



## Enhancement of oncology nursing education in low- and middle-income countries: Challenges and strategies



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### ABSTRACT

Cancer prevalence is estimated to increase in low- and middle-income countries (LMICs) in the coming years, imposing a significant burden on these countries. Therefore, an effective oncology nursing workforce will become increasingly important. Previous studies have suggested that advances in oncology nursing education may contribute to both a reduction of the current cancer burden and improved patient outcomes. However, such education in LMICs is comparatively underdeveloped. Contributing to this phenomenon are the lack of educational pathways and legislation for mandatory training of nurses to specialize in oncology, insufficient opportunities for continuing education and inadequate time for nurses to undertake training. Therefore, strategies need to be developed and implemented to enhance oncology nursing education in LMICs. We discuss the challenges currently faced by LMICs in implementing effective oncology nursing training, and suggests recommended strategies to address these challenges.

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### 1. Introduction

Cancer is one of the most prevalent non-communicable diseases worldwide. In 2012, the global incidence was reported to be 14 million [1]. Of this very large number of newly diagnosed cases worldwide, over 50% (8 million) were reported in low- and middle-income countries (LMICs) where many patients go undiagnosed [1]. Further, cancer is predicted to be the major disease in these countries by the middle of this century. It is estimated that 65% of new cancer cases worldwide in 2050 will be reported in LMICs [2], indicating a significant disease burden.

Despite this heavy cancer burden, resources required for cancer control remain limited in LMICs. For example, the number of registered oncology health professionals in South Africa is less than 0.1 per 10,000 population [3], reflecting the inadequacy of cancer-related health services. Further, due to the global shortage of the healthcare professional workforce, nurses with expertise in cancer care are lacking in LMIC [4,5]. This situation leads to the general public's inability to access cancer care services in these countries. Thus, enhancement of oncology nursing education is clearly needed in LMICs, not only to expand the workforce to provide cancer care services, but also to improve quality of such services.

The importance of oncology nursing education in reducing the cancer burden has been recommended before. For example, oncology nurses are able to provide education for community health workers (CHWs) on cancer and its prevention. This has been shown to equip CHWs with an adequate level of knowledge on various aspects of cancer, including risk factors [6], enhancing their ability to disseminate the importance of healthy lifestyle behaviour in

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cancer prevention among the public. In addition, oncology nurses are usually deployed in delivering educational interventions for the public on the importance of cancer screening [7], an effective means of prevention. The enhancement of oncology nursing education to increase nurses' ability to perform their current role has the potential to contribute to reduce cancer incidence. In other words, specialized oncology nursing education plays a crucial part in reducing the global cancer burden.

This article provides an overview of oncology nursing education in high-income countries (HICs) and its contribution to cancer care. Next, current challenges to oncology nursing education in LMICs will be identified. Last, strategies that can be employed in strengthening oncology nursing education in these countries will be presented and discussed.

## 2. Oncology nursing education in HICs and its contribution to cancer care

Oncology nursing education is already an established concept in HICs. In 1954, cancer education began to be incorporated in some undergraduate nursing programs. In 1947, oncology nursing at a master's level was offered at Columbia University in the United States (USA) to provide training in specialized areas of clinical oncology [8]. Today, oncology nursing courses are provided at most major institutions in HICs. For example, advanced post-graduate courses are available at universities in Australia, Canada, the United Kingdom (UK) and the US for registered nurses. These courses train students to care for cancer patients by providing the knowledge of cancer progression and current strategies of detection and treatment, as well as evidence-based nursing practice. Continuing education specializing in cancer care is also provided by professional organizations for oncology nurses. For example, the Oncology Nursing Society (ONS) in the US and the European Oncology Nursing Society (EONS) organize educational conferences for oncology nurses to enhance their knowledge in cancer care [8,9]. Generally speaking, the current educational system in training nurses to join the oncology nursing workforce in HICs is reasonably well-established and enables nurses to develop their knowledge and skills in cancer care.

