PROMOTING NURSE PRACTITIONER PRACTICE: WHY IS THE ROLE IMPORTANT FOR TANZANIA AND HOW WILL IT HELP AUGMENT HEALTH CARE IN SUB-SAHARAN AFRICA?

ABSTRACT

Background: The Nurse Practitioner (NP) is a promising solution for strengthening healthcare systems and a strong driver in accelerating access to health care. Development of the NP role has recently gained significant global attention based on its ability to improve services and outcomes, especially for underserved populations. The NP provides an integral benefit to the healthcare system by expanding the nursing role to meet current and future patient’s health needs, resolving global health challenges, decreasing the incidence of preventable deaths, and improving health access across the lifespan.

Objectives to examine NP roles as a model for Sub-Saharan Africa and to inform role development in Tanzania.

Method: Literature searches related to NP role, their global deployment and effectiveness in providing primary healthcare. This paper presents the evidence of deployment of NP’s globally and the implication of the role in Tanzanian for solving two main issues for primary healthcare. The access to care in rural areas of the country and advancing the expertise of nurses practicing in those rural areas to empower them with the education they need to practice safely and effectively.

Conclusion: There is a need to identify models of building nursing expertise to clearly define and integrate into all levels of healthcare system. Successful NP role implementation in Tanzania will augment the roadmap towards meeting the universal health coverage and access to health for all.

Descriptors: Advanced Practice Nursing; Primary Health Care
Introduction

While the global healthcare system is undergoing a major transformation many countries still struggle to achieve the sustainable development goals (SDGs). Sub-Saharan Africa faces a double burden of communicable and non-communicable disease, with more than 60% of deaths in Africa due to infectious illness along with a developing prevalence of non-communicable diseases such as hypertension, diabetes, and obesity, accounting for about 20% (Mayosi et al, 2009). Nannal et al. (2012) asserted that 64% of children died due to preventable disease. Coetzee (2014) also found that 50% of child deaths occurred before the child reached the hospital. In addition, 55% of children died due to failure of health professional to effectively use the Intentional Management of Childhood Illnesses (IMCI) guideline (Mulaudzi, 2015). It is imperative that health care systems are equipped to address the changing patterns of disease burden: however, most countries in Sub-Saharan Africa are challenged by insufficient resources, political instability, and an inadequate health workforce. (World Health Organization, 2020).

According to the United Nations (UN) the average life expectancy in Tanzania is 66 years and premature death is common. Infant mortality in 2019 was estimated at 36 deaths per 1000 live births (https://www.statista.com/statistics/807807/infant-mortality-in-tanzania), under-5 mortality at 50 per 1000 live births, and maternal mortality rates remain high with a ratio of 556 deaths per 100,000 live births (https://knoema.com/atlas/United-Republic-of-Tanzania/topics/Health/Health-Status/Under-5-mortality-rate/). A combination of factors contributes to these high levels, however, inadequate provider coverage especially in rural and marginalized communities along with the inadequacies in essential equipment, and community involvement in prevention are key contributors (WHO, 2020).

The effective utilization of a healthcare workforce is paramount to ensure high-quality and cost-effective care delivery. Sub-Saharan Africa is still challenged by lack of human resources for health. The World Health Organization (WHO) (2016) stated that 20% to 40% of the deficiency in the health system is due to workforce inefficiency and a weakness in health workforce governance. A critical role in health promotion and disease prevention is delivered by nurses and accounts for more than 50% of primary and community-based care. Nurses are key to realizing universal health coverage and achieving the United Nations sustainable development goals (SDG) (UN, 2015). Sub-Saharan Africa faces a critical shortage of health workforce. About 24% of the global disease burden occurs in Africa but only 3% of healthcare providers are
available. This matter is most pronounced in rural areas where 70% of the population lives (Zekeng, E. (2016). Doctor to patient ratio is approximately 20 times higher in urban compared to rural areas with 25% of doctors and 40% percent of all nurses residing in the larger cities (WHO, 2006). In every country the health status is worse in rural locations (Strasser et al., 2016).

With less than a decade remaining to achieve the Sustainable Development Goals (SDGs) 2030, many low- and middle-income countries are searching for cost-effective solutions to reduce maternal and child mortality (SDGs 3.1, 3.2), as well as deaths from infections, chronic diseases, road accidents, and environmental pollution (SDGs 3.3, 3.4, 3.6, 3.8, 3.9). To achieve these goals countries are focused on increasing access to medicines and vaccines, including modern contraception (SDG 3.7), and substantially increasing the recruitment, development, training, and retention of the health workforce, all in the context of strengthening primary healthcare and moving towards universal health coverage (SDG 3.8).

