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Challenges in mammography education and training today: The perspectives of radiography teachers/mentors and students in five European countries

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ABSTRACT

Introduction: This study aims to explore current challenges in mammography education from the perspectives of radiography teachers, mentors and students.
Methods: A qualitative study including two focus groups interviews, with radiography teachers/mentors (n = 5) and student radiographers (n = 5) exploring their perspectives on challenges in mammography education today. The content analysis methodology proposed by Graneheim and Lundman was applied to the interviews.
Results: Three main categories were identified, each with subcategories identified as: (1) Building Bridges; Applying Theoretical knowledge in Practice, Performing Mammograms, Communication and Quality Assessment (2) State of the Art in Mammography; Personal Attitudes and Skills, Quality Awareness and Patient Care (3) Exploring the Curriculum; Time Constraints, Capacity in Clinical Placement, Multidisciplinary Field and Elective Course.
Conclusion: The short study period allocated to this discipline and lack of material resources were considered the main limitations in mammography education, both impacting on the development of students' skills. Breast positioning, patient communication and quality control were considered key factors affecting mammography performance, patient experience and diagnostic outcome and should therefore be the core focus in mammography education.

Introduction

For women, breast cancer is the most common cause of death from cancer worldwide. It is the second leading cause of death from cancer for women in developed countries.[1] In Europe, 5-years survival rate range from 71% to 87% in women diagnosed with breast cancer.[2] Earlier detection and diagnosis of breast cancer are crucial to improve survival rates and reduce the need for aggressive treatment such as mastectomy.[3] There are several methods of detection. Aside from breast self-examination (BSE) and clinical breast examination (CBE), diagnostic (symptomatic patients) and screening (asymptomatic patients) mammography are the imaging procedures, mostly used to diagnose breast pathologies. The aim of screening mammography is to detect any breast pathology earlier than self-palpation or clinical breast examination.

This work is focused upon the degree pathway and therefore, whether in clinical or screening settings, mammography imaging procedures are performed by radiographers. The vast majority of European countries train the radiographers to level 6 in the European Qualifications Framework (EQF), which means the equivalent of a Bachelor of Science (BSc) degree. However, the level of emphasis on the acquisition of mammography knowledge, skills

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and competences in the BSc Radiography curriculum varies from country to country for both the theoretical component and practical training.[4] Moreover, in some countries, radiographers involved in national or local screening programmes are trained on the job, whilst in others, a specific official continuing professional development (CPD) certificate is required in order to work in a mammography screening programme.[5]

This paper aims to identify challenges in mammography education arising from the BSc Radiography degree curricula in Estonia, Finland, Norway, Portugal and Switzerland. In order to elucidate and understand the inherent challenges of the BSc degree curricula as well as the educational and training practices flowing from it in both higher education and clinical institutions, focus group discussions were carried out.

The research question: "What are the challenges of mammography and breast cancer education today within radiography degree programmes?" was followed up with complementary questions in order to capture details on optimised practice and improved diagnostic performance.

Method

Study design

This study aimed to explore challenges in mammography education from the perspectives of radiography teachers/mentors and students. A qualitative approach with focus group interviews was applied and recommended[6,7] given that the study is concerned with identifying common experiences and points of view.

Participants

Two focus group interviews were conducted, one with radiography teachers (n = 2)/mentors (n = 3) and one with radiography students (n = 5). Each focus group included one voluntary participant from each country taking part in the education and training in early detection of breast cancer for health care professionals (EBreast) project: Estonia, Finland, Norway, Portugal and Switzerland. Participating radiography teachers/mentors all had several years of experience as teachers in the field of mammography or as radiography students' mentors supervising the clinical placement in mammography. All the radiography students interviewed had completed the required theoretical and practical education components between their second and fourth years of education. An interest in mammography as a topic was required of all participants, as well as the ability to express themselves in English.

Focus group interviews

The focus group interviews were carried out in April and May 2016, and lasted 160 min for the radiography teachers and mentors, and 120 min for the student radiographers. The final sample size of student radiographers was four, as the student from Norway did not attend. Interviews were performed using web conferencing software and the audio was recorded. In order to minimize any potential language bias, two researchers conducted the interviews together with the support of one IT expert. The interview questions were derived from the results of a survey and an integrative review of this topic.[8] The semi-structured focus group interviews covered theoretical and practical challenges related to key components such as quality assurance, new technologies and patient care. In addition, administrative issues and suggestions for improvement were also topics.

Data analysis

The content analysis was carried out within the framework described by Graneheim and Lundman.[9] The first author transcribed the interviews. Each transcription was read several times to get an overall sense of the text to be analysed,[10] to anonymize and for corrections. During analysis, units of meaning were identified and abstracted, condensed from the contents area and coded using Graneheim and Lundman's[9] suggestions. For example, challenges relating to clinical placements were developed by asking: "What are your experiences with performing mammograms?" (Table 1). All related codes were sorted and categorized as recommended.[11] The final analysis identified eleven sub-categories and three main categories: Building Bridges, State of the Art in Mammography and Exploring the curriculum. The first author and one co-author analysed the material independently and subsequently reached a consensus on the emerging categories in order to ensure the trustworthiness of the results.[12,13]

Ethics

The participants gave their informed consent to take part in the study. Each institution allowed the respective participants time off to take part in the interview during their hours of work/study. No ethics or research committee permissions were required for this study.

Results

This study's main findings are grouped into the following three categories: (1) Building Bridges, (2) State of the Art in Mammography and (3) Exploring the Curriculum. Each category has 4-3-4 sub-categories, respectively, with their specific codes (Table 2).

Building bridges

Applying theoretical knowledge in practice

The students mentioned the challenges of applying all the theoretical knowledge in practice. They cited the need for basic knowledge of physics combined with technical knowledge relating to exposure parameters adapted to each clinical context and patient. Anatomy and pathology knowledge was also reported as necessary to assess the criteria for image quality and exposure

Table 1
Examples of meaning units, condensed meaning units and codes. Interview number, informants, text line (2, 4, 12).

Meaning unit	Condensed meaning unit	Code
For me I think it is the positioning which is the main challenge it is very hard (2,4,12)	Challenging and hard to position	Hard to position
The phantom is not enough to know the real challenges so we practice on our colleagues (2,3,33)	Phantom is not challenging enough therefore colleagues	Practice on colleagues
There is no phantom that are like a proper patient to position a mammogram (1,2,154)	No phantom like a patient	Positioning on the real patient
It takes a lot of time to practice and learn how to position the patient (1,3,73)	Takes time to learn positioning	Time consuming

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