Applied Nursing Research 28 (2015) 341–346

Contents lists available at ScienceDirect

Applied Nursing Research

journal homepage: www.elsevier.com/locate/apnr

Nurse reported patient safety in low-resource settings: a cross-sectional study of MNCH nurses in Nigeria

Yolanda Ogbolu, Ph.D., CRNP [a,b,*], Mary E. Johantgen, Ph.D., RN [c], Shijun Zhu, Ph.D. [c], Jeffrey V. Johnson, Ph.D. [b]

[a] Department of Family and Community Health/Pediatrics, University of Maryland Baltimore School of Nursing, Baltimore, MD 21201, USA
[b] Office of Global Health, University of Maryland Baltimore School of Nursing, Baltimore, MD, USA
[c] Department of Organizational Systems, University of Maryland School of Nursing, Baltimore, MD, USA

ARTICLE INFO

Article history:
Received 1 October 2014
Revised 17 February 2015
Accepted 21 February 2015

Keywords:
Patient safety
Sub-Saharan Africa
Quality of care
Nurse practice environment
Nigeria

ABSTRACT

Purpose: Repeated international studies demonstrate the critical role of nursing and the associations between patient safety and nurse staffing and the nurse practice environment in high resource countries, yet nurse reported patient safety studies are sparse in Sub-Saharan Africa. This study explored nurse reported patient safety in Nigeria and examined the extent that patient safety is associated with nurse staffing levels and the nurse practice environment.
Methods: A cross-sectional study of 27 public health facilities in Nigeria used anonymous nurse surveys ($N = 222$) to examine associations between nurse staffing, the nurse practice environment and nurse reported safety. Descriptive statistics and generalized linear mixed models (GLMM) were used to account for clustering of nurses within facilities.
Results: Of the 222 nurse participants, 26% reported patient safety as poor/fair. Nurses who cared for greater than 20 patients had higher percentages of poor/fair patient safety. With the GLMM models adjusted for type of facility and nurse staffing, the nurse practice environments had the strongest association with patient safety. As the nurse practice environment score increased, nurses were nearly three times more likely to rank patient safety as excellent/good OR = 2.9 (1.5, 5.7).
Conclusions: The taxonomy used globally with nurse safety research was comparable in Nigeria. Enhancing the nurse practice environment could offer opportunities to improve nurse reported patient safety in public health facilities in Nigeria. Further research is needed to better understand nurse reports of worse patient safety in secondary level health facilities and facilities with worse nurse staffing.

1. Background

According to the World Health Organization [WHO] (2004) and the World Alliance for Patient Safety in 2004, patient safety in Sub-Saharan Africa (SSA) needs urgent attention due to the large burden of disease. Countries in the region continue to strive to understand how to improve patient safety in a way that will allow them to make the largest impact on patient outcomes, while at the same time strengthen health systems. Many African countries, including Zambia, South Africa, Ghana, and Nigeria, have recently developed policies related to or started national quality-assurance programs, yet most have not initiated or maintained an active patient safety program. The World Health Organization (WHO) (Shaw, 2003), the Council for Health Service Accreditation of Southern Africa (Coetzee et al., 2013), and the Society for Quality in Health Care in Nigeria (SQHCN) (2013) continue to report challenges related to measuring patient safety in healthcare facilities.

Repeated studies have demonstrated the significant role of nursing and the associations between patient safety, nurse staffing and the nurse practice environment (Aiken et al., 2002, 2012a, 2014; Coetzee et al., 2013), yet nurse reported patient safety research is sparse in the SSA region. The purpose of this study is to build on the body of research by describing nurse reported patient safety in Nigeria and examining the extent that safety is associated with nurse-staffing levels and the nurse practice environment in 27 public health facilities in Nigeria.

While the critical role of nurses in describing patient safety has been well enumerated in international research, these earlier descriptions of nurse reported patient safety in Europe and the USA, may be quite different in SSA (Aiken et al., 2001, 2012a, 2012b, 2014; Coetzee et al., 2013). Within the Sub-Saharan African region, the nursing role is different with patient care responsibilities more extensive, at times, due to scarcity of physicians in the region. Nurses in the SSA region account for more than 50% of the healthcare workforce and are well recognized as the backbone of the healthcare system (Ogilvie et al., 2007).

