

The State of Nursing Research in Ghana: An Integrative Literature Review

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Abstract

Introduction: For nursing practice to be responsive to the needs of patients, it must be driven by contextual research evidence. To guide institutional and national nursing research policy, there is need to determine the quantity and quality of nursing research in Ghana.

Purpose: The purpose of this integrative literature review was to quantify, critically evaluate, and describe nursing research publication in Ghana from January 2007 to December 2016 with regard to the country's research capacity to sustain evidence-based practice.

Results: Sixty (60) out of 749 articles identified from EBSCOhost, ProQuest, PubMed, Science Direct, Scopus, Wiley Online Library, and Google Scholar using three keywords (nursing, health, and Ghana) were included. A total of 60,778 human subjects were used in these studies. There were more quantitative (28) studies than qualitative (23) studies. These studies recorded 219 authors from 120 institutions, 55 of which were outside Ghana. Forty-five percent of the articles were published in journals with impact factor. There was a steady increase in publication in Ghana over the decade. A majority of the studies published in education were in curriculum implementation and evaluation.

Conclusions: The increasing number of peer-reviewed nursing research publications in Ghana and the curriculum implementation and evaluation in Ghana signified an increasing capacity of the country to implement and sustain evidence-based practice.

Recommendations: It is recommended that regular research be conducted to evaluate the responsiveness to old and new nursing programs in Ghana.

Keywords

Ghana, nursing research, evidence-based practice, sub-Saharan Africa

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Background

Nursing education started in Ghana in 1878 where male orderlies were trained to bathe and feed patients during the British colonial era (Adu-Gyamfi & Brenya, 2016). Nursing developed from the 19th century to the 21st century when it became well recognized as a profession in Ghana, providing the highest number of health-care workers than any other category in the country. Despite nurses forming the majority of health-care professionals in Ghana, Bell, Rominski, Bam, Donkor, and Lori (2013) reported a nurse-to-patient ratio of 1:2,024 in some parts of Ghana. This was as a result of the limited

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opportunity of the nursing education institutions to enroll and train qualified students (Bell et al., 2013).

In Ghana, nurses are given extended roles through task-shifting, especially in rural settings where there are no medical doctors (Gyamfi et al., 2017; Okyere, Mwanri, & Ward, 2017). These nurses are expected to take on extended roles without any form of training or licensure, creating anxiety and the opportunity for adverse effects and medicolegal malpractice (Okyere et al., 2017). Nurses are responsible for a large portion of health-care decision-making in Ghana. If nursing practice is more responsive and efficient, health-care services and indices in Ghana will improve. For nursing practice to be efficient and responsive to the needs of the population of Ghana, it must be contextual research-driven (Agyei, Kofi, Fiankor, & Osman, 2015; Jirojwong & Welch, 2013; Tingen, Burnett, Murchison, & Zhu, 2009). The importance of nursing research in providing quality and cost-effective care to patients as well as professional development cannot be overstated (Agyei et al., 2015; Jirojwong & Welch, 2013; Tingen et al., 2009). Eliminating evidence from practice makes practice outdated and dangerous to patients (Agyei et al., 2015).

Nursing practice, education, and administration in Ghana is based on tradition rather than evidence (Adu-Gyamfi & Brenya, 2016; Baatiema et al., 2017). Culture and socioeconomic status of patients, an insufficient number of health facilities, poor staff development, lack of practice protocols, health professional incompetency, lack of collaboration, and lack of political will were barriers to evidence-based practice in Ghana, as outlined by Baatiema et al. (2017).

Agyei et al. (2015) found that nurses exhibited the readiness to employ evidence in practice but did not have the knowledge and skills to translate research into practice. They recommended that nurses and other medical practitioners should be equipped with the knowledge and skills necessary for evidence-based practice in Ghana. The authors, however, believed that the responsiveness of nursing practice, education, and management was associated with the research output of Ghana. International evidence and policies conflict with the cultural context of Ghana and health-care practice, resulting in nursing practice being based on traditions rather than such evidence and policies (Donkor & Andrews, 2011).

In a sub-Saharan Africa-wide review of clinical nursing education research, Kpodo, Thurling, and Armstrong (2016) discovered that West Africa lagged behind the East and the Southern parts of Africa in clinical nursing research dissemination. In the same study, it was discovered that none of the studies included came from Ghana (Kpodo et al., 2016). The quantity, quality, and level of evidence, type, journals of publication, and focus of nursing research in Ghana, however, were not known.

Purpose

The purpose of this study was to quantify, critically evaluate, and describe nursing research publications in Ghana from January 2007 to December 2016 with regard to the country's research capacity to sustain evidence-based practice.

Methodology

An integrative literature review framework developed by Whittemore and Knafl (2005) guided the review (Christmal & Gross, 2017). An integrative literature review is important in exploring the length and breadth of studies published in a particular jurisdiction or on a topic of interest. Reviews help in exploring the context and concepts under study. The integrative review methodology was preferred for this study due to its ability to allow for the inclusion of both qualitative and quantitative studies. The framework consisted of five stages, namely, "problem identification, literature search, data evaluation, data analysis, and presentation." The report was guided by Prevention and Recovery Information System for Monitoring and Analysis (PRISMA) checklist of reviews (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009).

The Search Process

Boolean combination of the keywords—nursing, health, and Ghana—was used to conduct an advanced computerized search in EBSCOhost, ProQuest, PubMed, Science Direct, Scopus, Wiley Online Library, and Google Scholar. The database searches provided 615 titles. An additional 182 titles were identified through a hand search conducted using known authors' names and the search terms in Google search engine. The studies were loaded onto the Mendeley reference manager, and 48 duplicates were identified and removed, leaving 749 articles.

The 749 article titles were scanned for relevance to the study, and 703 studies were irrelevant to the review and were discarded, leaving 46 articles. Two nursing education and researchers in Ghana were contacted to evaluate the list of 46 studies retrieved and provide links to any articles that were not captured by the computerized search. One researcher provided a list of 15 relevant articles, whereas the other provided the names of other prominent authors in Ghana who were then searched in Research Gate and Google Scholar for publications resulting in the retrieval of 23 articles. In all, 84 articles were preliminarily included for critical appraisal.

Inclusion/Exclusion Criteria

Studies were included if they were published between 2007 and 2016, in a peer-reviewed journal, and on

nursing in Ghana. The study had to be conducted by at least one nursing author from Ghana, and the setting of the study must have been within Ghana. After the critical appraisal, a total of 60 articles were included in this study (Figure 1) and displayed on the data matrix in Table 1. The excluded studies and the reasons for exclusion were shown in Table 2.

Critical Appraisal

The 84 studies were extracted onto the data matrix as shown in Tables 1 and 2. The content of the matrix was evaluated by three reviewers, one serving as the adjudicator on the studies when the other two reviewers

disagreed on including a study. The three reviewers had extensive experience in integrative and scoping literature review. Two of the reviewers had published a peer-reviewed study on integrative literature review methodology.

Evidence level and quality of studies. As applied by Kpodo et al. (2016), a combination of evidence level described by Ackley, Ladwig, Swan, and Tucker (2008) and the quality grading system applied by Maree and Schmollgruber (2014) were used to describe the quality of studies included in the review. For example, a cross-sectional survey conducted by Boso and Gross (2015) was graded as Level VI (L6), Grade IIIB as it is a

