Research Article

Analysis of nursing education in Ghana: Priorities for scaling-up the nursing workforce

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Abstract

In this cross-sectional study, the strengths, challenges and current status of baccalaureate nursing education in Ghana were described using a descriptive design. The World Health Organization Global Standards for the Initial Education of Nurses and Midwives were used as the organizing framework, with baseline data on the status of nursing education from two state-funded universities in Ghana presented. A serious shortage of qualified faculty was identified, along with the need for significant upgrading to the existing infrastructure. Additionally, the number of qualified applicants far exceeds the available training slots. Faculty and infrastructure shortages are common issues in nursing education and workforce expansion; however, in low-resource countries, such as Ghana, these issues are compounded by high rates of preventable disease and injury. An understanding of the strengths and challenges of nursing education in Ghana can inform the development of strategies for nursing workforce expansion for other low-resource countries.

Key words

baccalaureate nursing education, Ghana, human resources for health, nursing workforce.

INTRODUCTION

The Republic of Ghana, located in West Africa, achieved independence from the UK in 1957. Ghana is poised for a bright future, with over five successful, peaceful, and democratic elections. Emerging economic resources, such as gold and oil, show promise of contributing to the financial stability of the country. A national health insurance scheme introduced in 2003 has the potential to dramatically alter healthcare delivery (Agyepong & Adjei, 2008). However, Ghana has consistently struggled with its health and economic indicators. According to the World Health Organization (WHO) (WHO, 2006), Ghana has a population of approximately 24 million, with a life expectancy of 56 years for males and 58 years for females. With a current gross national per capita income of $US1240, Ghana is in the top 30 of the world's poorest countries (World Bank, 2011). As in many low and middle-income countries, the health of women and children remains a major health concern. The maternal mortality ratio in Ghana in 2006 was 540 per 100,000, compared to 12 per 100,000 for the USA (Hoyert, 2007). For every 1000 children born in Ghana, 112 will die before the age of 5 years (WHO, 2006). Meanwhile, the ratio of nurses to total population is 1:2024 in some areas (MOH, 2007). In contrast, the US ratio of nurses to total population is 1:85 (Robert Wood Johnson Foundation, 2010).

Most nurses in Ghana are educated in training colleges, which are often, but not necessarily, affiliated with teaching hospitals. At the time of data collection, there were nine total baccalaureate nursing programs in Ghana, which award a bachelor degree upon completion, although several of those are private institutions. Although the term "baccalaureate" is not used in Ghana (where the term "degree" is used as a synonym), because it is an internationally-recognized term, it is used for the purpose of this study. Baccalaureate nursing students receive training in research and leadership as part of their education, in order to position them for future leadership positions. All successful graduates from diploma, certificate, or baccalaureate programs are eligible to take the nursing certification examination administered by the Nursing and Midwifery Council of Ghana.

Literature review

The WHO estimates that 1.3% of the world's health workforce resides in sub-Saharan Africa, yet the continent assumes 25% of the disease burden (WHO, 2004). The shortage of nurses represents the most significant of the health worker shortage in Africa (Munjanja *et al.*, 2005). Throughout Africa, nurses play a crucial role in the provision of health care, providing primary healthcare services in many rural areas. Increasing the nursing workforce is a critical need. The

Millennium Development Goals (MDG), set by the United Nations and member countries in 2000, provide health and development goals for the least-developed countries (United Nations, 2010). Dovlo (2007) predicts that the MDG will not be met by the target date of 2015, in part due to the current shortage of healthcare workers.

Researchers who seek to understand the status of nursing education in sub-Saharan Africa are few, although the widespread need for increasing the nursing workforce is acknowledged. Plager and Razaonandrianina (2009) conducted a comparative analysis of nursing education in Madagascar, Kenya, and Tanzania for the purpose of improving nursing education to strengthen the Malagasy workforce. Their study represents the only published assessment of nursing education in Africa found through a literature search. Baseline data on the status of nursing education in individual countries in Africa, as well as the developing world, are needed to better understand and address global nursing workforce issues.

Purpose

The Ghanaian Ministry of Health recently issued a mandate to increase the number of healthcare workers trained at all levels, including bachelor-prepared nurses (Ministry of Health, 2007). The purpose of this article was to objectively describe the current status of baccalaureate nursing education, as well as the strengths and challenges of two state-funded baccalaureate nursing programs in Ghana.

