PEDAGOGICAL AND CLINICAL IMPLICATIONS OF A LONGITUDINAL STUDY ON THE DEVELOPMENT OF INDIVIDUAL HEALTHCARE CONCEPTS THROUGHOUT MEDICAL STUDENTS.

Zhu Qiaoyan, Emmanuel Hans

[1] Lincoln University College, Petaling Jaya, Malaysia.

ABSTRACT

It is becoming more and more apparent that medical students face common and complicated mental and physical health care difficulties. It is not uncommon for training-related stresses to be the root cause of emotional distress, mental disease symptoms, and unhealthy substance use. From what the researcher can tell, almost all medical students also note issues with their physical health. The stigmatisation of some diseases and the fact that medical students play the dual role of student and patient make patient care for medical students a challenging and multifaceted issue. Perceived health care requirements, health problems, attitudes towards care, access to services, and care-seeking behaviours were examined longitudinally (between the first and third years of training) using a confidential written survey with sixteen1 items. The dependability of the second survey was measured by reassessing a subgroup of students (n = 33) one month later. Results were assessed using K and Pearson correlations, repeated-measures multivariate analysis of variance (MANOVA), and McNamara's chi-square (chi2) tests. Throughout both stages of training, nearly all students voiced the need for medical attention, and the majority of those students' mental and physical health issues persisted. Although students were slightly more likely to seek treatment at their medical school during clinical than preclinical training, concerns regarding anonymity and a desire for alternative sites for health care increased. Both the students' high levels of worry about professional risk due to personal health concerns and their willingness to seek informal care from peers was consistent. Depending on the nature of the health care issue, they were more likely to accept the dual role of patient and student; they also showed a strong propensity to safeguard the privacy of other students, even when faced with situations with possible serious impairment. Over the course of a month, responses remained consistent when retested.

Keywords: General Practitioner, Medical School Pupils, Student Viewpoints, Reflective Writing.

INTRODUCTION

Any problems that may arise are the patient's duty to fix on their own. In addition, it offers a summary of primary care. General practitioners who work remotely supervise clinical rotations for some students. A few of the students have overnight stays and go on daily field trips. It is common for students to receive free supervision from general practitioners. Many family doctors aspire to become faculty or department chairs after completing a basic course. Researchers at Sweden's University of Gothenburg chose to undertake a qualitative study on GP competency because there was a dearth of quantitative data. This study aimed to examine how fourth-year medical students perceive the competency of family practitioners. The purpose of Anxiety vs. Anxiety Disorders (2019) was to find out if students believed that general practitioners were more competent than other types of specialists in handling certain clinical problems (Kononowicz et al., 2020).

Unfortunately, medical schools aren't prepared to satisfy the ever-changing demands of students who want to be doctors. As medicine and science progress, the patient's role in their care may become less important. The need of doctors understanding the value of putting patients first when providing clinical therapy has never been more critical, especially with the health care system becoming more complex and interdependent. Giving people access to healthcare would lose some of its altruistic character without this. Understanding empathy, its significance, and its transmission to the next generation of healthcare professionals are all topics that The Researcher will cover in this chapter. An essential goal of medical school is instilling the character traits that are necessary for a "good doctor" to have. Most people would agree that empathy is a must-have quality for any healthcare worker. Eighty percent of patients even went so far as to say they would tell their loved ones about a caring doctor. Doctors benefit greatly when they are able to show empathy for anxious patients (Liu et al., 2021).

BACKGROUND OF THE STUDY

An integral part of a doctor's professional identity is their ability to convey medical information to patients in an understandable and engaging way. On the flip side, gathering facts is easier than coming up with a communication strategy that values the patient by putting them in the centre of a realistic scenario and listening to their worries with empathy. Providing "patient-cantered" consultations may be difficult for many trainees; in the worst-case scenario, it could even lead them to entirely lose their developing compassion. When interacting with multi-talented medical professionals like doctors and nurses, it's crucial to listen attentively. To help students better understand how to interact with one another, teachers provide a number of instructional tactics, including group projects and individual study (Torralba et al., 2020). The transition from student to solo practitioner seems to be a major one for medical students around the world. It is often noted that medical school graduates lack the necessary skills for practicing independently. Prior studies on student preparation have mostly used a cross-sectional approach. Throughout

their time at medical school, students go through a continuous and extensive process of becoming competent doctors. The procedure is typically divided into multiple stages, such as basic medical education, clinical rotations, residency, and faculty development. Because there is a fairly consistent learning environment at each level, students may reliably acquire the stage-specific knowledge, skills, and attitudes. However, as they progress through the levels, students may experience substantial transformation. The years between medical school and practice are crucial for any student's development as a doctor, independent of the curriculum in their native country or educational institution. A rotational clinical observer ship is a common requirement for medical students to fulfil before they can graduate from medical school. Various names for this period of time include clinical placement, clerkship, and (undergraduate) in-tern ship. Throughout this period, clinical educators supervise the development of students' job-specific competencies while they gain clinical skills. The program culminates in the board exam, after which students will be prepared to work under close supervision in a hospital setting on their own. This phase after graduation could include an internship, a residence, or a rotation during the postgraduate year (PGY), depending on the system that is in place (Watling et al., 2021).