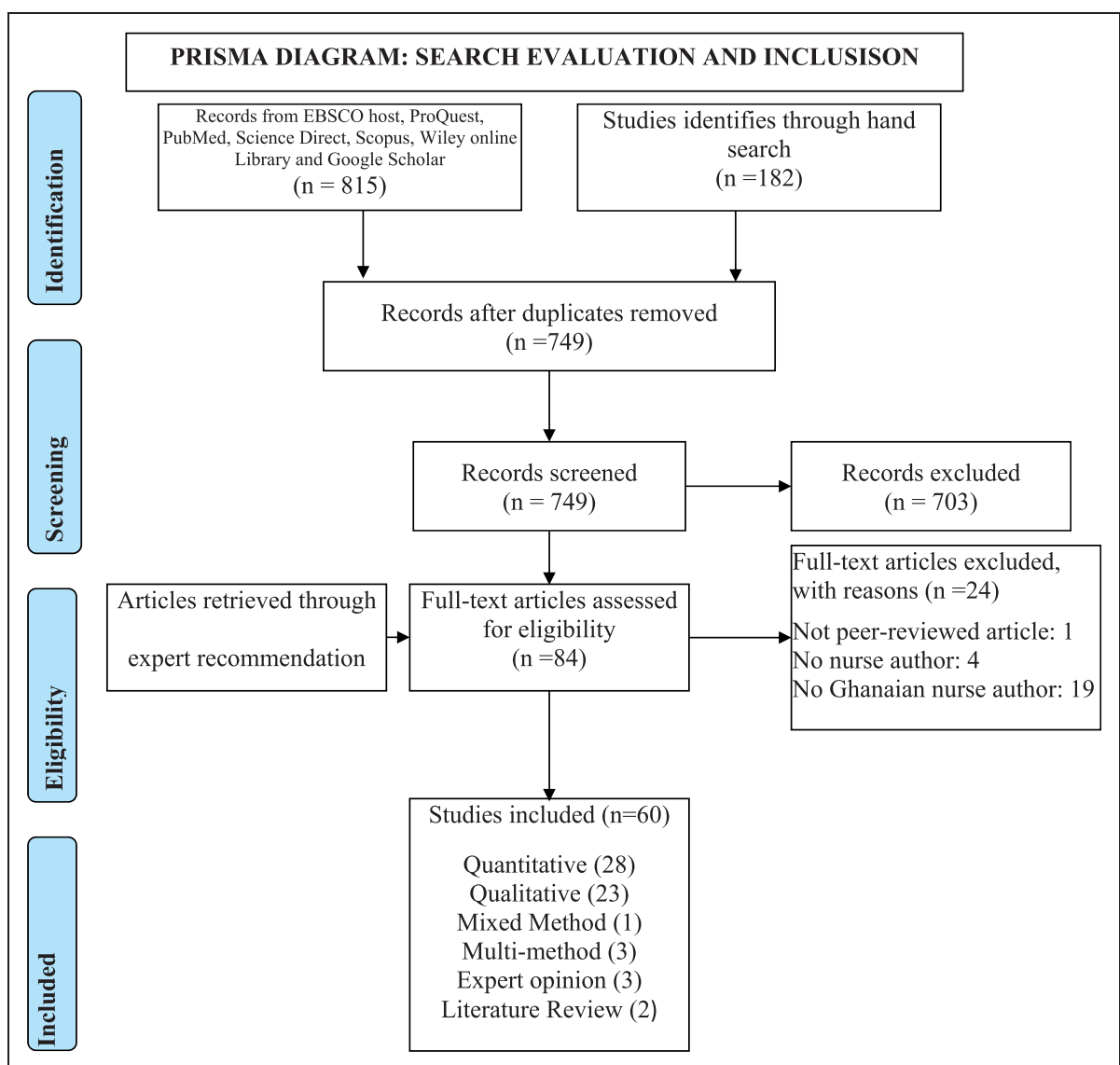


Figure 1. Literature search, evaluation, and inclusion process.

PRISMA = Prevention and Recovery Information System for Monitoring and Analysis.

Table 1. Studies Included.

No.	Author(s), Year	Purpose	Methodology/ sampling	Data collection/ analysis	Nursing specialty	Main findings	Journal/impact factor	Level (L) of evidence, grade
Quantitative studies included								
1.	Abasimi et al. (2015)	To examine the source and level of stress among nursing trainees in Ghana	Cross-sectional survey 273 nursing trainees	Questionnaire Inferential statistics	Education	New students should be taught skills to adapt to college education. Counseling services should be provided at nursing colleges.	<i>International Journal of Psychology and Behavioral Sciences</i>	L6, IIIB
2.	Abusoi and Abor (2015)	To assess the impact of social, economic, and demographic variables on intentions of nursing students to emigrate from Ghana	Cross-sectional descriptive study 747 second- and third-year nursing students	Questionnaire Inferential statistics	Management	Financial and nonfinancial incentives should be made available for nurses. Those practicing in rural areas should have more incentives.	<i>Journal of International Migration and Integration</i>	L6, IIIB
3.	Acheampong et al. (2016)	To determine the cause, types, and the effect of medication errors in an emergency unit in Ghana	Cross-sectional non-participant observation 338 patients; 49 nurses; 1,332 observations	Nonparticipant observation Descriptive statistics	Emergency nursing	Medication errors are frequent in emergency units but are not very fatal in nature.	<i>Journal of Patient Safety</i> 2.446	L6, IIIB
4.	Asamani et al. (2014)	To describe nursing documentation in Ghana	Retrospective record review 100 patient care records in 2 hospitals	Questionnaire Descriptive statistics	Management	Nursing documentation is poor in Ghana compared with developed countries as 46% care is not documented. Stakeholders should engage multidisciplinary teams to develop documentation guidelines for nurses.	<i>British Journal of Nursing</i>	L6, IIIB
5.	Asamani et al. (2016)	To explore the leadership style of nurse managers and its influence on job turnover among nurses	Cross-sectional survey 273 nursing staff in 5 hospitals	Questionnaire Descriptive and regression analyses	Management	Nurse managers in Ghana use supportive, achievement-oriented, and participative leadership styles. Nurses have moderate-level job satisfaction, and majority intended to leave the workplace.	<i>Journal of Health Sciences</i>	L6, IIIB
6.	Asamani et al. (2016)	To examine the influence of nurse manager's leadership style on nurse's productivity	Cross-sectional survey 275 nurses and midwives	Questionnaire Descriptive and inferential statistics	Management	There is need to introduce performance standards and monitor the productivity of nurses.	<i>British Journal of Healthcare Management</i>	L6, IIIB
7.	Atinga et al. (2015)	To study the factors related to quality care and to suggest options to improve the delivery of health care	Cross-sectional 379 emergency patients	Questionnaire Principal component analysis (PCA)	Management	The study provided important feedbacks to improve health-care delivery.	<i>African Journal of Emergency Medicine</i>	L6, IIIB
8.	Bam et al. (2014)	To determine stressors in clinical practice and coping mechanism adopted by nurses	Quantitative descriptive 89 nursing students	Questionnaire Descriptive statistics using SPSS	Management	Many students experienced stressors in clinical settings and used relationship-based coping mechanisms to deal with them. It is recommended that the clinical facility and the nursing institutions collaborate to support students in clinical practice.	<i>Journal of Science and Technology</i>	L6, IIIB

(continued)

Table 1. Continued.

No.	Author(s), Year	Purpose	Methodology/ sampling	Data collection/ analysis	Nursing specialty	Main findings	Journal/impact factor	Level (L) of evidence, grade
9.	Bell et al. (2013)	To describe the strengths, weaknesses, and the status of undergraduate nursing education in Ghana	Descriptive and cross-sectional study. 10 undergraduate students, 3 key faculty members	Focus group, key informant interviews, and nonparticipatory observations Thematic analysis	Education	There is faculty shortage, poor physical infrastructure compounded by high levels of preventable diseases and injuries. The understanding of needs, opportunities, and state of undergraduate nursing in Ghana can inform the development of strategies to improve undergraduate nursing education in low-resource countries.	<i>Nursing & Health Sciences</i> 1.37	L6, IIIB
10.	Boso and Gross (2015)	To assess the perception of nursing educators on critical thinking	Cross-sectional survey design 106 nurse educators	Questionnaire Descriptive and inferential statistics	Education	Current nursing education in Ghana does not prepare the nurses to be critical thinkers. Professional development programs in critical thinking should be organized for practicing nurses.	<i>Advances in Medical Education and Practice</i>	L6, IIIB
11.	Brennan et al. (2013)	To test the effectiveness of a 1-day World Health Organization (WHO) Emergency Triage and Assessment Treatment (ETAT) program in increasing Ghanaian nurses' knowledge	Preexperimental one-group, pretest, posttest design. 40 nurses from a public teaching hospital in Ghana	Questionnaire & Knowledge Emergency Triage and Treatment (ETAT) instrument Descriptive and inferential statistics	Emergency nursing	The program may increase self-efficacy of pediatric resuscitation and knowledge of pediatric resuscitation.	<i>International Nursing Review</i> 1.073	L3, IIIB
12.	Dakwah et al. (2011)	To examine the effectiveness of context-based learning on undergraduates' ability to educate patient	Comparative quasi-experimental study 22 first-year and 36 third-year nursing students	Health Promotion Disease Prevention Inventory Inferential statistics	Education	Context-based learning effective in improving students' self-efficacy in patient education.	<i>Journal of Nursing Education</i> 1.060	L3, IIIA
13.	Danso (2014)	To study the exclusive breastfeeding practices among working women in a metropolis in Ghana	Cross-sectional survey 1,000 working women	Questionnaire Descriptive statistics	Maternal and child health	Full-time work and family issues make it difficult for working mothers to breastfeed their babies exclusively.	<i>International Journal of Nursing</i>	L6, IIIB
14.	Donkor and Sandall (2007)	To investigate the impact of infertility on women	Survey 615 women receiving infertility treatment	Interviews Sequential multiple regression analysis	Reproductive health	High levels of stigma are associated with childlessness. Social status derived from other sources helps women to cope with childlessness stigma.	<i>Social Science & Medicine</i> 2.814	L6, IIIB
15.	Donkor (2009)	To study the exclusive breastfeeding and weaning practices among women in Ghana	Descriptive study 60 breastfeeding mothers	Questionnaire Descriptive statistics	Maternal and child health	About two third of mothers do exclusive breastfeeding while about one third adds other foods to breast milk. Health workers must educate breastfeeding and expectant mothers to improve exclusive breastfeeding in Ghana.	<i>African Journal of Midwifery and Women's Health</i>	L6, IIIB