METHODS

Research design

The design of this study was cross-sectional, and descriptive in nature. Focus group discussions, key informant interviews, and non-participant observation techniques were utilized.

Organizing framework

The WHO's Global Standards for the Initial Education of Professional Nurses and Midwives (2009) was used as the organizing framework. These standards establish the minimum educational criteria and outcomes needed to train competent nurses to provide positive health outcomes in the populations they serve (Department of Human Resources for Health, 2009). Designed to apply to nursing education globally, the goal of the global standards is to establish educational criteria and set outcomes that are evidence based, promote lifelong learning, and ensure that nurses are competent and provide quality care, as well as promote positive health outcomes in the populations they serve (Department of Human Resources for Health, 2009).

Five core content areas were evaluated, as identified through the WHO standards: program graduates, program development and revision, program curriculum, faculty, and program admissions. The first content area, program graduates, evaluates expected outcomes for graduates, such as demonstrating established competencies in nursing, as well as the expected attributes of a program graduate. The second

core content area, program development and revision, examines governance, infrastructure, accreditation, and partnerships. For the purposes of our study, infrastructure was deemed to be its own area, due to the large infrastructure needs that were already known. The third core content area, program curriculum, examines curriculum design, core curriculum content, curriculum partnerships, and assessment of students. The fourth core content area is faculty. This content area evaluates academic faculty, clinical faculty, and professional development. The fifth and final core content area, program admissions, examines student type and intake, as well as admission policy and selection. Since these standards were designed to apply globally, little cultural adaptation was necessary, which was a strength of the framework.

Ethical consideration

The research was conducted within the context of a larger initiative, the Ghana–Michigan Collaborative Health Alliance for Reshaping Training, Education and Research. This collaboration between the Ghanaian Ministry of Health, the University of Ghana, Kwame Nkrumah University of Science and Technology, and the University of Michigan in the USA had the overall goal to design an evidence-based roadmap for academic–government collaborative interventions to strengthen the training of human resources for health in Ghana (CHARTER, 2008). Ethical approval was received from the Institutional Review Board at the University of Michigan, as well as the Ethical Review Committee at the two state-funded Ghanaian universities. Prior to data collection, the purpose of the study was explained to participants, safeguards for confidentiality were assured, and verbal informed consent was obtained. Participants were informed they could decline to answer any questions or end the interview at any time.

Setting

The two universities in this study are located in large urban cities in Ghana. Both nursing programs are located on the campuses of these well-established universities.

Sample

Key informant interviews were conducted with three nursing faculty members. While this number is quite low, the number of nursing faculty at each program is low. At one program, the faculty member interviewed was the only full time nursing faculty in the nursing program. Faculty members were selected based on the criteria of full-time appointment and availability/willingness to participate in the study. Each faculty member had administrative responsibilities that helped the authors to understand issues related to program management. The universities that participants are associated with have not been identified in this study in order to respect their anonymity.

Average class sizes range from 35 to 50 students at one program, and up to 150 students at the other program. A convenience sample of 10 students at one program was

utilized. The students who participated in the focus group were student leaders from the third and fourth year, four males and six females, who returned to the program voluntarily to participate. Because the study was conducted while students were in clinical rotations away from campus, members of the Student Nurses' Association were invited to return to campus for the focus group. The focus group coincided with a networking mixer with US nursing students who were visiting Ghana.

Data collection

Data collection was conducted at each university and at affiliated teaching hospitals. Each individual interview took between 30 min and 2 h, and was conducted in a private space at the university. This discrepancy in length of interview time was due to time constraints of the participants. A convenience sample of 10 baccalaureate nursing students participated in one focus group held in a private space on the university campus. A semistructured guide was developed from the WHO standards and was used to guide the discussion: (i) please describe how research training is addressed and supported for faculty members at your institution; (ii) has the school analyzed the training needs of nurses in your area?; (iii) is there opportunity for multidisciplinary research activities? describe; and (iv) is there a written weekly/month/semester teaching plan that identifies who teaches what and when?

Key informant interviews were conducted with three core faculty members at the two programs. An in-depth interview guide was developed through a collaborative process with the authors, from the WHO Global Standards, with a focus on day-to-day functioning of the programs, outstanding issues of concern to faculty members, and critical needs that were identified by faculty to assist with the WHO standards that form the organizing framework. Faculty members were queried on each WHO standard and the application of each standard in their setting. Types of questions asked included research activities of faculty, barriers to faculty scholarship, and the process of evaluation for students.

