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Commentary

Strategies to develop student support mechanisms in medical radiation sciences clinical education

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ABSTRACT

Clinical placement experience is an important component of medical radiation science (MRS) education, equipping students to safely transition into complex healthcare environments. This commentary draws on evidence from the literature that reports challenges allied health students face in clinical environments. As several factors are implicated that could result in a higher prevalence of psychological distress and mental ill-health in MRS students, there is a need to re-emphasize the importance of developing strategies to support students in clinical education. A key recommendation is to identify associated risk factors early as they can impact on the quality of education and in severe cases be detrimental to students' psychological well-being. This requires an understanding of the full extent and nature of the challenges through partnered approaches between professional organisations, clinical departments, academics and students. Developing evidence-based strategies for improving students' well-being in clinical environments is also essential.

RÉSUMÉ

L'expérience de stage clinique est un élément important des études en science de la radiation médicale (SRM), donnant aux étudiants

les outils nécessaires pour une transition sécuritaire vers l'environnement complexe des soins de santé. Ce commentaire s'appuie sur les données probantes tirées de la littérature scientifique qui rapporte les défis que les étudiants en science de la santé rencontrent dans le milieu clinique. Comme il existe plusieurs facteurs pouvant conduire à une plus grande prévalence de détresse psychologique et des problèmes de santé mentale parmi les étudiants en SRM, il est nécessaire de rappeler l'importance de développer des stratégies pour appuyer les étudiants en stages cliniques. Une recommandation clé porte sur l'identification des facteurs de risque connexes, puisque ceux-ci peuvent avoir une incidence sur la qualité de l'éducation et, dans les cas plus graves, nuire au bien-être psychologique des étudiants. Ceci exige une compréhension de l'étendue complète et de la nature des défis, en utilisant des approches de partenariat entre les organisations professionnelles, les services cliniques, les enseignants et les étudiants. Il est également essentiel de développer des stratégies fondées sur les données probantes pour améliorer le bien-être des étudiants en milieu de stage.

Keywords: Medical radiation science students; Clinical education; Challenges; Well-being; Support

Introduction

Clinical training is a core component of many allied health education programs which enables students to transition

from a novice to a truly competent practitioner.¹ The complexity of the learned experiences in the clinical environment remains impossible to fully replicate, even with advancements in simulation technology. While the clinical environment may provide a more authentic learning environment, it is not without risk to the students. There is a growing concern students are experiencing high levels of stress which could lead to physiological and psychological ill-health.^{2,3} A

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report published in Australia by the National Centre of Excellence in Youth Mental Health (Orygen Report)⁴ suggests that at least one in four university students will experience mental ill-health in any given year, with health students at particular risk. This also increased awareness of various factors that can result in mental health issues among university students.

Off-campus experiences are unique due to several factors including the very nature of hospital or clinical environments. While clinical placement experiences for Medical Radiation Science (MRS) students are often well supported by teaching teams and clinical educators, there are several published articles report a range of challenges associated with mental illness among allied students.⁵⁻⁷ Therefore, understanding the possible challenges for students is an important consideration. While it is not an easy task to capture all possible challenges students can face, there is a need for continued efforts in providing a safe, supportive environment. When students enter clinical environments they bring their own individual set of characteristics and backgrounds that make them unique. It is therefore important to consider issues specific to women,⁸ students from indigenous communities, low socio-economic backgrounds, rural areas as well as international students and how these groups may respond differently to stress.⁴ The unprecedented Novel Coronavirus (COVID-19) pandemic recently added additional stress to learning environments,⁹ increasing demand for support services, requiring universities to invest more resources to develop more effective strategies for improving student's mental health.

This article aims to discuss a range of risk factors that could affect MRS students in off-campus clinical environments as well as strategies to support students.

The nature of clinical placements

It is the authentic nature of learning in clinical departments which provides direct observation, hands-on clinical practice and precise feedback from clinical mentors and educators that enables students to acquire relevant knowledge and skills to succeed in the MRS profession. Mackay¹⁰ contends the 'repeated exposure to patients and real-life scenarios' enables MRS students to practise necessary patient care skills. Radiation Therapists (RTs) primarily work in a multi-disciplinary environment where they apply knowledge of radiation therapy technologies and a range of clinical skills in the management of cancer patients. Early clinical placement experiences are often short observational experiences, but even these short periods of exposure coupled with the limited student knowledge of the hospital environment could trigger unexpected emotional responses particularly for young students. Since cancer is construed a debilitating illness, initial encounters with real patients undergoing treatment can be emotionally burdensome,¹¹ particularly in palliative treatments. This is inevitable as caring for cancer patients is the nature of the profession. Hence students must be equipped to deal with any challenges including emotional distress and negative emotions not related to patient encounters.