**Health Care Workforce**

Sub-Saharan African countries, like many other places in the world, struggle to increase the number of healthcare providers. Despite attempts to improve health and implement varied financial models for universal health coverage, equitable access to health, and essential primary health care remains elusive for millions of people particularly in rural locations (Williams et al., 2016). Integrating and optimizing the contribution of individual healthcare professionals functioning at full capacity is perhaps the most critical solution to improving health care access. Nurses, especially in rural communities, when there is significant need, and no other qualified providers to do the job, often work and practice beyond their scope of education (Fitzgerald et al., 2012). Unfortunately, most of these nurses have been denied the educational opportunity to develop to their fullest potential. A study by Msuya et al. (2017) found that nurses were prescribing medicines, performing minor surgeries, and completing complex tasks without the relevant skills knowledge and judgement.

**Advanced Practice Nursing**

The advanced practice nurse (APN) role was first introduced in the 1960s as a solution to the lack of primary care physicians necessary to meet the basic health care needs in rural and underserved populations in the United States (Woo, Lee & Tam, 2017). The APN is an umbrella title for nurses practicing at a higher skill level than general registered nurses and includes the role of nurse practitioner (NP) (Bigbee & AmidiNouri, 2000). Nurses are more than capable to
meet healthcare needs when allowed the requisite knowledge, skills, and competency. According to the International Council of Nurses, “an Advanced Practice Nurse (APN) is a registered nurse who has acquired the expert knowledge base, complex decision-making skills, and clinical competencies for providing advanced healthcare, the characteristics of which are shaped within the context and/or country in which they are credentialed.” (ICN, 2020).

The current need to reduce the global mortality rate from non-communicable diseases by 30% and improve maternal-child health in most countries can be effectively accomplished by well-educated APN’s that successfully function independently within the health care system (ICN, 2020). The World Health Organization (WHO) promotes a visionary pursuit of achieving “Health for All through Primary Health Care” by empowering nurses to work at the full scope of their practice” (https://www.who.int/docs/default-source/primary-health/declaration/gcphc-declaration.pdf). Advanced practice nurses are an effective and efficient resource to address the challenges of accessible, safe, and affordable health care, that has now been recognized by most developed countries (Fitzgerald., 2012).

**Nurse Practitioner role**

Nurse practitioners are APNs defined as “clinicians that blend clinical expertise in diagnosing and treating health conditions with an added emphasis on disease prevention and health management, NPs bring a comprehensive perspective and personal touch to health care.“ (AANP, https://www.aanp.org/about/all-about-nps/whats-a-nurse-practitioner) For this discussion the term nurse practitioner (NP) will be used as the main focus of APN in providing primary care. Nurse practitioners are RNs who are certified by professional or specialty nursing organizations and licensed to practice with their areas of expertise under the laws that govern nursing scope of practice within each country. They deliver primary care in small and large, private, and public practices, and in clinics, schools, and workplaces. They function in both independent and collaborative practice organizations, often taking the lead clinical, management, and accountability roles in innovative primary care models such as nurse-managed health centres and retail clinics (Naylor & Kurtzman, 2010). Nurse practitioners devote more time with patients evaluating their healthcare needs. They also, collaborate with other healthcare providers to ensure high quality of care delivery. Nurse practitioners make clinical decisions in situation of complex cases and refer cases as indicated. Finally, NPs help decrease the cost of healthcare service because patients who see NPs, have fewer emergency room visits, shorter hospital stays, and lower treatment costs.
In this regards NPs are primary healthcare professionals that offers a holistic and comprehensive approach to patient care that results in improved patient outcomes and satisfaction overall.

**Drivers for Nurse Practitioner Practice in Healthcare**

Studies have shown that healthcare provided by nurse practitioners is cost-effective, high quality, and equivalent or superior in some ways to care provided by other cadres, especially in the areas of prevention, maternal and child health, vaccinations, and managing non-communicable diseases (Huang, 2015). Evidence supports that NPs practice at a level equal to their physician counterparts (Sheer & Wong, 2008). Expanding the traditional role of nurses has contributed to improved patient care, enhanced patient satisfaction, reduced wait times, and eased the effect of physician shortages in healthcare delivery (Colombo, 2016). Accordingly, the U.S. Institute of Medicine (2010) suggested that transforming the healthcare system to meet the demand for safe, quality, and affordable care necessitated an important reorganization of the different roles among healthcare professionals. It further indicated that nurses are well positioned to meet the evolving needs and have a vital role to play in achieving patient-centred care, strengthening primary care services, and providing continuous coordinated care. This has led to calls for greater investment in nurse practitioner education as a key to strengthening primary healthcare (Shalala et al., 2011).