A core responsibility of nurses is to provide an early and consistent 24-hour surveillance system that is available to assess and respond to patient needs. Nurses intercept hazards and patient deteriorations by

* Corresponding author at: University of Maryland Baltimore School of Nursing, Department of Family and Community Health/Pediatrics, 655 W. Lombard St., Baltimore, MD, 21201.
E-mail addresses: ogbolu@son.umaryland.edu (Y. Ogbolu), Johantgen@son.umaryland.edu (M.E. Johantgen), zhu@son.umaryland.edu (S. Zhu), Jjohnson@son.umaryland.edu (J.V. Johnson).

http://dx.doi.org/10.1016/j.apnr.2015.02.006
0897-1897/

continuously assessing, monitoring, and evaluating patients. These critical functions have been theorized to underlie the repeated findings that better staffing levels (less patients per nurse) and favorable nurse practice environments are associated with fewer complications and lower mortality (Aiken et al., 2001, 2012b; Coetzee et al., 2013). Low nurse staffing levels (conceptually described as insufficient numbers of nurses to provide quality care) and unfavorable work environments (organizations or units that fail to provide nurses with the autonomy and engagement needed to support the delivery of high-quality care) jeopardize the surveillance system and increase the likelihood of negative patient outcomes. Nurse-reported patient safety has been examined extensively over the last two decades in North America and Europe, and more recently in South Africa (SA) (Aiken et al., 2001, 2012a, 2014; Coetzee et al., 2013). The reliability and validity of having nurses report on the quality and patient safety of care have been detailed in an earlier study (McHugh & Stimpfel, 2012).

1.1. Conceptual model

The Nursing Organization and Outcomes Model (Aiken et al., 2002) is the theoretical framework that informs this study. Depicted in Fig. 1, the model proposes that organizational factors, including nurse staffing levels and attributes of the nurse practice environment, may be associated with nurse and patient outcomes. More specifically, the model posits that nurses are the surveillance system for the hospital by providing for early detection and response to patient adverse events. The model further proposes that the effectiveness of nursing surveillance is influenced by nurse-to-patient ratios. The presence of lower nurse-to-patient ratios, or less nurse staffing, is predicted to jeopardize the surveillance system, impact clinical interventions that support and sustain life, and increase the likelihood of negative patient outcomes. Conversely, the model predicts that higher nurse-to-patient ratios, or higher nurse staffing, will be associated with positive patient outcomes and fewer adverse patient events. The model is based on a set of propositions which indicate that favorable nurse practice environments provide nurses with a supportive management, adequate resources, good interdisciplinary relationships, and autonomy in practice that are associated with positive nurse outcomes. These key attributes in the nurse practice environment, support nurses in their work, enhance the quality of care patients receive, and ultimately lead to superior patient outcomes, including lower mortality. In addition, organizational characteristics, such as nurse staffing levels and attributes of the nurse practice environment, also affect nurse related outcomes, such as job satisfaction, burnout, and intent to leave.

2. Research materials and methods

2.1. Setting

The setting of the study was in the most populous West African country, the Federal Republic of Nigeria. Sub-Saharan African countries have the widest gaps globally in the burden of disease and are predominantly impacted by infectious diseases, nutritional challenges, and maternal and child mortality, which account for over 70% of the burden of disease in the region (Lozano et al., 2012). The Nigerian health system is composed of public and private sectors, as well as non-governmental and community based organizations. The public health sector, the focus of this paper, is organized as a three-tier government system of care: (1) primary, (2) secondary, and (3) tertiary healthcare facilities. The primary healthcare system is managed by the 740 local units of governments with support from one of the 36 state ministries of health (Osain, 2011). The state ministries also manage the secondary healthcare system, which includes 855 general and community hospitals (Osain, 2011). The federal government manages the tertiary system, which includes 54 teaching and specialty hospitals (Osain, 2011). The Nigerian healthcare system is further confronted with the healthcare worker crisis in Sub-Saharan Africa with three times as many nurses as physicians in the region (African Health Workforce Observatory (AHWO), 2008). According to the Nigerian Human Resources for health report by the (African Health Workforce Observatory (AHWO), 2008), Nigerian nurses make up the largest sector of the healthcare workforce in Nigeria, with nurses and midwives accounting for more than 38% of the health workers available in the country. Due to the scarcity of physicians, nurses often function as the only health professional in rural, primary health care facilities (Frenk et al., 2010).

Most practicing nurses in Nigeria are educated at the diploma level, which is achieved after 3 years of post-secondary school training and combined with 18 months of training to become dually certified as registered nurse midwives (Anonymous, 2013). Additionally, higher-level degrees, including the bachelors of science, master's, and Ph.D. in nursing are increasingly available at Nigerian universities. At least 25% of nurses in Nigeria begin their careers within the public health sector; often as the only professional health care worker in rural, public health settings (Uneke et al., 2007). Given the important role of nursing within the public health system, they are in a unique position to describe patient safety in these public healthcare facilities.

2.2. Design

The study employed a cross-sectional design and surveyed maternal newborn child health nurses (MNCH) and administrators across 27 public healthcare institutions in Nigeria and examined nurse work organization, neonatal mortality, and prevention of maternal to child transmission of HIV (Ogbolu, 2011).

2.3. Sample

The sample was drawn from a sample frame of 140 public health facilities supported by the Institute of Human Virology, Nigeria (IHV-N), a major Presidential Emergency Program for AIDS Relief-implementing partner in Nigeria. Through grants administered by the Centers for Disease Control and Prevention in Nigeria, IHV-N provides technical

Fig. 1. Study conceptual model adapted from the Nursing Organizations and Outcomes model. Source: Aiken, Clarke, & Sloane, 2002. Shaded areas represent the relationships examined in this study.