For a broader perspective, focus group discussions with 10 nursing students were conducted. The focus group was led by the principal investigator of the study – an experienced nurse faculty member. Again, using the WHO standards as a guide, questions centered on students' learning needs, future goals of students, and critical issues that serve as barriers to meeting the objectives of the curriculum, keeping within the WHO standards.

Infrastructure questions, such as access to computers, overcrowding in lecture halls, and availability of resources in the library, were also asked. A detailed infrastructure survey of the facilities of each program, including a review of the library facilities, the computer laboratories, faculty offices, classrooms, and other meeting space, was completed by walking tour around the campus with student leaders.

Additionally, to increase understanding by the authors of the learning environment, observational data were collected at the teaching hospitals that serve as the major clinical site for students from each program. Students were observed in clinical practice, and the study team informally interviewed preceptors at each institution. As an adjunct to this, the curriculum and course descriptions for each program were examined to establish a baseline understanding of course content, and methods for instructional delivery.

Data analysis

Detailed notes were recorded during the interview process, which formed this basis of data collected in order to determine whether programs were meeting WHO standards. An iterative process was used, where the research team analyzed the data separately and communicated by email or phone, due to the distance between authors. Additionally, observational data from clinical site visits, and review of the written curricula, were reviewed by the authors and used to triangulate our findings. Throughout the stages of data analysis, numerous discussions occurred between the US and Ghanaian authors to verify interpretations and ideas. The use of an audit trail composed of methodological and analytical documentation (Sandelowski & Barroso, 2003), and member checks with faculty participants contributed to validity.

RESULTS

Results are presented in the context of the WHO Global Standards for the Initial Education for Nursing and Midwifery (Department of Human Resources for Health, 2009).

Program graduate outcomes and attributes

The data support that baccalaureate programs in Ghana meet mandated regulatory standards leading to professional licensure/registration as a nurse. Upon successful completion, graduates are awarded a professional degree and are eligible to take the licensure examination offered by the Ghana Nurses and Midwifery Council (NMC). Faculty members stated that there were no structured methods in place to track the professional success and progression of education of their graduates, making objective analysis of the quality of education hard to systematically measure.

Program development and revision

Program development and revision is a content area where both programs are meeting WHO standards. The selected program development/revision standards used were: (i) nursing programs define and make public their mission, vision and objectives; (ii) nursing programs educate their students through the program to meet the health-care needs of their societies; (iii) nursing programs clearly define the educational and clinical outcomes of the program; (iv) nursing programs employ nursing faculty with relevant expertise in the subject matter and the ability to develop and

revise their programs; and (v) nursing programs define role descriptions for theoretical and clinical educators including, but not limited to, faculty, clinical supervisors, mentors, preceptors and teachers. The selected questions for the nursing student focus group were: (i) what are the best attributes of your program? What areas need more attention?; (ii) tell me about a typical day in clinical for you; (iii) What is the process to undertake if you are struggling in classes and need assistance?; and (iv) How do you evaluate your courses and your faculty?

The two baccalaureate nursing programs evaluated in our study exist as an integral part of a higher education institution that meets internal standards, recognized accreditation, and governing body requirements. Criteria have been established at each program to meet accreditation standards for the clinical practice, academic content, and demonstration of professional outcomes set by the Ghana NMC. The nursing programs have defined and made public their mission, vision, and objectives. Expected didactic and clinical outcomes of the program have been defined, and are accessible to students and faculty.

Faculty members report relevant mastery in the subject matter, and hold either a teaching certificate or degree. Faculty members have the ability to develop and revise coursework to fit the needs of students. Interdisciplinary education is common, due to a shortage of nursing faculty. Lecturers from other departments, such as anatomy and pharmacy, are utilized to provide lectures on content appropriate to their field of expertise. The programs we reviewed have in place a system of formative and summative assessment of their educational and clinical objectives and outcomes. Role descriptions are clearly defined for didactic and clinical faculty.

Program curriculum

Faculty members report that curricula at both programs are designed to take into account workforce planning flows and national healthcare policies. Curricula, which have been planned and designed to meet national and international education criteria, as well as professional and regulatory requirements for practice, have a demonstrated theoretical basis, and exhibit a balance of theory and practice. The focus of both classroom and clinical education is on knowledge and practical skills needed to meet the needs of Ghana's population.