There is a growing evidence demonstrating comparable health outcomes for doctor or nurse led care in Sub-Saharan Africa (Humbusho et al., 2009). Many African countries debate the concept of task shifting versus task sharing; however, the emphasis should rather focus on advancing the nurses role to meet the needs of the populations they are already caring for. Empowering nurses to provide comprehensive care rather than performing single disease-based tasks. This debate has unfortunately delayed the development of a more comprehensive advanced nursing practice in Africa.

Compared to physicians, nurses are often more willing to reside in rural and underserved locations where they have lived most of their lives (Msuya et al., 2017). SDGs are not being met and there is a shortage of health care providers with the training and education to diagnose, develop treatment plans, and provide comprehensive care to patients. Currently, the nurse is serving in locations that are undeserved and in ways that surpass their education and training. Nurses are willing to fill these gaps and provide care to these vulnerable populations but need the education
and support to do so. Furthermore, their scope of practice is currently confined to basic maternal and routine paediatric care, immunization, disease prevention, health promotion, assessment and management of simple health conditions, and some rehabilitative services without the advanced knowledge needed to manage more complex and emergent situations in a timely manner.

Therefore, deliberate efforts must be made to ensure nurses are provided the expanded knowledge and skills so they can safely deliver comprehensive healthcare to the general population. The WHO 2008-2012 progress report on nursing and midwifery (World Health Organization, 2013), stressed the necessity to develop specialized nursing and advanced practice roles supported by core competencies to meet population health and health services needs in a revitalized primary health care system. Strengthening advanced practice nurses as an overall strategy to increase the primary health care workforce in Africa. Nurse leaders across Africa have begun to explore strategies that support the NP role development in their countries (Bryant-Lukosius et al., 2017).

**Satisfaction and increased utilization of Primary Health Care**

Considering the empirical evidence related to patient satisfaction many countries have implemented the NP as a primary healthcare care provider. A study by Schönenberger et al. (2020) found that despite the role unfamiliarity, many patients preferred to be consulted by a nurse practitioner. It was further observed that patients seen by a NP felt safe, well cared for, and experienced improvements in physical and psychological well-being. Leipert (2011) and Martin (2010) affirmed that the introduction of a nurse practitioner into primary care increased patients access to health promotion and prevention services, met community needs, and improved the quality of care for acute and chronic disease management. Similarly, Advanced nursing practice supported the development of a motivated workforce by promoting staff satisfaction (Graveley & Littlefield, 1992) and facilitated the recruitment and retention of high-quality nurses (Walker et al, 2009).

**Evidence from Sub-Saharan African countries with NP roles.**

In many developing nations, the nurse plays a very prominent role as a primary care provider of health services. In the early 1980’s Botswana became the first country in Africa to successfully integrate the NP role into their primary healthcare system as an advanced certificate program for diploma trained nurses. Like many other developing countries, the Botswana healthcare systems is based on a primary care model where nurses make up 70% of the
healthcare workforce. The nurse practitioner is a robust part of the health care delivery system with the emphasis for this role on assessment, diagnosis and management of common diseases, health promotion and disease prevention (Goodyear 2012).

The University of Botswana educates more than 200 nurse practitioners each year that are now deployed in rural and underserved areas (Goodyear 2012). This has enabled Botswana to reduce the infant mortality rate from 54/1000 live births in 1980 to 32/1000 in 2019; maternal mortality has dropped from 278/100,000 live births in 2008 to 144/100,000 in 2017; and life expectancy has increased from 60 in 1980 to 69 in 2019 (Seitio, 2000). The nurse practitioner role has significantly impacted health in Botswana and is a very positive example for empowering the nursing workforce.

Ghana has similarly developed a nurse practitioner role to meet the health needs of the country. The program was developed in conjunction with the University of Michigan. Nurse practitioners graduate with a Bachelor of Science in nursing. In 2017, The Kingdom of Eswatini (formerly Swaziland) has developed a NP role to help with the significant disease burden of HIV/AIDS, high maternal mortality at 480/100,000, and infant mortality 39/1,000 live births in 2019 (Dlamini et al., 2020). The university of Swaziland partnered with Seed Global Health to strengthen nursing by building a versatile advanced nursing discipline in the country.

Family nurse practitioners create life-changing and life-sustaining access to health care by providing an advanced nursing role for rural and particularly vulnerable communities. Educational programs ensure there is a continuous pipeline of experts and skilled, confident, and competent educators (Seed Global Health report, 2018).