Radiography students working in acute clinical settings such as hospital emergency departments are also confronted with an environment that can challenge their emotions.¹² Patients that are acutely unwell or in significant pain place significant additional burdens on the healthcare team making learning difficult to manage in what is often a time-critical environment. In some situations, students may become isolated as a result of operational requirements forcing them to work more independently without direct mentor supervision. A critical evaluation of student radiographers' experience following their first clinical placement identified these types of experiences, in general, were positive providing a successful platform for further placement, but not for all students.¹³ Therefore, when managing students in clinical environments, challenging experiences that are not addressed have the potential to adversely affect future clinical experiences.¹⁴

Identifying risk factors

Mazur et al.,¹⁵ discuss how students are likely to experience technical, environmental, teamwork, time and patient-related challenges within the clinical environment. Identifying the root cause of the challenges faced is not often easy¹⁴ and an attempt to isolate the factors can be challenging as these are often interrelated. This suggests several factors can impact MRS students and exacerbate or result in psychological distress⁴ that can go undetected. Financial and workload related factors have also been highlighted in the allied health literature.¹⁶⁻¹⁹ As MRS students are not unique in terms of their exposure to potential stressors in clinical environments, there is also an opportunity to learn from the wider healthcare literature. Fig. 1 shows the broad range of factors that can contribute to the challenges students encounter during their clinical learning journey.

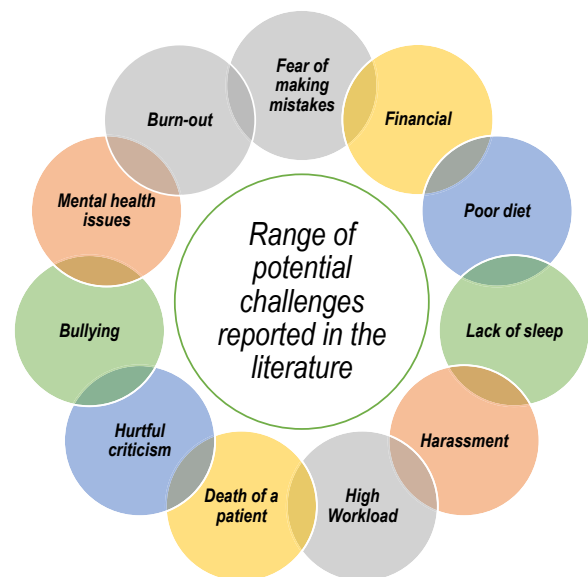


Fig. 1. The range of associated risk factors students can potentially encounter in clinical environments.^{1,12,13,15,20-28}

Stressors

A study by Eslick and Raj²⁰ found occupational stress was prevalent among qualified radiographers and a result of high workloads and on-call or overtime work. Rajan¹² also discussed Radiography specific stressors such as unavailability of doctors, attending multiple accident cases at the same time, the physical nature of operating large x-ray machines and bending and lifting of overweight and obese patients. Recent studies have also reported burnout and compassion stress among qualified RTs.^{21,22,25,29} It is possible students' learning could be impacted by the same stressors as staff are exposed to in the clinical environments. In a research study, Mason¹ identified several factors such as fear of making a mistake, feeling unprepared, intimidation, hurtful criticism by clinical staff members and other challenges related to difficult patients that could also impact students, as highlighted in Fig. 1. Mason¹ argues the sources of stress in clinical environments might be different for students, hence the need for ongoing strategies to identify the challenges specific to students.

