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Educational Article

Educational environment and psychological distress of medical students: The role of a deep learning approach

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الملخص

أهداف البحث: اتفقت الدراسات على أن البيئة التعليمية المثلى هي الجانب الحيوي للتعلم الفاعل وتعزيز رفاهية الطلبة. على العكس، تذكر التقارير أن التدريب الطبي هو بيئة دون المستوى الأمثل، وبالتالي تؤثر سلبا على تعلم ورفاهية الطلبة. تهدف هذه الدراسة لاستكشاف العلاقات المتبادلة بين بيئة التعلم، وأساليب التعلم والأضرار النفسية على طلبة الطب.

طرق البحث: أجريت هذه الدراسة المقطعية على ٦٥٦ من طلبة الطب. استخدم مقياس "داندي" الجاهز للبيئة التعليمية، قائمة أساليب التعلم و٢١ عنصرا من مقياس الاكتئاب والقلق والتوتر لقياس البيئة التعليمية، وأساليب التعلم والأضرار النفسية، على التوالي. تم تنفيذ نموذج معادلة هيكلية من خلال تحليل برمجيات هيكلة وقتية.

النتائج: أظهرت النتائج أن نموذج الهيكلة المقترحة يعد نموذجا جيدا ومناسبا (مؤشر الجودة المناسب =٠.٩٢٠، وجذر متوسط المربع التقريبي =٠.٠٤٨، ومؤشر تاكر-لويس =٠.٩٥٣، ومؤشر المقارنة المناسب =٠.٩٦٠، ومؤشر نورمد المناسب =٠.٩٢٤، وChi^2/df.٠٢٠= . كما تبين أن أثر التعلم العميق على الأضرار النفسية كان بواسطة البيئة التعليمية كليا، بينما لم تدعم قياساتنا آثار استراتيجيات التعلم الأخرى.

الاستنتاجات: إن للبيئة التعليمية الإيجابية تأثيرات مباشرة وإيجابية على الصحة النفسية لطلبة الطب. ولأساليب التعلم الاستراتيجية والعميقة تأثيرات إيجابية على البيئة التعليمية الملموسة، بينما كانت الآثار الإيجابية لأساليب التعلم العميقة غير مباشرة على الصحة النفسية. كما أن تحسين البيئة التعليمية وتعزيز التعلم العميق لطلبة الطب سيحسن الصحة النفسية أثناء التدريب الطبي.

الكلمات المفتاحية: البيئة التعليمية؛ الصحة النفسية؛ أسلوب التعلم السطحي؛ أسلوب العلم الاستراتيجي؛ أسلوب التعلم العميق

Abstract

Objectives: Studies concur that an optimal learning environment is a vital aspect for effective learning and for enhancing students' well-being. Conversely, medical training is reported to be a suboptimal environment, thereby compromising students' learning and well-being. This study aimed to explore the interrelations of the learning environment, learning approaches and psychological distress among medical students.

Materials and Methods: A cross-sectional study was conducted on 656 medical students. The Dundee Ready Educational Environment Measurement, Learning Approaches inventory and 21-item Depression Anxiety Stress Scale were administered to measure the educational environment, learning approaches and psychological distress, respectively. Structural equation modelling was performed by Analysis of Moment Structure software.

Results: The results showed that the proposed structural model had good model fit (Goodness of Fit Index (GFI) = 0.920, Root Mean Square of Error Approximation (RMSEA) = 0.048, Tucker–Lewis Index (TLI) = 0.953, Comparative Fit Index (CFI) = 0.960, Normed Fit Index (NFI) = 0.924, Chi^2/df = 2.020). The effect of deep learning on psychological distress was fully moderated by the educational environment, while the effects of other learning strategies on psychological distress were not supported in our analysis.

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Conclusions: A positive educational environment has direct and positive influences on the psychological health of medical students. Strategic and deep learning approaches have positive influences on the perceived educational environment, but only the deep learning approach has indirect positive effects on psychological health. Improving the educational environment and promoting deep learning approaches for medical students will improve their psychological health during medical training.