(continued)

Table 1. Continued.

No.	Author(s), Year	Purpose	Methodology/ sampling	Data collection/ analysis	Nursing specialty	Main findings	Journal/impact factor	Level (L) of evidence, grade
16.	Donkor and Obed (2012)	To investigate how much time women spent at the antenatal clinic, contributing factors, and the level of satisfaction with the antenatal practices in Ghana	Quantitative descriptive 316 women	Questionnaire Descriptive statistics using SPSS	Maternal and child health	Women spent about 7 hours at the clinic especially to see the doctor. The women said their waiting time is too long, and about half of them are dissatisfied with it.	<i>African Journal of Midwifery and Women's Health</i>	L6, IIIB
17.	Dzomeku et al. (2013)	To determine the level of satisfaction of patients admitted to a teaching hospital in Ghana	Descriptive cross-sectional survey 100 inpatients selected by convenience sampling	Questionnaire Descriptive statistics	Management	More males were satisfied with care than females. Patients with a higher level of education were less satisfied. The older the patient, the more satisfied they are with care. Patients expected to be treated with dignity, love, and care.	<i>International Journal of Research in Medical and Health Sciences</i> 1.08	L6, IIIB
18.	Hammah and Donkor (2013)	To investigate the adherence to active management of labor by midwives	Quantitative descriptive 50 midwives working in the labor wards	AMTSL checklist and questionnaire Descriptive statistics	Maternal and child health	Majority of nurses used active management of the third stage of labor. Barriers to the use of active management of labor include shortage of staff, improper training of staff, and poor storage of oxytocin.	<i>African Journal of Midwifery and Women's Health</i>	L6, IIIB
19.	Ibrahim et al. (2016)	To determine differences in child and maternal mortality under cash-and-carry and the national health insurance systems	Cross-sectional study 8,312 birth records	Record review Inferential statistics (Fisher's exact tests)	Management	There is no significant difference in child mortality among mothers of all categories under both cash-and-carry and national health insurance systems. Maternal mortality was reduced by half under the health insurance system. There are more twin deaths in the cash-and-carry system than in the health insurance system.	<i>BMC Pregnancy and Childbirth</i> 2.18	L6, IIIB
20.	Moyer et al. (2016)	To describe what midwifery student know about respectful care during labor	Cross-sectional survey 929 final-year students	Questionnaire Descriptive and inferential statistics	Education	The institutions have created an environment that promotes psychosocial care for mothers in labor and make nurses accountable for care given to mothers in labor.	<i>Midwifery</i> 1.861	L6, IIIB
21.	Naab et al. (2014)	To describe the beliefs of women in Ghana regarding infertility and how it correlated to the socio-demographic statistics	Descriptive cross-sectional survey 203 women	Questionnaire Descriptive statistics (SPSS 18.0)	Reproductive health	Majority of the women believed infertility is an acute disorder and they could personally or medically control it. There is the need to explore beliefs of women about infertility that may affect their health behavior.	<i>Journal of Infertility and Reproductive Biology</i>	L6, IIIB
22.	Nakua et al. (2015)	To assess the burden of musculoskeletal disorder and risk factors with regard to age and gender among elderly Ghanaian	Survey 34,124 (aged 50+) and 8,340 (aged 18-49)	Questionnaire Descriptive and inferential statistics	Geriatrics	Women suffer from chronic back pain than men in Ghana.	<i>BMC Musculoskeletal Disorders</i> 1.684	L6, IIIB

(continued)

Table 1 . Continued.

No.	Author(s), Year	Purpose	Methodology/ sampling	Data collection/ analysis	Nursing specialty	Main findings	Journal/impact factor	Level (L) of evidence, grade
23.	Nakua et al. (2015)	To evaluate an intervention to promote skilled obstetric care and related factors involved in the use of unskilled birth attendants during delivery in Ghana	Cross-sectional survey 50 communities and 400 women for data collection	Questionnaire Inferential statistics	Management	There is the need for the skilled obstetricians to be culturally sensitive and demonstrate a good relationship with their clients to promote skilled obstetric care uptake among rural women in Ghana.	<i>BMC Pregnancy and Childbirth</i> 2.18	L6, IIIB
24.	Nakua et al. (2015)	To study the prevalence of refractive error in high school students in a town in Ghana	Survey 504 children aged 12–17	Interview and eye screening test Descriptive and inferential statistics	Child health	Children in urban areas are at higher risk compared with their rural counterparts. We suggest that an efficient preschool vision examination must be made part of the admission policy of all schools in Ghana.	<i>Journal of Science and Technology (Ghana)</i>	L6, IIIB
25.	Owiredu et al. (2008)	To examine the relationship between indices of diabetes, cardiovascular risk factors, and morbidity conditions among Pentecostal and charismatic church members in Ghana	Quantitative descriptive study 383 church members	Physical assessment and blood assay Descriptive and inferential statistics	Chronic diseases	There is an increasing association between indices of obesity, the severity of cardiovascular diseases, and comorbidities among the church member in Kumasi.	<i>Journal of Medical Sciences</i>	L6, IIIB
26.	Rominski et al. (2016)	To find out the factors that are connected with the willingness of midwifery student to provide abortion care	Survey 853 nursing students	Questionnaire Multivariate regression analysis	Reproductive health	Students are willing to provide abortion care postregistration. It is very important to make sure the midwifery students are well trained to provide abortion services to increase safe abortion care providers in the country.	<i>Contraception</i> 2.788	L6, IIIB
27.	Rominski et al. (2011)	To explain the functional nursing status and the motivation for further education among emergency nurses in a teaching hospital in Ghana	Survey 77 accident and emergency nurses	MCQs, questionnaire open-ended questions, and focus groups Thematic analysis	Management	The nurses are interested in learning to acquire new knowledge, skills, attitudes, and use of modern technology to improve their functions.	<i>African Journal of Emergency Medicine</i>	L6, IIIB
28.	Sossah and Asiedu (2015)	To investigate stress and management among nursing students	Descriptive cross-sectional study 240 students	Questionnaire Descriptive statistics	Education	Clinical settings are the highest source of stress for the students. Students use physical activity, emotional, and spiritual support to handle stress.	<i>European Journal of Research and Reflection in Educational Sciences</i>	L6, IIIB
Qualitative studies included								
I.	Adipa et al. (2015)	To understand nurses' viewpoints on oxygen administration in emergency unit in Ghana	Qualitative descriptive 12 nurses purposive sampled	Interviews Thematic analysis	Emergency nursing	Nurses need more training on oxygen administration, whereas there is the need to develop protocols on oxygen therapy for nurses in emergency units in Ghana.	<i>International Journal of Africa Nursing Sciences</i>	L6, Q1

(continued)

Table 1. Continued.