More severe challenges such as bullying and harassment (including sexual harassment) on clinical placements are also highlighted in the literature. In a study conducted by the Society and College of Radiographers (UK), bullying was identified as one of the challenges students face during clinical placement.²³ In this study, 62.9% (161) respondents felt they were subjected to bullying, which could also contribute to mental illness and other challenges for the students. It is also concerning to note that in the allied health literature, there are reports of sexual harassment^{30,31} specific to clinical placement, making it a very important consideration in developing awareness and support resources for MRS students. Other sources of stress and anxiety include encountering palliative patients²⁴ Though less common in MRS students, radiography students may encounter the death of a patient particular in the larger accident and emergency department. In a research article, Kobe et al.,³² discuss the second victim phenomenon in which a practitioner can experience emotional experiences after the occurrence of an incident. In MRS students, an example could be accidental exposure to radiation. The impact can be emotional and psychological reactions including guilt, worry, anxiety, shame, anger and regret³² which could also occur in students during clinical placements.

Workload -related

Students are typically allocated a reasonable workload in clinical environments through the support of clinical educators or mentors. However, lecturers can enhance the clinical placement experiences by making sure students do not have a significant assignment workload, so they can focus on their clinical learning. In most MRS programs, limited flexibility in the delivery of content in on-campus blocks is a result of the need to ensure the students spend adequate time in clinical departments so they can gain skills to safely transition into

their future workplaces. A suggestion from Maidment³³ is to adequately prepare students and provide them with resources before they arrive at clinical sites. This can be difficult when unprecedented changes occur that disrupt the way clinical placements are organised. For example, in response to the COVID-19 pandemic, there was a need to bolster the workforce to increase availability and flexibility to support service delivery.³⁴ This resulted in the recruitment of students to be allied health assistants benefitting clinical departments in managing a health crisis. However, it is paramount to retrospectively review how such changes can impact students and how future challenges can be addressed.

Financial and other factors

Many students now simultaneously engage in paid work commitments to support studies and their dependents. The burden of maintaining work commitments, with the potential increase of travel and other expenses while on clinical placement, cannot be overlooked. There is also a wide variety of clinical placement weeks students undertake at different universities. Clinical placement periods can extend to as much as 10 weeks, which can impact students' financial circumstances. Though many universities might offer scholarships or bursaries, availability varies. Therefore, students can be discouraged and opt to maintain paid work during clinical placements. This is not a suitable option as they could suffer from fatigue or encounter additional pressures which can lead to burnout and stress.¹⁶

Several other risk factors such as lack of sleep and poor diet reported in the literature can also impact MRS student well being.^{35,36} Caruso³⁷ suggests making sleep a priority to reduce the risks associated with fatigue in the workplace. In some cases, fatigue could be a symptom of some of the real challenge's students could be facing. In a review, Martin³⁸ emphasizes the importance of physical activity for university students to maintain good health and wellbeing. MRS students should be encouraged to exercise regularly, have sufficient restful sleep and a good diet, particularly when on placement.

Preparing students for placement

Better preparation for students is vital for their success in both the clinical and university environments. Several methods are currently being applied to ensure students access the necessary information and support resources before attending a clinical placement. The information expressed during the pre-clinical information sessions often includes a discussion of the key contact persons at the university and expectations in the clinical environments and other supportive resources depending on the institution. Further, the literature suggests the need for clear guidelines on the roles, responsibilities that students, university and clinical departments should be familiar with.⁴ This should also include referral protocols in case challenges are encountered. Maidment³³ postulates emphasis on education should also be given to providing the students with the skills to survive and negotiate workplace

cultures. Recently, there has been an emphasis on embedding resilience³⁹ and emotional intelligence⁴⁰ as critical skills in pre-registration MRS programmes. It is encouraging professional bodies are playing a significant role in developing research and student support guides to educate and empower students to deal with potential challenges such as bullying.^{23,41}

Many universities provide pertinent information through student eLearning platforms or community sites. However, there are no guarantee students easily access resources when off-campus. Access to university-based counselling services could be challenging. The Orygen report⁴ mentions an increase in the number of university students seeking mental health illness support via online interventions, suggesting the need to investigate possible online and mobile applications that could support student learning and improve coping mechanisms in the clinical environment. Mobile learning is becoming apparent in clinical environments.⁴² Thompson et al.⁴³ suggested the use of online platforms to provide online support MRS students when face-to-face support is not possible. However, the integration of technological innovation as part of a toolkit to support students is not without challenges. A study by Mackay, Anderson, & Harding⁴⁴ reports barriers such as a lack of wireless connectivity in the clinical environment and a concern around unprofessional behaviour in the use of mobile technology. For instance, some students may use them to access social media rather than using them to enhance their learning.

