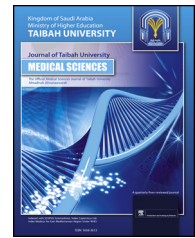




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Original Article

Clinical students' reflections on the preclinical anatomy learning experience



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المخلص

أهداف البحث: علم التشريح هو ركيزة أساسية من أركان المعرفة الطبية التي تربط المعرفة بالعلوم الطبية الأساسية والممارسة السريرية. ومع ذلك، فقد أدت المناهج الطبية الحديثة المتكاملة إلى تقليل محتوى تدريس علم التشريح، ولم يعد يتم إجراء تشريح الجثة. وبالتالي، من المتوقع أن يكون خريجو الطب الذين يفتقرون إلى معرفة التشريح غير مجهزين بشكل كاف لممارسة سريرية آمنة. هدفت هذه الدراسة إلى استكشاف تجارب طلاب السنة السريرية في تعلم علم

التشريح خلال المرحلة قبل السريرية في كليات الطب الماليزية. كما عكست كيف أن تدريبهم على التشريح قبل السريري قد أعدهم لسنواتهم السريرية.

طرق البحث: لذلك، تم إجراء دراسة الظواهر النوعية باستخدام أسلوب المناقشة الجماعية المركزة مع 30 طالباً في السنة النهائية من أربع جامعات عامة. تم إجراء أربع جلسات نقاش جماعية مركزة، وتم نسخ ردودهم وتحولها إلى أشكال إلكترونية. تم تحليل النصوص بشكل موضوعي باستخدام برنامج "أطلس.تي".

النتائج: أنتج ترميز الدورة الأولى لتحليل النص 157 رمزا مفتوحا استنادا إلى العبارات المستخدمة من قبل المشاركين. أنتجت دورة التشفير اللاحقة 16 رمزا محوريا - مجموعات من الأكواد المفتوحة ذات الميزات المتشابهة. خلال دورة الترميز النهائية، تم تصنيف المحتوى والعلاقات المتبادلة بين الرموز المحورية إلى ستة أكواد مختارة: (1) تجربة تعلم علم التشريح قبل السريري، (2) محتوى علم التشريح والتدريس، (3) الكفاءة المتعلقة بالتشريح، (4) الأهمية لمعرفة علم التشريح للممارسة السريرية، (5) أهمية التعرض المبكر للتشريح السريري التطبيقي، و (6) اقتراحات لتعليم علم التشريح في المستقبل.

الاستنتاجات: عكست الموضوعات الستة التي تم تحديدها في هذه الدراسة تصورات الطلاب عن تجربة تعلم علم التشريح والتحديات التي واجهوها خلال

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السنوات ما قبل السريرية، وأرائهم حول معرفة علم التشريح والمهارات ذات الصلة وظيفيا خلال السنوات السريرية. رددت ردودهم أيضا الحاجة إلى تحسين تدريس علم التشريح والتعلم، مؤكدين على أهمية التكامل والتطبيق السريري الميكر.

الكلمات المفتاحية: منهج علم التشريح؛ الكفاءة المتعلقة بالتشريح؛ علم التشريح التطبيقي؛ الكفاءة المعرفية؛ الكفاءة الحركية؛ التعليم الجامعي.

Abstract

Objectives: Anatomy is a fundamental pillar of medical knowledge that bridges basic medical science knowledge and clinical practice. However, integrated modern medical curricula have reduced the anatomy teaching content, and cadaveric dissection is no longer conducted. Medical graduates who lack anatomy knowledge are anticipated to be inadequately equipped for safe clinical practice. This study was aimed at exploring clinical year students' experiences regarding their anatomy learning during the preclinical phase in Malaysian medical schools. The findings reflect how the students' preclinical anatomy training prepared them for their clinical years of study.