No.	Author(s), Year	Purpose	Methodology/ sampling	Data collection/ analysis	Nursing specialty	Main findings	Journal/impact factor	Level (L) of evidence, grade
2.	Aziato and Adejumo (2014)	Explored the psychosocial factors influencing family caregivers during the care of patients who had undergone surgery and were in pain	Qualitative exploratory study 12 family caregivers and 1 key informant	Interview Content analysis using NVivo software	Surgical nursing	Health workers should reinforce post-operative pain management for clients and caregivers. Caregivers should be recognized and included in the care of their clients. Health facilities should recognize observance faith practices for surgical patients in Ghana.	<i>Africa Journal of Nursing and Midwifery</i>	L6, Q1
3.	Aziato and Clegg-Lamprey (2014)	To study the reactions of women with breast cancer and what influences their care decisions	Exploratory descriptive study 12 women with cancer	Face-to-face interviews Thematic analysis	Oncology	Other people, alternative treatment, religion and support, knowledge, and effects on intimacy influence their treatment decisions. Health professionals should find effective ways of counseling and communicate with breast cancer patients.	<i>Health Care Women International</i> 0.950	L6, Q1
4.	Aziato and Adejumo (2013)	To determine why nurses have inadequate knowledge in managing post-operative pain in Ghana	Ethnographic design 12 nurses	Interviews Content analysis	Surgical nursing	Nursing curricula in Ghana should inculcate credit-bearing pain management courses. There should be pain management in-service training programs in place for nurses. There must be regular evaluation of in-service pain management training programs.	<i>Nurse Education in Practice</i> 0.964	L6,Q1
5.	Aziato and Adejumo (2014)	To explore the experiences of preoperative patients in Ghana to improve pre-operative care	Ethnographic design 13 surgical patients	Interviews Content analysis	Surgical nursing	There is the need for public and patient education on surgery and its effects on the patient to reduce the negative public perceptions about the surgical procedures.	<i>Clinical Nursing Research</i> 1.359	L6, Q1
6.	Aziato et al. (2016)	To understand pain and aches in older Ghanaians	Exploratory descriptive phenomenological design 12 participants	Interviews Content analysis	Geriatrics	Carers for the elderly should learn the age-related changes that contribute to pain. Pain management in the elderly needs an improvement.	<i>International Journal of Caring Sciences</i>	L6, Q1
7.	Aziato et al. (2014)	To understand dysmenorrhea and its effect on high school girls	Descriptive phenomenology 16 high school girls	Interview Thematic content analysis	Reproductive health	Severe dysmenorrhea has negative effects on high school girls and is misconceived by them. Education of high school girls on dysmenorrhea and effective management processes should be put in place.	<i>Reproductive Health</i> 2.035	L6, Q1
8.	Aziato and Antwi (2016)	To find out what facilitates or inhibits the use of herbal medicine among adults in Ghana	Inductive exploratory qualitative approach 16 participants	Interview Content analysis	Herbal medicine	The deception from the manufacturers and marketers of herbal medicine results in a negative perception about herbal medicine. There is the need to educate the public and ensure that the appropriate herbal medicine products are being patronized.	<i>BMC Complementary and Alternative Medicine</i> 1.987	L6, Q1

(continued)

Table 1. Continued.

No.	Author(s), Year	Purpose	Methodology/ sampling	Data collection/ analysis	Nursing specialty	Main findings	Journal/impact factor	Level (L) of evidence, grade
9.	Aziato et al. (2014)	To understand coping strategies among adolescent students with dysmenorrhea	Descriptive phenomenology 16 high school and university students	Interview Content analysis	Reproductive health	School clinic and hospitals were attended by students with dysmenorrhea. Health workers have seen negative attitudes toward dysmenorrhea management. Developing the mental ability to manage dysmenorrhea, planning before onset, and spiritual and social support helped students cope with dysmenorrhea.	<i>Journal of Pediatric and Adolescent Gynecology</i> 1.605	L6, Q1
10.	Aziato et al. (2016)	To explore the perceptions and experiences of adolescents who underwent abortion	A vignette-based focus group approach 92 adolescent girl aged 10–19 years	Focus group Participatory approach	Reproductive health	Unwanted pregnancies in adolescents generate varying reactions from family, friends, and the community. Those reactions determine the whether the pregnancy will be kept or aborted.	<i>Journal of Pediatric and Adolescent Gynecology</i> 1.605	L6, Q1
11.	Aziato and Odai (2016)	To describe the use of herbal medicine in health-care facilities in Ghana	Descriptive qualitative design 13 key informants	Interview Content analysis	Herbal medicine	It is difficult to get material for the manufacture of herbal medicines. There was an introduction of herbal medicine institutions and regulatory boards to check the quality of the products. Herbal medicine is administered as an adjuvant treatment.	<i>Journal of Herbal Medicine</i> 1.200	L6, Q1
12.	Aziato et al. (2016)	To understand religious beliefs of postpartum women in Ghana	Descriptive phenomenological 13 women	Interview Content analysis	Cultural issues/competence	Religiosity should be taught in nursing schools. Women should be supported to exhibit their religious faith with respect to childbirth.	<i>BMC Pregnancy and Childbirth</i> 2.18	L6, Q1
13.	Aziato et al. (2016)	To gain deeper understanding of midwives perception of pain and their religious beliefs that influences caring for women in labor pains	Interpretive phenomenology 27 Ghanaian female midwives	Interview Colaizzi's qualitative analysis	Cultural issues/competence	Midwives should provide the environment for expectant mothers to practice their religious practices regarding labor pains and should take those religious practices into account is caring for these women in labor.	<i>Reproductive Health</i> 2.035	L6, Q1
14.	Aziato et al. (2016)	To explore how nurses feel, cope, and manage pain	Qualitative interpretive design 17 nurses	Interview Content analysis	Management	Nurses believe pain is not pleasant. Being conscious of personal pain experience will make nurses take care of patients in pain effectively.	<i>Southern African Journal of Social Work and Social Development</i>	L6, Q1
15.	Bam and Bell (2015)	To describe the outcomes of a 5-year implementation of an emergency nursing program in a city in Ghana	Qualitative descriptive 13 (program graduates, doctors, and facility administrators)	Interview Thematic analysis	Education	The program graduate 36 nurses and 26 currently enrolled. The graduates of this program are leading emergency care in Africa.	<i>Annals of Global Health</i> 1.417	L6, Q1

(continued)

Table 1. Continued.

No.	Author(s), Year	Purpose	Methodology/ sampling	Data collection/ analysis	Nursing specialty	Main findings	Journal/impact factor	Level (L) of evidence, grade
16.	Bonsu et al. (2014)	To study the emotional and psychosocial experiences of women leaving with advanced breast cancer in a city in Ghana	Qualitative exploratory descriptive design 10 women living with breast cancer	Interview Content analysis	Oncology	Breast cancer-associated pain leads to suicidal ideations. The women received support from friends, family and spiritual leaders and believe God will help them to live well. A multidisciplinary team should be instituted to manage patients with advanced disease. Pain management education is to be given to such women.	<i>International Journal of Palliative Care</i>	L6, QII
17.	Donkor and Sandall (2009)	To study the coping strategies of women seeking treatment for infertility in Ghana	Exploratory study 615 women seeking infertility treatment	Interview Descriptive statistics and thematic analysis	Reproductive health	Women coped through the support of their husband, their faith in Christianity, their economic achievements, and avoiding situations that reminded them of childlessness.	<i>African Journal of Reproductive Health</i>	L6, QI
18.	Donkor and Andrews (2011)	To describe how ethical issues are dealt with in Ghana	Qualitative descriptive 200 participant nurses	Questionnaire Descriptive statistics	Ethics	Ethical practice in Ghana does not completely follow the ICN code of ethics; it is influenced by local institutional and cultural practices. Cultural practices augment International Council of Nurses (ICN) code of ethics, whereas some other cultural practices conflict the code.	<i>International Nursing Review</i> 1.073	L6, QI
19.	Dzomeku (2011)	To determine the level of satisfaction with care of women in labor in Ghana	Qualitative descriptive/exploratory 12 expectant mothers	Interview and focus group discussion Content analysis	Maternal and child health	The rules and regulations guiding practice should be strictly enforced. Midwives need to know the expectations of expectant mothers so they could work to meet them.	<i>International Journal of Nursing and Midwifery</i>	L6, QI
20.	Korsah (2011)	To describe facilitating and obstructive factors to therapeutic nurse-patient communication	Qualitative descriptive/exploratory 12 nurses	Interview Thematic content analysis	Management	Use of role-playing in teaching students patient communications facilitates the therapeutic relationship. Nurses must be held accountable for abuse of patients and relatives. Nurses must use reflective practice to evaluate their relationship with patients.	<i>Open Journal of Nursing</i>	L6, QI
21.	Opore et al. (2016)	To explore the needs and the difficulties of community mental health nurses	Exploratory descriptive qualitative design 13 community psychiatric nurses	Interview Thematic analysis	Mental health nursing	Psychiatric nurses had various challenges including logistics, stigmatization, and assault from patients in the community.	<i>Pyrex Journal of Nursing and Midwifery</i>	L6, QI
22.	Rominski et al. (2016)	To evaluate the poor treatment of women in labor from midwifery students point of view	Qualitative descriptive/exploratory 83 students	Focus group discussions Thematic analysis	Maternal and child health	The student reported various disrespectful behaviors toward expectant mothers but believe there is the need for the women in labor at the orthodox health-care setting to be treated with respect so as to increase skilled birth attendant rate in Ghana.	<i>Health Policy and Planning</i> 2.513	L6,QI