The curricula at each program demonstrate the core content that will enable graduates to meet the established competencies stated in the WHO standards (2009), and include content in nursing theory, practice, interventions, and scope of practice, given a review of course descriptions and schedules. Supervised clinical learning experiences that support nursing theory are included in the practical portion of students' education. Students report that high volumes of students in clinical sites affect their learning. As one student stated: "Sometimes there are 10 or more of us from different schools around one nurse who is completing a dressing change. It's hard to see what she is doing, or really learn anything, with so many people around".

Faculty

The WHO (2009) Global Standards for Nursing and Midwifery recommend that the head of the nursing program is a nurse who holds a graduate degree, is educated and experienced in leadership and administration, and demonstrates knowledge as an educator. Both programs require a doctoral degree as the minimum standard to be the dean (defined as the head of the department) of the program. At the time of our study, this was not the case at either program. Due to a limited pool of qualified faculty, a physician was the head of one nursing program, and a master-prepared nurse was acting head of the other program. Both were named acting head of department in lieu of being named interim dean.

University guidelines require core academic faculty to be nurses who demonstrate knowledge as educators, with a minimum of a bachelor degree, and preferably with a graduate degree. Advanced preparation and clinical competence in their specialty area is also a requirement. All faculty members at both institutions hold a minimum of a master degree. Clinical preceptors, who are prepared with a bachelor degree, supervise students in the clinical setting. Other health professionals, who provide guest lectures in the nursing program, hold graduate degrees and possess expertise in their specialty.

There are inadequate numbers of nursing faculty at both programs, and while recruitment is underway, it was stated there are not enough qualified personnel in Ghana to fill the vacant positions. Funds for large-scale recruitment efforts are extremely limited. Additionally, remuneration is often better in other governmental agencies, such as the Ministry of Health, which attracts qualified candidates away from academia.

One program, in particular, is struggling with faculty recruitment and retention, as the program has been run by one master-prepared nurse as the only full-time faculty. Although her time is augmented by part-time lecturers, both nurses and physicians, having only one master-level nurse faculty member limits the ability to admit more students. A recent new hire has improved the ratio of faculty to students to approximately 1:76. Ratios such as this suggest the difficulty in comprehensively evaluating a student's level of preparedness for future clinical practice.

Nurses in practice with clinical expertise in a specific content area are designated to teach students in the clinical practice area. The two nursing programs have formed partnerships with staff from hospitals and other clinical sites to be clinical preceptors. Clinical preceptors at both institutions express frustration with providing quality patient care while supervising large numbers of students from multiple nursing programs. Additionally, a graduate program is in place at one institution, and is planned at the other institution, but cannot be implemented due to insufficient numbers of faculty members.

While evidence of research, scholarship, and continuing professional activities are required for promotion, both nursing programs have a limited system in place to provide faculty members with opportunities for development in teaching, scholarship, practice, and external professional

activity. The nursing programs do have a system and policy in place to provide time and resources for competency development; however, faculty members are often left to complete continuing professional activities during program breaks in their own time. When asked: "What are some barriers to further development of research capacity?", one faculty participant responded: "Workload. While research is required for promotion, we are so overburdened with our workload that we don't have the time to pursue research".

Program admission

The nursing programs maintain a transparent admission policy that specifies the process of student selection and the minimum acceptance criteria. Each nursing program has a system in place that takes into account different entry points for students, such as applicants from secondary school programs and students with a nursing certificate or diploma, or other recognition of prior learning. Nursing programs have entry requirements that meet the criteria for higher education institutions in Ghana, including the completion of secondary education.

Infrastructure

The current infrastructure at both programs needs expansion and renovation in order to accommodate current, as well as an increased number of students. Lecture halls are above capacity and in high demand, with one faculty participant noting: "We often have to compete with other departments for lecture space". Equipment in both skills laboratories needs updating to meet current standards. Additional supplies, including mannequins, patient beds, and basic nursing equipment, are needed for an adequately-functioning skills laboratory. Simulation facilities are available, but have older models. Negotiations are underway to utilize existing state-of-the-art simulation centers at affiliated teaching hospitals. The libraries at both programs need upgrading, as many of the texts and journals are outdated by 10 or more years. Students and faculty have access to HINARI (Program for Access to Health Research), which is a limited database of free online professional journals (WHO, 2010). The frequency that HINARI is utilized at both programs is not clear, as focus group data found students were not aware of the program. Internet access is widely available on campus and in the surrounding community. Neither program has a dedicated computer laboratory for nursing students, and internet speeds are slow, limiting downloads. Additionally, less than half of qualified applicants are accepted to professional nursing programs each cycle, due mostly to insufficient numbers of faculty members and limited infrastructure.