With advances in oncology nursing education, cancer patients in HICs benefit from improved quality of cancer care. Indeed, studies have shown that the delivery of cancer care by qualified oncology nurses specializing in both adult and/or paediatric oncology nursing is associated with improved patient outcomes and safety issues. For example, oncology nurses play an important role in assisting cancer patients to manage the undesirable symptoms and side effects associated with cancer treatment, thereby improving their quality of life [10,11]. They also ensure patient safety when administering chemotherapeutic agents [12]. Further, oncology nurses who possess adequate knowledge about the disease help patients reduce the suffering caused by fear of their condition. This reflects the finding that cancer patients appreciate opportunities to talk to a knowledgeable oncology nurse, since it enables them to feel more secure and eliminates misgivings about the suffering they think they may face during cancer treatment [13]. In other words, oncology nurses not only help cancer patients by relieving their physical discomfort through effective symptom management, but also by reducing the psychological distress they may face as cancer survivors. All these contribute to improving patients' quality of life. In addition nurses specialized in oncology care reduce the burden of cancer by providing evidence-based care to minimize chemotherapy errors on wards dedicated to patients with cancer when compared to general wards [14].

Given the crucial importance of oncology nurses in the provision of high-quality care, it is essential to expand the limited

current workforce in LMICs where the cancer burden is expected to increase in the coming years. However, before strategies to enhance oncology nursing education can be developed, it is necessary to understand the challenges for the implementation of specialized education in LMICs.

## 3. Challenges to oncology nursing education, training and practice

### 3.1. Lack of educational pathways for specialization in oncology nursing

In recent years, the global shortage of qualified healthcare workers has become increasingly severe, and the deficit of doctors, nurses and midwives was estimated to reach 2.4 million in 2011 [15]. This shortage also applies to the healthcare workforce in oncology. The enhancement of specialized oncology nursing education is therefore of paramount importance in expanding the global healthcare workforce. Although educational programs leading to the award of a bachelor degree certificate or a diploma in nursing are available [16,17], training may not include specific training in oncology nursing in some LMICs.

Nurses in LMICs primarily rely on on-the-job training in cancer care. Their experience in oncology nursing is further compromised by mandatory rotation among various units within the hospital [18], which limits the nurses' clinical experience and ability to skillfully assess the patient, provide the appropriate interventions and monitor patient outcomes. Moreover, there is only a limited number of oncology nursing specialization programs available in LMICs, often due to the shortage of specialized nursing faculty. Healthcare organizations and hospitals rarely provide disease-specific training for nurses to acquire the skills and the knowledge-base necessary to develop their expertise in a specialty such as oncology nursing.

Previous studies have shown that the work of more highly educated, skilled nurses providing standardized quality care leads to decreased patient mortality [19], and that certified nurses, or nurses with ample experience in a particular clinical specialty, lead to improvement in patient outcomes in hospitals [20]. Therefore, the provision of nurses with more advanced training in oncology nursing, as well as improved access to recent cancer-related information, are likely to be beneficial to the enhancement of oncology services in LMICs [21], thus saving patients' lives. Unfortunately, advanced oncology nursing training is currently not available in most LMICs [18,22].

### 3.2. Lack of legislation to consolidate training pathways for advanced specialized nursing roles

Recently, the World Health Organization (WHO) took steps to ensure that oncology nursing training was augmented worldwide. During the 64th World Health Assembly in 2011, the WHO urged members to strengthen the capacity of their nursing and midwifery workforce, with the Organization's support [23]. Furthermore, the WHO passed the 'Global Action Plan for the Prevention and Control of Non-Communicable Disease: 2013–2020', that requests an enhancement in institutional capacity for training nurses and a wider scope of nursing practice for the prevention and control of non-communicable diseases, including cancer, as well as enhancement of nurses' career development [24].

However, few LMICs have proposed legislation to make nurses' specialty training (including oncology) mandatory. To date, only the Philippines has passed a mandate to instruct the Department of Health to provide an educational programme for nursing specialization, described in the Nursing Act of 2002 [25]. Thus, most nurses in LMICs do not possess expert knowledge of what cancer

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