(continued)

Table 1. Continued.

No.	Author(s), Year	Purpose	Methodology/ sampling	Data collection/ analysis	Nursing specialty	Main findings	Journal/impact factor	Level (L) of evidence, grade
23.	Stevens et al. (2014)	To explore the effect and the sustainability of the first pediatric nursing program established in Ghana	Qualitative descriptive 44 stakeholders	Focus groups and individual interviews Thematic analysis	Education	The program is well aligned with the system-based paradigm of health professional education. It is expected that the system-based approach will be maintained for future designs and recommendations so as to make the program an international example of a human resource for health planning and education.	<i>Journal of Nursing Education and Practice</i>	L6, Q1
Other studies included								
1.	Aziato and Adejumo (2015)	To develop clinical guidelines for postoperative pain management for Ghana	Multimethod study 27 experts and stakeholders and 29 member expert consensus forum	A systematic review, expert participatory approaches	Surgical nursing	The guideline developed with four foci: the relationship between patient and family teaching, teamwork, monitoring and hospital leadership inputs, and application of best practices in post-operative pain management.	<i>International Journal of Africa Nursing Sciences</i>	L5
2.	Aziato et al. (2015)	To develop and validate a postoperative pain assessment tool	Mixed methods design Qualitative (17 patients and 25 nurses) Quantitative (150 postoperative patients).	Qualitative: inter-views and focus groups Quantitative: application of three pain scales (0–10 Numeric Rating Scale (NRS); Wong-Baker FACES [FPS] scales; and (Colour-Circle Pain Scale [CCPS]) Content analysis, descriptive statistics, and inferential statistics	Surgical nursing	A validated tool for assessing pain in children makes it objective, but pain scales must be developed to take sociocultural factors for the particular context into account.	<i>BMC Nursing</i>	L6
3.	Bell et al. (2014)	To develop an emergency nursing program for Ghana	Multimethod study Expert group	Curriculum development	Education	The 12-month diploma in emergency nursing have been developed with the expected outcomes: “an innovative, interdisciplinary, team-based clinical training model, a unique and low-resource emergency nursing curriculum and a comprehensive and sustainable training program to increase in-country retention of nurses.”	<i>International Emergency Nursing</i> 0.974	L6
4.	Bell et al. (2014)	To develop and validate an assessment tool for trauma care nurses in Africa	Multimethod study Expert group	Delphi technique and pilot testing of instrument	Trauma nursing	An instrument was developed to assess trauma care nurses’ knowledge, attitudes, and skills among emergency nurses in Africa.	<i>Lancet Global Health</i> 14.722	L6

(continued)

Table 1. Continued.

No.	Author(s), Year	Purpose	Methodology/ sampling	Data collection/ analysis	Nursing specialty	Main findings	Journal/impact factor	Level (L) of evidence, grade
5.	Aziato (2016)	To determine factors influencing female education in Ghana	Literature review	A focused integrated review approach Content analysis	Community health	Factors that promote female education should be implemented to encourage females to go to school. The families and the community should take interest in promoting female education.	<i>Southern African Journal of Social Work and Social Development</i>	L6
6.	Donkor and Andrews (2011)	To discuss the challenges and the opportunities in the current day nursing in Ghana	Literature review Government reports and policy documents on nursing were sourced from official websites and reviewed.	Literature search Thematic content analysis	Management	There is the inadequate capacity of nursing institutions to train quality nurses. There is shortage of nurses within hospitals and low morale of nursing faculty. The increased home-based training, international partnership, and human resource development programs are opportunities available to deal with the challenges.	<i>International Nursing Review</i> 1.073	L6
7.	Appiah (2014)	To describe how Ghanaian nurses working in Seventh-Day Adventist hospitals can be more missionary in their practice	Position paper	Personal opinion	Cultural issues/ competence	Evangelism should be included in the nursing training curriculum. Workshops on evangelism should be organized by the hospitals and departments of nursing.	<i>Journal of AIIAS Africa Theological Association</i>	L7
8.	Aziato (2015)	To discuss how a failed attempt lead to an outstanding success in a further attempt of PhD in Nursing	Reflexive ethnographic	Personal experience	Education	Nurses must take up the challenge to enroll in PhD programs, but adequate support should be made available to them on an individual basis.	<i>International Journal of Higher Education</i>	L7
9.	Oware-Gyekye (2015)	To expose areas where nursing and midwifery could project their image	Position paper	Personal opinion	Management	Nursing in Ghana has a bad image, and nurses have to work to improve it. Professional bodies must get involved in building a good image for nursing. Nurses must get political knowledge and be active in politics of the country; nurses must encourage continuing education and specialization, use the social media to the nurses' advantage, and organize continuing education programs.	<i>West African Journal of Nursing</i>	L7

Note. AMTSL = active management of the third stage of labor; MCQs = multiple choice questions; ICN = International Council of Nurses.

Table 2. Excluded Articles and Reasons for Exclusion.

No.	Author(s), Year	Purpose	Methodology/ sampling	Data collection/ analysis	Nursing specialty	Main findings	Journal/impact factor	Reasons for exclusion
1.	Koduah et al. (2016)	To explain how national agenda influence health policy development in lower middle-income countries	Position paper	Personal opinion	Management	National-level decision-makers use their legal framework, financial, and structural authority to influence health sector policy in Ghana.	<i>Social Science & Medicine</i> 2.184	No nurse author from Ghana
2.	Nalle and Lasater (2010)							Exclude—not research
3.	Ware Winters-Moorhead (2009)	To discuss how study abroad imparts nursing students experiential learning					<i>Journal of National Black Nurses Association</i>	No nurse author from Ghana
4.	Tabi et al. (2010)	To study how women in polygamous marriages in Ghana cope with issues related to such marriages	Qualitative exploratory study 15 married women	Interview Thematic analysis	Community health/maternal health	Inability to conceive for a husband is the major reason women allow husbands to marry other wives to protect their marriage from divorce. Women in polygamous marriages feel lonely, unhappy, compete with other wives for children and intimacy and feel jealous of other wives. Polygamy, however, reduces women's domestic chores. They cope with befriending cowives and drawing on their religious faith.	<i>International Nursing Review</i> 1.073	No nurse author from Ghana
5.	Wilkinson and Callister (2010)	To explore the perception of Ghanaian women about childbearing	Focused ethnography 24 mothers receiving care at the selected clinic	Interviews Thematic analysis	Maternal health	Women view childbirth as a dangerous passage, feared witchcraft in delivery.	<i>Health Care Women International</i>	No nurse author from Ghana
6.	Boafo et al. (2015)	To record workplace violence and its effect on Ghanaian nurses	Cross-sectional study 592 professional nurses	Questionnaire Descriptive and inferential statistics using SPSS 20	Management	The majority of perpetrators of sexual harassment were medical doctors (50%). The majority of perpetrators of sexual harassment were medical doctors (50%). Medical doctors were responsible for 50% of sexual harassment problems. There must be educational programs to inform health-care professional on	<i>Nursing Open</i>	No nurse author from Ghana

(continued)

Table 2. Continued.