DISCUSSION

We believe it is important for the international nursing community to have an understanding of nursing workforce issues in low-resource countries. This report is one of very few that gives a clear picture of this in sub-Saharan Africa. Addition-

ally, this manuscript can guide African healthcare officials in understanding nursing workforce needs at the policy level. Our findings suggest that baccalaureate nursing programs in Ghana provide graduates with the necessary knowledge and skills to practice entry-level nursing within the healthcare systems of Ghana. However, the volume of faculty members is severely inadequate, and there are significant infrastructure limitations.

The number of currently-enrolled students is at, or exceeds, current institutional capacity. In order to accept more students, qualified faculty must be recruited and retained, infrastructure expanded, and additional preceptors utilized. Both programs report an enormous volume of qualified applicants with each application cycle, estimated to be in the thousands for the current capacity of less than 200 students. It is conceivable that the number of qualified applicants could meet the country's need for nurses, but the existing infrastructure is not able to adequately and appropriately educate this volume of students. While this problem also exists in developed countries, the shortage in Ghana is acute, given the severity of health needs not being met in an underdeveloped health system.

Implications for practice

Of vital importance to both Ghana and other countries struggling with nursing shortages, resources must be committed to expand and improve the physical infrastructure needed to accommodate the large number of applicants and rapidly scale-up the nursing workforce. With implementation of these recommendations, nursing shortages could potentially be reduced while the nursing workforce is strengthened (ICN, 2006). In order for the nursing workforce in Ghana to be expanded, a strong emphasis should be placed on the development of academic programs to prepare nursing faculty. To accomplish this goal, nurse educators will need to obtain a doctoral degree to meet the university requirements for promotion and tenure. A core group of doctorally-prepared nurses could serve as the foundation on which to expand nursing. Currently, there are no doctoral programs for nursing in Ghana.

Limitations

While this study focused specifically on the only two government-supported baccalaureate nursing programs in Ghana, it would be worthwhile to conduct a similar analysis at the other seven nursing training institutions that award a bachelor degree. Most nurses in Ghana are educated at training colleges and receive a three year diploma. Interviewing larger numbers of faculty members and students would have strengthened our understanding of the issues surrounding nursing education in Ghana.

A small sample size was a limitation of this study. The baccalaureate nursing community in Ghana is exceedingly small. A large sample would add to the robust nature of this study; however, with extremely limited faculty members and a relatively small student body, this was not possible.

In this study, we evaluated baccalaureate nursing education at two programs in Ghana using internationally-recognized standards. The findings cannot predict if students will become proficient in the knowledge and skills of nursing practice. The lack of objective outcome measures is an important limitation to note in this study. While the written curriculum states that a particular skill or idea was taught, this evaluation cannot ensure that students actually learned the material. Objective outcome testing of program graduates is needed to make this assertion (Stern *et al*., 2005).

Conclusion

Using the WHO standards (2009) as the organizing framework, we evaluated the capacity and limitations of two baccalaureate nursing programs in Ghana. These standards represent a novel evaluation tool that can be used to evaluate nursing programs in other countries in order to inform the development of strategies to increase the nursing workforce globally.

While baccalaureate nursing programs have written curricula that meet or exceed international educational standards, Ghana continues to face the multipronged challenge of a severe shortage of nurses, qualified nursing faculty, and substandard infrastructure. The number of nurses graduating from nursing programs in Ghana falls far short of those needed to adequately provide care to the population. Documentation of the barriers to expand capacity for nursing education is needed in order to provide sustainable solutions.

The findings from this study contribute to the strategies to advance the nursing profession in Ghana and assist policy-makers in the allocation of scarce resources. Replication of this study in other countries would contribute to a greater understanding of the strengths and challenges in nursing education worldwide.

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CONTRIBUTIONS

Study Design: JL, SAB.
Data Collection and Analysis: SAB, VB, ED.
Manuscript Writing: SAB, JL, SR, VB, ED.

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