Keywords: Deep learning approach; Educational environment; Psychological health; Surface learning approach; Strategic learning approach

Introduction

Several studies have reported that the prevalence of psychological distress among medical students during medical training is higher than that of the general population.[1–3] In fact, several studies have demonstrated that prior to medical training, the prevalence of psychological distress is similar to that of the general population.[1–4] In addition, a comparative study on psychological distress between first degree students of 15 courses revealed that medicine and health sciences students had the highest stress score, followed by engineering and veterinary medicine, whereas the lowest stress scores were scored by students of forestry, educational studies and environmental studies.[5] These results indicate that medical training does not provide an optimal learning environment to medical students' psychological health with respect to learning.[6–12] A recent study reported that areas of educational concern increased as medical training progressed[13] – which indicated that the learning environment was deteriorating as the medical training progressed. Thus far, one study reported that nursing students who perceived the educational environment positively had high academic achievement.[14] However, to the best of the author's knowledge, little is known about the relationship between the educational environment and psychological health in a medical education setting. From that notion, this research examines the effect of the educational environment on psychological health in a medical education context. Thus, the first hypothesis of this paper is: *H1* – the perceived educational environment has a direct effect on the psychological distress of medical students.

Three different learning approaches are proposed in the literature – surface, strategic and deep learning approaches.[15,16] The existing different characteristic of these three approaches are depend on the motive (i.e., intention) and strategy (i.e., process) of learners while learning.[15,16] Deep learners usually learn through understanding the subjects based on evidence, where their intention is to seek their own meaning of the subjects, to enhance their understanding and produce mastery.[15–17] Strategic learners generally learn through systematic and smart study, where they are bound to the syllabus of the course and their intention is to attain the highest marks that are possible.[15–17] Surface learners commonly learn through memorizing facts, learn due to fear of failure, and focus on making a minimal effort to pass the examination.[15–17] To date, little is known about the relationship between the different learning approaches and psychological health. Thus far, one study reported that the surface learning approach positively correlated with the perceived stress scores – when the surface learning approach scores go up, the perceived stress scores go up as well.[18] The study did not find any significant correlation between other learning approaches and perceived stress scores.[18] From that notion, three hypotheses are identified, which are: *H2* – the surface learning approach has a direct effect on psychological distress; *H3* – the strategic learning approach has a direct effect on psychological distress; and *H4* – the deep learning approach has a direct effect on psychological distress.

To date, limited studies have reported about interrelations between learning approaches and the educational environment. One study has suggested that students' learning approaches are influenced by the learning environment[14] that is constructed by the attributes of the teachers, atmosphere, academic self-perception, social self-perception and teaching and learning.[19] Pimparyon et al. (2000) reported that deep and surface approaches to learning had a positive correlation with several aspects of the learning environment – the deep learning approach had a stronger correlation with the learning environment than the surface learning approach. These results suggest that students with different learning approaches perceive the educational environment differently. As a result of these findings, this study proposes another three hypotheses: *H5* – the surface learning approach has a direct effect on the perceived educational environment; *H6* – the strategic learning approach has a direct effect on the perceived educational environment; and *H7* – the deep learning approach has a direct effect on the perceived educational environment.

In addition to the already mentioned facts, the author noted that none of the papers reported on the mediation effects of the educational environment on the relationships between the learning approaches and psychological distress. Therefore, this study proposes an additional three hypotheses: *H8* – the surface learning approach has an indirect effect on psychological distress that is mediated by the educational environment; *H9* – the strategic learning approach has an indirect effect on psychological distress that was mediated by the educational environment; and *H10* – the deep learning approach has an indirect effect on psychological distress that was mediated by the educational environment.

From a review of the available literature, a model of the interrelations between the learning approaches, educational environment and psychological distress is proposed and is shown in Figure 1. This model was empirically tested following the methodological procedures below.