No.	Author(s), Year	Purpose	Methodology/ sampling	Data collection/ analysis	Nursing specialty	Main findings	Journal/impact factor	Reasons for exclusion
7.	Canavan et al. (2016)	To estimate the association between prescription practices and medication available for the two most common mental health diagnosis in Ghana	Record review Patient records 7,296: schizophrenia 1,807: epilepsy	Patient record review Descriptive and inferential statistics using SAS software, version 9.2 (SAS)	Practice (mental health)	the effects of sexual harassment. Institutions should have explicit policies in place to deal with sexual harassment. Many patients are giving medications corresponding to their diagnosis, but the use of different classes of psychiatric medications and lack of medications in the psychiatric hospitals poses major challenges. There is the need for projects to be instituted to monitor accurate data gathering on mental health practices in Ghana.	<i>International Journal of Mental Health</i>	No nurse author
8.	Clark et al. (2010)	To describe the determinants of the provision of postabortion care among physician and midwives in Ghana	Secondary data analysis 1,448 health service providers selected from each of the 428 health facilities	Survey data Descriptive and inferential statistics	Practice (reproductive health)	Midwives give an efficient cost-effective postabortion care (PAC) to females to reduce maternal mortality, but this produces yields less than that of physicians as a result of some barriers to the provision of PAC by midwives in public hospitals. Physicians restrict nurses from doing uterine evacuation so as to receive the financial gains of it. Private-sector midwives do better in PAC than public-sector midwives.	<i>Journal of Midwifery and Women's Health</i> 1.432	No nurse author
9.	Ibrahim et al. (2015)	To determine the differences in low birth weight children under cash-and-carry and national health insurance system in northern Ghana	Retrospective static group comparison design 1,433 infant delivery records	Document analysis Inferential statistics	Management Practice (maternal and child health)	The rate of low birth weight babies born in the cash-and-carry system dropped by a significant margin (927%) under the health insurance system.	<i>Maternal and Child Health Journal</i> 1.917	No nurse author
10.	Lori et al. (2015)	To examine how often sharp injuries happen and how nursing staff know and do when exposed to sharp	Mixed method descriptive study 45 nursing staff 3 nursing administrators	Interviews, survey, and document review Descriptive statistics	Management Practice (safety)	More than one quarter of nurses were exposed to sharp injuries. Nursing staff was educated on the risk of sharp injuries and the protocol to follow when exposed.	<i>International Emergency Nursing</i> 0.974	No nurse author

(continued)

Table 2. Continued.

No.	Author(s), Year	Purpose	Methodology/ sampling	Data collection/ analysis	Nursing specialty	Main findings	Journal/impact factor	Reasons for exclusion
11.	Martel et al. (2014)	injuries in an emergency department of a hospital in Ghana To describe the status of postgraduate emergency health professional education in Ghana and the opportunity to establish a licensing authority for emergency physicians	Hospital policy/procedures Qualitative descriptive Postgraduate emergency education programs in Ghana	Program evaluation	Education	Only a small number of nurses could state the processes to follow when exposed. There has been a great achievement in the development of emergency care professional training in Ghana, leading to the accreditation of emergency nursing training program and extension of emergency medical care to all 10 regions of Ghana.	<i>Journal of Emergency Medicine</i> 1.238	No nurse author from Ghana
12.	Mill and Ogilvie (2003)	To discuss the methodological decision leading to rigor in qualitative research through literature review and discuss criteria used in determining rigor in qualitative research	A participatory action research design was used. 17 Ghanaian women were used in the study.	Interview and focus group discussions Thematic analysis		Participatory action research provided a flexible, socially and culturally adaptable framework to guide this international research project.	<i>Journal of Advanced Nursing</i> 1.917	No nurse author from Ghana
13.	Raingruber et al. (2010)	To explore Ghanaian sex workers' knowledge on HIV/AIDS and challenges related to sex work.	Qualitative descriptive		Practice (community health)	The sex workers think sex work is hard, but God will protect their health. They believe stigma is a real thing, but sex work gives them autonomy.	<i>Issues in Mental Health Nursing</i> 0.990	No nurse author from Ghana
14.	Adeyinka et al. (2008)	To examine how nursing mothers breastfeed in two West African countries	Descriptive survey 300 nursing mothers attending antenatal clinic were randomly selected	Questionnaire Inferential statistics	Maternal and child health	Latest information on breastfeeding practices should be provided to the nursing mothers. Peer support should be provided to the breastfeeding mothers. Mobile technology and the media should be innovatively used in educating the nursing mothers. Documents should be translated into local languages for the mothers.	<i>Pakistan Journal of Nutrition</i>	No nurse author from Ghana
15.	Amoakoh-Coleman et al. (2016)	To discuss resourcing of public health centers and center	Cross-sectional analysis	Record review and facility audit	Management	Health-care providers should seek to understand the barriers to their	<i>BMC Health Services Research</i> 1.606	No nurse author from Ghana

(continued)

Table 2. Continued.

No.	Author(s), Year	Purpose	Methodology/ sampling	Data collection/ analysis	Nursing specialty	Main findings	Journal/impact factor	Reasons for exclusion
16.	Appiah and Chigozie (2014)	compliance to antenatal principles To investigate the perceptions and challenges of exclusive breastfeeding on nursing mothers	946 pregnant women Cross-sectional descriptive study 80 nursing mothers in a city in Ghana	Inferential statistics Questionnaire Descriptive statistics using SPSS	Maternal and child health	adherence to guidelines at the public health centers. Education on exclusive breastfeeding must be expanded to cover nursing mothers who have limited ability or cannot read or write.	<i>International Journal of Agriculture and Rural Development</i>	No nurse author from Ghana
17.	Quartey and Kwakye (2009)	To determine why nurses emigrate and the overall benefit of traveling	Survey 200 Ghanaian trained nurse (100 from Ghana, 100 from the UK)	Questionnaire Descriptive statistics and cost-benefit analysis	Management	Traveling of nurses to practice outside Ghana brings positive financial impact on Ghana but produces negative social impact such as increased mortality due to the nursing shortage.	<i>Ghana Social Science Journal</i>	No nurse author from Ghana
18.	Keelson and Donkor (2014)	To study how locum nursing could reduce nursing workload and improve health-care delivery	Survey approach 250 locum nurses	Questionnaire Descriptive statistics	Management	Locum nurses are not enough in Ghana, whereas the limited numbers contribute to reducing nursing shortage and improving health-care delivery in Ghana.	<i>Australian Journal of Business and Management Research</i>	No nurse author from Ghana
19.	Yakong et al. (2010)	The aim of this part of the study was to describe rural women's perspectives on their experiences in seeking reproductive care from professional nurses	Qualitative descriptive 27 Ghanaian women	Interview, focus groups, and participant observation Thematic analyses	Maternal health	Nursing education in Ghana must place emphasis on basic relational practices. Structural changes to health clinics and routine nursing practices are necessary to create conditions for privacy to address women's health concerns. Women's perspectives must be considered for service improvement. Further research is needed to examine nurses' perspectives on relational care.	<i>Journal of Advanced Nursing</i> 1.917	No nurse author from Ghana
20.	Amu and Nyarko (2016)	To assess how prepared health workers are in preventing maternal mortality in Ghana	Qualitative descriptive 12 health workers	Interview Thematic analysis	Maternal health	Ghana health service should provide more human and material resources for effective service delivery.	<i>BMC Health Services Research</i> 1.606	No nurse author from Ghana
21.	Ackatia-Armah et al. (2016)	To explain how mothers develop reflective trust in community health workers	Ethnography 39 nursing mothers, 10 health workers	Observations interviews and focus group discussions Thematic analysis	Community health	Health-care practice and training should be done in a way to earn the trust of the community served. Community health training should be context specific to gaining trust from nursing mothers.	<i>Social Science & Medicine</i> 2.814	No nurse author from Ghana

(continued)

Table 2. Continued.

