Adebamowo BMChB Hons (Jos), FWACS, FACS, DSc (Harvard)
Chairman, National Health Research Ethics Committee of Nigeria (NHREC)

Department of Health Planning, Research & Statistics
Federal Ministry of Health
11th Floor, Federal Secretariat Complex Phase III
Ahmadu Bello Way, Abuja

Tel: +234-09-523-8367
E-mail: chairman@nhrec.net, secretary@nhrec.net, deskofficer@nhrec.net,
URL: http://www.nhrec.net,

Appendix J

Copyright Permissions

A. Measure of Job Satisfaction Questionnaire (Traynor & Wade, 1993)

-----Original Message-----

From: Michael Traynor [mailto:m.traynor@mdx.ac.uk]

Sent: Thursday, September 27, 2012 6:33 AM

To: EMILIA IWU <eiwu@ihvnigeria.org>

Subject: Re: Request for Measure of Job Satisfaction Tool

Dear Emilia

Yes I am very happy for you to use the MJS in your work. You will find a copy of the measure, the scoring key and other details at

http://mdx.academia.edu/MichaelTraynor

Very best wishes

Michael Traynor

Professor of Nursing Policy

Middlesex University

Tel: +44 (0)208 411 2536

Charterhouse Building Archway Campus

From: EMILIA IWU <eiwu@ihvnigeria.org<mailto:eiwu@ihvnigeria.org>>

Date: Thu, 27 Sep 2012 05:37:16 +0100

To: Michael Traynor

<m.traynor@mdx.ac.uk<mailto:m.traynor@mdx.ac.uk>>

Subject: Request for Measure of Job Satisfaction Tool

Dear Dr. Traynor,

I am a PhD student at Rutgers College of Nursing, Newark, New Jersey, USA. My dissertation project is to "measure nurses' job satisfaction with expanded roles in Africa". It has been a pleasure reviewing your work on job satisfaction. It would be an honor and privilege to be able to

use your MJS instrument. I am writing to request your permission and a copy of the instrument if okay with you. Thanks in anticipation.

Emilia N. Iwu MSN, APNC

Phd student; RWJF & Jonas Nurse Leader Scholar, College of Nursing

Newark NJ. 07102 (Phone +1 856 625 0041)

B. **Illustration of Herzberg's Two-Factor Job Satisfaction Theory (Collins, 2009)**

From: <info2014@web-books.com>

Date: Thu, Aug 21, 2014 at 4:34 PM

Subject: Re: Request for copyright permission for use of Herzberg's Two-Factor Illustration

To: Emilia Iwu <iwu@scarletmail.rutgers.edu>

Hi,

Thank you for your interest in our ebooks. As stated in the license page,

http://www.web-books.com/eLibrary/NC/B0/B66/001ALicense.html

the book is licensed under the CC-by-NC-SA license, which allows you to

copy for non-commercial purpose. You just need to give credit to the original authors or publishers (Flat World Knowledge).

Best regards,

Web Books Publishing

Hello,

I would like to follow up with my email dated August 8, 2014. Please let me know if you need more information from me.

Thank you.

Emilia Iwu, PhD Student

Rutgers College of Nursing

On Fri, Aug 8, 2014 at 10:46 PM, Emilia Iwu

<iwu@scarletmail.rutgers.edu wrote: Dear Faculty,

I am a PhD Student at Rutgers University. While conducting a literature review and exploration of existing images/illustrations of Herzberg's Two-Factor Theory, I came across your diagram on this web page: http://www.web-books.com/eLibrary/NC/B0/B66/057MB66.html.

Please I would like to seek your permission to use this image to illustrate the Two-Factor theory of job satisfaction in my research which examines correlations among training and mentoring on nurses' perceived job satisfaction in newly introduced advance practice roles. I look forward to hearing from you. Thank you.

Sincerely,

Emilia Iwu MSN, PhD Student

Rutgers College of Nursing

C. Illustration of Bandura's Self-Efficacy Theory (Burt, 2011)

From: MSLOC <msloc.assistant@northwestern.edu>

Date: Tue, Aug 19, 2014 at 8:52 PM

Subject: Re: Request for Copyright Permission

To: "iwu@scarletmail.rutgers.edu" <iwu@scarletmail.rutgers.edu

Hi Emilia,

I apologize for the delay in getting back to you. I have done some checking around. Our only stipulation is that you please appropriately cite it in the APA format. Please let us know if you have any other questions.

Thanks,

Joanna Lasso

Student Services & Admissions Program Assistant

MSLOC

P: 847-491-7376

Joanna.lasso@northwestern.edu

From: Emilia Iwu [mailto:iwu@scarletmail.rutgers.edu]

Sent: Saturday, August 09, 2014 4:44 PM

To: School of Education and Social Policy

Subject: Request for Copyright Permission

Sir/Madam,

I am a PhD Student at Rutgers University. While conducting a literature review and exploration of existing images/illustrations of self-efficacy concept, I came across your adaptation from Bandura in Driscoll, 2004 found on this web page: http://www.sesp.northwestern.edu/masters-learning-and-organizational-change/knowledge-lens/stories/2013/the-silent-team-member-how-a-lack-of-self-efficacy-can-lead-to-self-limiting-behavior-in-the-context-of-team-decision-making.html. Please I would like to seek your permission to use this image to illustrate self-efficacy concept in my research which examines correlations among training and mentoring on nurses' perceived self-efficacy to perform advance practice skills. I look forward to hearing from you. Thank you.

Sincerely,

Emilia Iwu MSN

PhD Student

Rutgers College of Nursing

D. The General Self-Efficacy Questionnaire – No Copyright Permission needed (See Frequently Asked Questions document published by Schwarzer, R. (2011) Retrieved from: http://scholar.lib.vt.edu/theses/available/etd-04032012-200839/unrestricted/H2.pdf