Enhancing experiences and supporting students

Many strategies can be used to improve the student's clinical placement experiences. For instance, Rodger⁴⁵ suggested a collaborative approach and ongoing communication among clinical educators, their managers, and the academic faculty. Boston⁴⁶ also suggested the use of reflective practice to empower students to express experiences otherwise difficult or impossible to communicate. Students also benefit from frequent and positive feedback from clinical mentors¹ and are also the first to identify any problems.

Support from clinical mentors and supervisors

MRS students also rely on qualified practitioners to help them develop and refine their clinical skills during clinical placement.⁴⁷ Though research from other health professions shows students do not always feel supervision is provided in a supportive manner.⁴⁸ According to the Australian professional capabilities for medical radiation practitioners⁴⁹ (page 18), Australian practitioners are expected to '*use appropriate strategies to effectively supervise students in the work environment and deliver feedback (verbal and written) to the student and the education provider on their performance*'. This is an important recognition of the important role qualified mentors play in the development of coping mechanisms including learning ways to stay safe, identifying and managing stress and other demands not directly related to clinical placement. In a study

involving qualified RTs and oncology nurses, Poulsen et al.⁵⁰ analysed the types of stressors within a radiation oncology work environment, in order to reduce them. The study suggests qualified RTs are good at employing different mechanisms to cope with stressful challenges. As such, they are well-positioned to equip students to feel they can work safely and learn more effectively. Once students know qualified staff also face challenges, in social or work-related interactions they might feel comfortable to engage in discussions so that a transfer of the coping mechanisms to the students can occur.

When symptoms are identified

It is important to recognise that it is not easy for students to report challenges they might face in the clinical environment. However, they need to be aware of the appropriate processes available to them within the clinical placement environment or university should they encounter problems.

In the event of stress and anxiety associated with the death of a patient, it is common that students talk through their emotions with other students or relatives, while others turn to religion,⁵¹ hence may not directly seek support from their clinical educators or university contacts persons (4). This suggests the relationship between the educators and the students is crucial as some students will try to mask the emotional impact. Learners often expect the university lecturers to be the mediation between student and the clinical staff members in cases where there is a need to identify a solution to a problem.

Ongoing and effective communication between the clinical departments and the university is an important step. Whiteside et al.⁵² highlight the importance of partnered approached between clinical sites, universities and professional bodies to ensure students' learning, privacy and professional engagement is protected. Students grappling with emotional stress could be provided time to attend support sessions during the clinical placement periods in consultation with their supervisors. Further, they should be encouraged to seek support on their return to the university environments. A post-clinical debrief can also be a useful tool in equipping students to better deal with events in future placements. As Dungey and Naser⁵³ suggest, debriefing can also assist academic staff to address any gaps before their next clinical placement experience.

Potential barriers

In a systematic review, Hartrey et al.⁵⁴ identified several barriers, however, the stigma of mental health illness remains the biggest barrier to identifying the challenges. The fear of failing the clinical subject is also another reason many students would not access the support they could potentially gain from clinical educators or the university. An Australian study by Wynaden⁵⁵ also suggests there is a stigma associated with mental health issues, particularly within university environments. Therefore, it is important MRS professional bodies work toward identifying ways to encourage disclosure among MRS students and overcome stigma. Investment in mental health literacy campaigns could be one way of addressing mental health-related stigma.⁵⁶

Summary

While MRS students generally experience rewarding clinical placements,⁴¹ there could be a few impacted by challenges reported in the literature. Therefore, it is important to design ways for capturing emerging problems and to actively engage new approaches to transform clinical education for the benefit of the profession. Collaboration between clinical departments, universities, and students, professional organisations is important in identifying challenges including those which could be inevitable and are an integral part of learning and growth as a health professional. The authors acknowledge the level of support for the students differs in institutions. However, in all settings, ongoing review of existing support mechanisms is necessary.

Conclusions

This commentary paper highlighted several challenges that could adversely affect MRS students' well-being and academic performance. Learning ways to stay safe in clinical environments, managing stress and other challenges not directly related to clinical settings is important. We recommend deliberate approaches in developing targeted strategies to equip students with the skills to negotiate workplace cultures. An exploration of the full extent of the challenges faced by undergraduate MRS students could help provide clear guidelines for the development of specific interventions or supportive frameworks for integration in education.

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