No.	Author(s), Year	Purpose	Methodology/ sampling	Data collection/ analysis	Nursing specialty	Main findings	Journal/impact factor	Reasons for exclusion
22.	Pomevor and Adomah-Afari (2016)	To examine the quality of human resource available for neonatal care and the perception of health workers on quality neonatal care in Ghana	Qualitative descriptive Midwives and hospital documents	Interview, observation, and documentary review Thematic analysis	Management	Health-care providers were worried about the shortage of staff, staff competence, the limited and poor state of instruments, and personal protective equipment available for use. The health-care stakeholders must redirect their attention to issues relating to quality neonatal care in Ghana and other countries of similar concerns.	<i>International Journal of Health Care Quality Assurance</i>	No nurse author from Ghana
23.	Osafo et al. (2012)	To understand how health professionals behave toward suicidal patients and how they prevent suicides in Ghana	Qualitative descriptive 17 informants (9 clinical psychologists and 8 emergency ward nurses)	Semistructured interviews Thematic analysis	Mental health nursing	The behavior of health workers toward suicide is based on two main concepts: morality and mental health. The psychologists believe suicide is mental illness, whereas nurses believe it is a crime. Nurses believe talking to suicidal patients, making legal laws against committing suicide, and use of religious coercion are ways in preventing suicide.	<i>International Journal of Nursing Studies</i> 3:561	No nurse author from Ghana
24.	Adu-Gyamfi and Brenya (2016)	To review the literature on Florence Nightingale and nature of nursing from the Colonial period and examine the activities and interactions of nurses with patients in a city in Ghana	Literature review	Literature search Thematic content analysis	Management	Challenges faced by nursing in Ghana today do not differ from those faced by Nightingales and therefore the need for Ghanaian nurses to emulate Nightingale.	<i>International Scholarly Research Notices</i>	No nurse author from Ghana

descriptive study (Ackley et al., 2008) and included a well-calculated sample size and standard definition of outcome variables (Maree & Schmollgruber, 2014). The details of the grading system are presented in Table 3.

Results

Quality of Studies Included

The majority (92.86%) of the quantitative studies included in this study were Evidence Level VI and Quality Level IIB. Two (7.14%) of the studies were at Level III (one with Quality Grade IIIA and the other IIIB). Thus, the highest level of evidence included in this study was at Level III and Quality Grade IIIA. All the 23 qualitative studies included in this study were of Evidence Level VI (Table 3). Twenty-two (95.65%) of

them were of good quality (QI) whereas one was of fair quality (QII; Kpodo et al., 2016; Maree & Schmollgruber, 2014; Molassiotis et al., 2006). The evidence level of the other studies included ranged from Level V to Level VII. Their quality had not been evaluated, but the researchers reached consensus on their importance for inclusion in this study.

Yearly Trend in Publication

In 2007 and 2008, only one article each year was published. There was no study included for the year 2010. Publication increased in 2011 and sharply dropped in 2012 in which only one study was recorded. From 2012 to 2016, there was an encouraging increase in nursing research publication with 2016 recording the highest (16) out of the 60 articles included in this study (Figure 2).

Table 3. Evidence Level and Quality Rating Scales.

Evidence level (Ackley et al., 2008)	Level I	Studies are systematic reviews of randomized controlled trials
	Level II	Studies are from a well-designed single randomized control trials
	Level III	Studies from well-designed control trial in which there was no randomization of the subject and quasi-experimental studies
	Level IV	Evidence from well-designed case-control trials
	Level V	Evidence from a systematic review of descriptive and qualitative studies is assigned
	Level VI	Descriptive and qualitative studies are assigned
	Level VII	Studies from expert opinion and authorities in any field of study are assigned
Quantitative study grading system developed by Mann (Molassiotis et al., 2006).	Grade IA	Randomized controlled trial where the sample size has been calculated and an accurate, standard definition of outcome variables is provided
	Grade IB	Randomized controlled trial providing only the standard definition of outcome variables
	Grade IC	Randomized controlled trial that does not include the previously mentioned criteria
	Grade IIA	Prospective studies with a comparison group or retrospective studies with controls clarifying confounding variables where the sample size has been calculated and an accurate standard definition of outcome variables and adjustment for the effects of important variables are included
	Grade IIB	Studies having at least one of the criteria for a Grade IIA study
	Grade IIIA	All other studies containing a comparison group, calculated sample size, and accurate standard definition of outcome variables
	Grade IIIB	All other studies including at least one of the criteria of Grade IIIA
Qualitative study rating scales (Cesario, Morin, and Santa-Donato, 1996) Studies are graded with a 10-item scale: 0 (no evidence), 1 (poor evidence), 2 (fair evidence) and 3 (good evidence).	QI	Good quality: scores between 22.5 and 30
	QII	Fair quality: scores of 15 to 22.4
	QIII	Poor quality: scores less than 15
Grade IIIC	All other studies that do not include any of the previously mentioned criteria	

Source: Kpodo et al. (2016); Maree and Schmollgruber (2014).

Studies Included

Out of the 60 studies included in this review, 28 were quantitative studies, 23 qualitative, 3 were multimethod studies, 1 was a mixed method study, 2 were literature reviews, and 3 were expert opinion and experiences.

Quantitative studies. The quantitative studies included were mostly (85.71%) cross-sectional surveys and quantitative descriptive studies. Two (7.14%) were retrospective record reviews, whereas one (3.57%) each were pretest–posttest and comparative quasi-experimental studies.

A total of 59,246 subjects were used in this study out of which 55,174 were patients, 3,199 were nursing students, 764 were nurses and midwives, and 109 nurse educators.

The majority (10) of the studies were in the area of nursing management and administration, 6 in nursing

education, 5 in maternal and child health, 3 on female reproductive health, 2 on emergency nursing, and 1 each in the areas of chronic diseases and geriatrics.

Qualitative studies. Out of the 23 qualitative studies, 5 were descriptive, 6 exploratory descriptive, 4 exploratory, 2 ethnographic, 2 descriptive phenomenological, 1 interpretive phenomenological, 1 interpretive, 1 explanatory descriptive ethnography, and 1 vignette-based focus group approach. There were 1,284 subjects recorded in the qualitative studies, 96 of whom were students and 293 nurses and midwives.

Other studies. Other studies included were three multimethod studies, one mixed method study, two literature reviews, and three expert opinions. These studies recorded 248 subjects. Two studies were published on surgical nursing, two in education, two in management, one in trauma nursing, one in community health, and one in cultural issues.

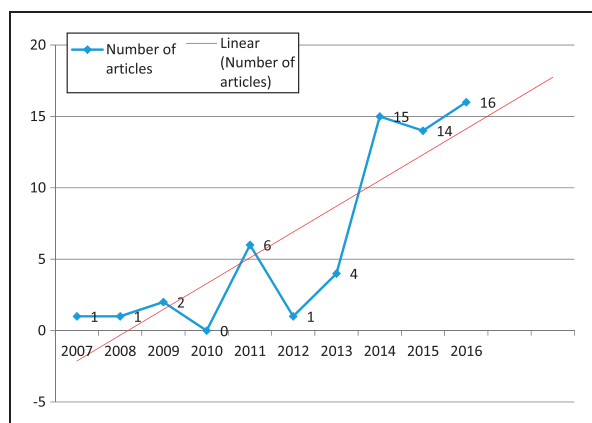


Figure 2. Yearly trend in publications over the decade (2007–2016).

Authorship and Collaborations

Figures 3, 4, and 5 show the distribution of the 219 authors and 120 institutions who published the 60 articles included in this study. There were more Ghanaian nursing researchers from institutions located in Ghana authoring the studies than authors from institutions outside Ghana. The location in Ghana was important for evaluation of the contextual relevance of the studies.