Methods: A qualitative phenomenology study using the focus group discussion method was conducted on 30 final-year students from four public universities. Four focus group discussion sessions were conducted, and students' responses were transcribed and converted to electronic formats. The transcripts were analyzed thematically with ATLAS.ti software.

Results: The first-cycle coding of the text analysis generated 157 open codes based on the phrases used by the participants. The subsequent coding cycle produced 16 axial codes—groups of open codes with similar features. During the final coding cycle, the content and interrelations between the axial codes were categorized into six codes: (1) preclinical anatomy learning experience, (2) anatomy content and teaching, (3) anatomy-related competency, (4) the importance of anatomy knowledge in clinical practice, (5) the importance of early exposure to applied clinical anatomy, and (6) suggestions for future anatomy education.

Conclusions: The six identified themes reflected students' perceptions of their anatomy learning experience, the challenges that they faced during their preclinical years, and their opinions regarding the anatomy knowledge and skills that are functionally relevant during the clinical years. Their responses also echoed the need to improve anatomy teaching and learning, thereby emphasizing the importance of early clinical integration and application.

Keywords: Anatomy curriculum; Anatomy-related competency; Clinically applied anatomy; Cognitive competency; Psychomotor competency; Undergraduate education

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Introduction

Anatomy is an important basic science subject that serves as the foundation of medical knowledge. Given that anatomy content underpins the concepts of body functions, pathological conditions, diseases, physical examinations, and clinical procedures,^{1,2} having adequate anatomy knowledge is critical for medical graduates.³ Studies have shown that anatomy courses have successfully promoted medical students' development of professional behaviors and competencies pertinent to clinical practice.^{4–7} Furthermore, the acquisition of core knowledge and skills related to anatomy is crucial to ensure safe clinical practice, because inadequate anatomy competency is associated with medicolegal litigation.^{8–10}

Anatomy, the oldest medical subject, has substantially evolved in terms of content, teaching methods, and learning tools. In the modern medical curriculum, cadaveric dissection has become less feasible to teach in some medical schools, because it is costly and time-consuming.^{11,12} With advances in medical education research and practice, new educational principles and teaching methods have been introduced to meet needs in anatomy education, including the use of horizontal and vertical integration of anatomy syllabi¹³; use of problem-based, team-based, and case-based learning,^{14–16} use of interactive multimedia and virtual reality simulations¹⁷; and incorporation of active learning pedagogies, such as body painting and interactive lectures.^{18,19} All multimodal teaching methods in anatomy have been argued to be equally effective.²⁰ Indeed, the unprecedented COVID-19 pandemic has disrupted normal face-to-face teaching, which is crucial for the development of psychomotor skills and affective learning in anatomy.^{21,22}

In Malaysia, the anatomy curriculum in many universities uses integrated, student-centered, and problem-based learning (PBL).²³ Students enrolled in Malaysian medical schools complete a foundation course in science (e.g., A-level, matriculation, and Malaysian Higher School Certificate) and therefore have basic knowledge of science. In general, anatomy is taught during the first two years (of five or six year medical programs), and anatomy knowledge is horizontally integrated with other preclinical subjects (e.g., physiology, biochemistry, and pathology). In contrast, vertical integration of anatomy knowledge is achieved through PBL and clinical skills laboratory sessions: preclinical students apply their anatomy knowledge during PBL discussions and while performing procedures on mannequins. Before the COVID-19 pandemic, anatomy in Malaysian medical schools was taught primarily through didactic or interactive lectures,^{24–26} and practical sessions using prosected cadaveric specimens and anatomy models.²² In view of the integrated nature of the medical curriculum and shortages of cadavers, most public medical schools in Malaysia were unable to accommodate cadaveric dissection as a teaching method in the undergraduate anatomy syllabus. Instead, cadaveric dissection was reserved mainly for demonstration purposes, clinical skills workshops, and postgraduate training. Furthermore, the use of digital anatomy software and applications has markedly increased since the enforcement of remote learning in the COVID-19 pandemic.^{21,22,27,28} Because of