**Implications for the implementation of nurse practitioner role in Tanzania**

The Tanzanian healthcare system is also challenged by an under-educated nursing workforce and lacks an adequate distribution of physicians wanting to live in and provide care to the disadvantaged population in rural areas. In Tanzania there are four doctors and 41 nurses/midwives for every 100,000 Tanzanians. Nurses are more than twice as likely to practice in rural underserved communities where 70% of the population lives (Tanzanian National Bureau of Statistics TNBS, 2011). In order to meet the health needs of the Tanzanian population, nurses are routinely expected to perform duties well beyond their level of expertise and knowledge base.
Nurses working in remote areas are routinely practicing above their level of education by prescribing medicines and performing minor surgery. In a survey done by Msuya et al (2017) nurses reported they were frequently prescribing medicines at work (68%). Those working in small rural clinics were most likely to prescribe because they were often the only provider available to do so (94%), in health centres (79%), and in district hospitals (54%). In addition to prescribing medications nurses were regularly performing minor surgeries (84%), including suturing (85%), incision/draining (50%), and circumcision (13%). Only 4% of these nurses had a bachelor or higher nursing degree, 42% had diploma and 51% were educated at the certificate level. Furthermore, the study pointed out that only 22% of nurses had any advanced knowledge on disease management, most of that in the form of single disease-based tasks. Despite the best efforts of nurses to fill the gaps in service provision, the study found delays in filling prescriptions, high rates of incorrect diagnoses and treatment, and poor documentation of services performed (Msuya et al., 2017).

A positive finding in the study was that more than 90% of nurses and healthcare providers supported better training and a greater role for nurse practitioners. These nurses were working in primary health care services and were willing to stay in their rural and underserved communities. Efforts must be made to ensure they are capacitated with expanded knowledge and skills in such a way that they will be able to deliver comprehensive healthcare to the general population. The advanced training of nurses is paramount for improving health care for Tanzanians with proper disease prevention, diagnosis, treatment, and referral, for the major acute and chronic diseases affecting the most vulnerable communities, providing significant population health improvements.

A program has been in development since 2016 through a collaboration between Duke University School of Nursing (DUSON) and Kilimanjaro Christian Medical University-College (KCMUCo) Faculty of Nursing. The aim of the collaboration is to strengthen and expand the role of nurses that work in remote and undeserved regions. Since most nurses in Tanzania have only completed a Diploma in Nursing it is prudent to level nurse practitioner practice to the Bachelor of Nursing, a trend started in the United States and currently practiced in Botswana and Ghana. These nurses are already providing primary care in the community, and it would be much more realistic in both time and money. The current push to educate them at the master’s level could be
problematic in a country like Tanzania but as the role progresses over time that can be re-assessed.

Following a consensus meeting about the development of the Family Nurse Practitioner role in 2015 that included: representation from the Tanzanian Ministry of Health, Community Development, Gender, Elderly, and Children Tanzania Nursing and Midwifery Council, the Tanzanian Nurses Association, National Institute for Medical Research, KCMUCo, DUSON, and other important stakeholders, approval was given by the Tanzanian Ministry of Health (TMoHCDGEC), to start a family nurse practitioner pilot program at KCMUCo. A Curriculum has been developed and a faculty member from KCMUCo has completed the family nurse practitioner program. At the university of Botswana.

Conclusion

The introduction of advanced practice roles in Tanzania as well as other parts of Sub-Saharan Africa, will continue to build the roadmap for introducing those roles in low- and middle-income countries where few such roles exist. Achieving optimal impact for improving universal health coverage, meeting global SDGs, and access to health care, requires a multisectoral and multidisciplinary approach. The nurse practitioner role will provide an overlapping scope of practice between nurses, physician, medical officers, and other non-physician providers and recognition of the historical context of role development to enable all professions to work collaboratively to provide optimal care for patients in an effective healthcare system for all Tanzanians. The NP role is not a substitute for physician practice or for any other health providers, but augments health care to provide and improve the health of the nation. All cadres of health providers are needed to meet the demand and promote health in Tanzania.

Nurse practitioner leadership is required to advocate for policies that support nursing practice in new care delivery models providing a better balance between health promotion. Prevention, and disease-focused care (Kendall et al., 2012). Leaders need to incorporate strategies for supporting the role and promoting interprofessional teamwork (Dahn et al., 2015). However, the successful implementation of the APN role requires political, organizational, managerial support, and international organizations to be at the doorstep to embrace the advancement of the new role.
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