Impact Factor of Journals Published

Out of the 60 articles included in this study, 27 (45%) were published in journals listed on 2016 Thomson

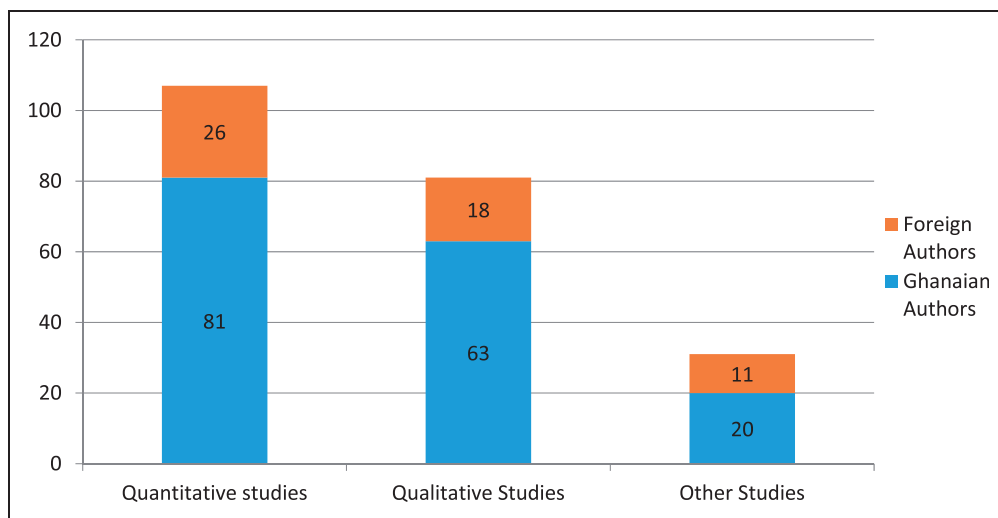


Figure 3. Distribution of authors.

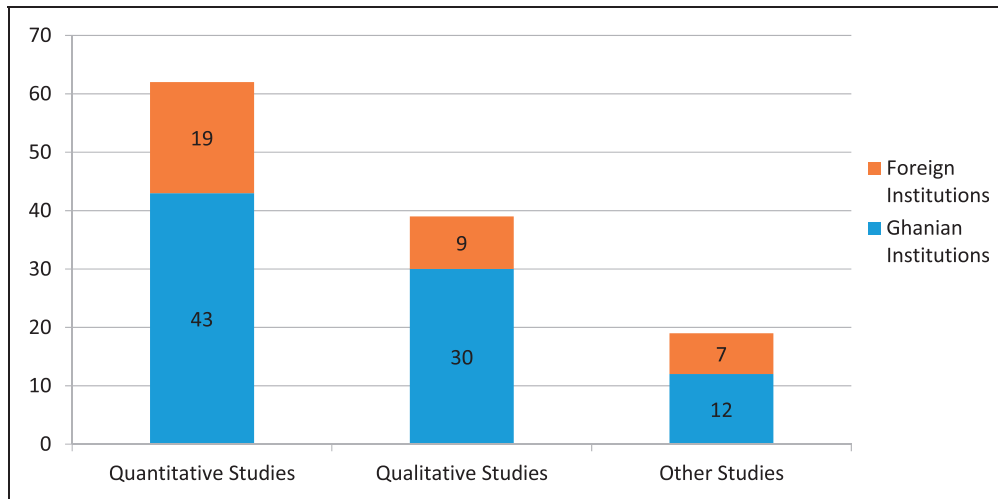


Figure 4. Distribution of institutional affiliation of authors.

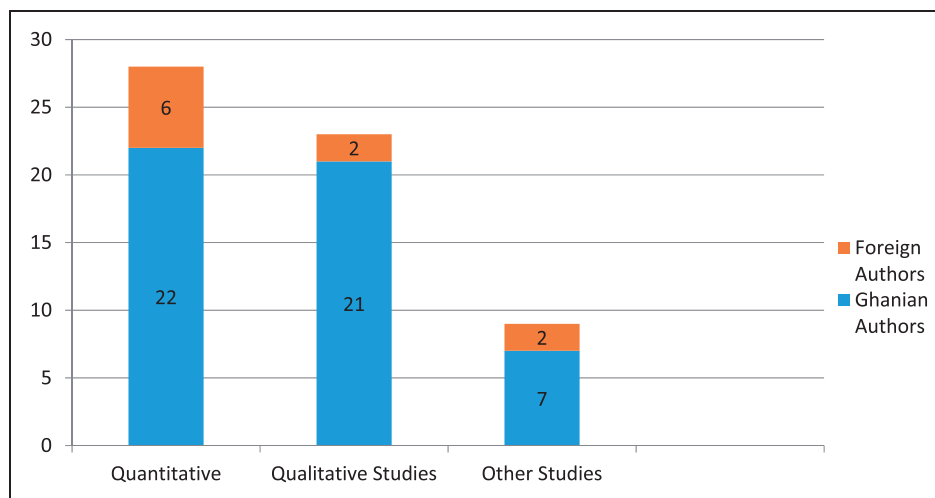


Figure 5. Distribution of principal (first) authorship of studies included.

Reuters journal citation report with impact factor (Thomson Reuters, 2016). The impact factor of the journals published ranged from 14.722 (*The Lancet Global Health*) to 0.950 (*Health Care for Women International*). Assuming nursing research in Ghana was cited according to the Thomson Reuters impact factor calculations, the probability of nursing research from Ghana being cited was 0.97, that is the sum of impact factors of journals published (58.228) divided by the total number of articles included in this study (60).

Discussion

Nursing research publication is increasing in Ghana just as that of sub-Saharan Africa (Adejumo & Lekalakala-

Mokgele, 2009; Kpodo et al., 2016). Even though there is a steady increase in publication of studies in the country, there is more room for improvement in research output. Limited opportunities for postgraduate nursing education and the nonexistence of doctoral nursing program in Ghana at the time of submission of this article are contributory factors to the low research output in Ghana. Contrary to the findings of Sun and Larson (2015) and in concordance with findings from Maree and Schmollgruber (2014), the majority of nursing publications in Ghana were quantitative. The majority of the nursing research in Ghana, however, was exploratory and descriptive, indicating that nursing research was at the developing stage in Ghana (Sun & Larson, 2015).

The highest level of evidence included in this study was Level III (quasi-experimental studies), whereas the majority were of Level VI (descriptive and qualitative studies). Similar levels of evidence were evident in sub-Saharan Africa-wide review conducted by Kpodo et al. (2016). This may be due to the seemingly high use of Heideggerian interpretive research paradigm in nursing (Weaver & Olson, 2006).

Major research areas in nursing in Ghana were education and administration, which was incongruous to the research priority areas recommended by Tlou (1998). Nursing is a practice-based profession; therefore, much focus needs to be placed on clinical research in the country to influence the promotion of evidence-based practice (Sun & Larson, 2015). With the majority of the subjects for the studies included being patients, it was very important for the studies to be directed toward influencing clinical practice to improve the health and well-being of the patients.

Even though the number of peer-reviewed nursing research publications was increasing in Ghana, the majority of the studies were published in journals without impact factor and journals not rated by the Thomson Reuters journal citation result. This was a result of the unavailability of nursing policy or strategy on research dissemination by the Ministry of Education of Ghana (Center for Innovation in Research and Teaching, 2017; World Health Organization, 2014; Yale Center for Clinical Investigation, 2011). Andoh (2017) discovered that a significant number of journal articles authored by PhD holders in Ghana were published in predatory journals.

The intention of the majority of the studies was not to influence policy; however, a few of the studies were directed toward policy uptake and policy implementation. Some of the studies were published on curriculum implementation and evaluation in nursing education institutions in Ghana, indicating the existence of an opportunity for research to guide policy.

The majority of authors and affiliated institution in the studies included in this review were Ghanaian nurses. Similarly, the principal researchers for the majority of the publications were through international collaborations. These are important factors in keeping studies conceptually relevant.

Conclusion and Recommendations

As the first countrywide nursing research review in Ghana, this study provides evidence on the type of studies conducted in Ghana, research areas, quality of studies, trends in nursing research publication over a decade, author and institutional collaborations, and the quality of the publications. With the meagre numbers of health workforce in sub-Saharan Africa and the scarce resources available, nursing research is needed to better understand the patient needs that influence policy formulation to promote

efficient use of resources (Columbia Global Centers, 2015). The research capacity of Ghanaian nurses is increasing, but at a slower pace compared with other countries. This is a result of the relatively small number of nurses with post-graduate degrees and research training.

We recommend the Ministry of Education, higher education institutions, and other institutions responsible for research in Ghana to develop research dissemination strategies to guide research publication. Experienced nursing researchers and faculty should mentor young academics and researchers on research integrity and the need to disseminate findings in appropriate journals and conferences. Researchers should advocate for the uptake of research findings into policy and practice in Ghana as to promote the development of the nursing profession.

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