PURPOSE OF THE RESEARCH

The objective of this research is to examine medical students' evolving views on health care and how those views have been influenced by a longitudinal investigation in both the classroom and the clinic. In particular, the research will centre on how these viewpoints have changed throughout the years. Students' perspectives on self-care, patient care, and individual health will be tracked throughout their educational journey. The goal of this research is to identify the ways in which medical education shapes these perspectives. Looking at education from a pedagogical perspective, this study aims to identify ways that students and patients alike could benefit from more holistic health practices. From a clinical perspective, it explores how these changing perspectives influence general medicine professionals' capacity for empathy, future patient care, and professionalism. Moreover, the study aims to examine how the demands and challenges of medical school impact the health behaviours, overall health, and work-life balance of the students. The overarching goal of this study is to shed light on how medical schools may better encourage healthy lifestyle choices among their students so that they, in turn, can deliver patient-centered, compassionate treatment.

LITERATURE REVIEW

For example, while interviewing someone about their health, it's important to remember the basics of how a doctor and patient talk to each other. The doctor's main goal in conducting a clinical interview is to gather medical history for the purpose of diagnosis. In patient care, it is essential to share information, offer

expert advice, and advocate for the patient's best interests while keeping those interests in mind. Now is the moment for the person to seek guidance and assistance. Because of this setup, the patient and accompanying doctor do not have an even power dynamic. In addition, the physician's strong moral compass and underlying objectives provide credence to a consultative approach that centres on the "doctor" and the "disease," with the doctor maintaining command of the doctor-patient dynamic (Webb et al., 2021). The ethical standards listed above require a dialogue-based method, where the doctor is seen as an equal partner with the patient and is open to sharing knowledge and skills. A recent study (Indian Journal of Public Health Research & Development, 2020) indicates that individuals with mental health disorders are more inclined to report their conditions when not subjected to scrutiny. A person's "need to know and understand" intellectually and "the desire to comprehend" emotionally are two distinct but related psychological needs. Having both of these things is essential. The biological theory that pushed for the use of clinical interviews before to the 1950s mostly concerned itself with the medical issues that doctors and patients faced. There has been a shift in emphasis towards the importance of the person ever since, in both interpersonal communication and formal discourse. Technological progress, the growth of consumerist attitudes, and increased market competitiveness are all examples of societal and scientific advances that have contributed to this shift. Some examples of these recent innovations are: Balint offered a humanistic and psychodynamic perspective on the doctor-patient relationship in the 1950s. This resulted in a shift from a biological to a biopsychosocial perspective on health and illness. To treat a patient holistically, a doctor must be involved in all aspect of their life and consider how the patient's biological issues might affect their ability to accomplish things like bathing, dressing, and eating (Price SL et al., 2019).

RESEARCH QUESTION

What is the influence of Self-Efficacy on pedagogical ramification?

METHODOLOGY

Using qualitative techniques allows for the collection of more thorough data when researching a topic. The clear benefit is the constant emphasis on the performance. However, in order to analyse the video observations, certain sequences are necessary. The results will always mirror the researcher's point of view, regardless of how well the process was carried out. Instead, scientific questions should underpin these decisions. The same level of care should be exercised when drawing conclusions from the data. The researcher had to be there during the whole video recordings to make sure the data collected for this study was top-notch. Someone must be interested in and knowledgeable about the studied topics only by being physically present. In order to gather educators' and other experts' viewpoints on the subject, the researcher showed them excerpts from the transcripts and asked

for their opinions. Case studies also have the limitation of only being somewhat generalizable to other scenarios that share some similarities with the one studied. Results may not be generalizable to other consultation settings (like breaking bad news) or to more experienced doctors due to the study's methodology (patient-centred exploratory interviews with first-year medical students). This may happen, but it wouldn't change how significant the results are in any other setting. On the other hand, case-based research can lead to new ideas by building on the insights from previous studies. Given that these records were compiled in 2001, it's probable that some of the topics the researcher touched on have become less important as time has passed. According to many course organisers, the recurring themes will be there for a long time.

SAMPLING

A preliminary study was conducted using a questionnaire with a group of 20 consumers from China, followed by a final study utilising the questionnaire on a sample of 369 customers. A total of surveys was disseminated to customers chosen through systematic random selection. All completed questionnaires were considered for the study, while any incomplete questionnaires would be rejected by the researcher.

DATA AND MEASUREMENT

The core data for the research study was collected through a questionnaire survey. The questionnaire consisted of two sections: (A) Demographic information and (B) Factor responses assessed using a 5-point Likert scale for both online and offline methods. Secondary data was collected from many sources, primarily online resources.

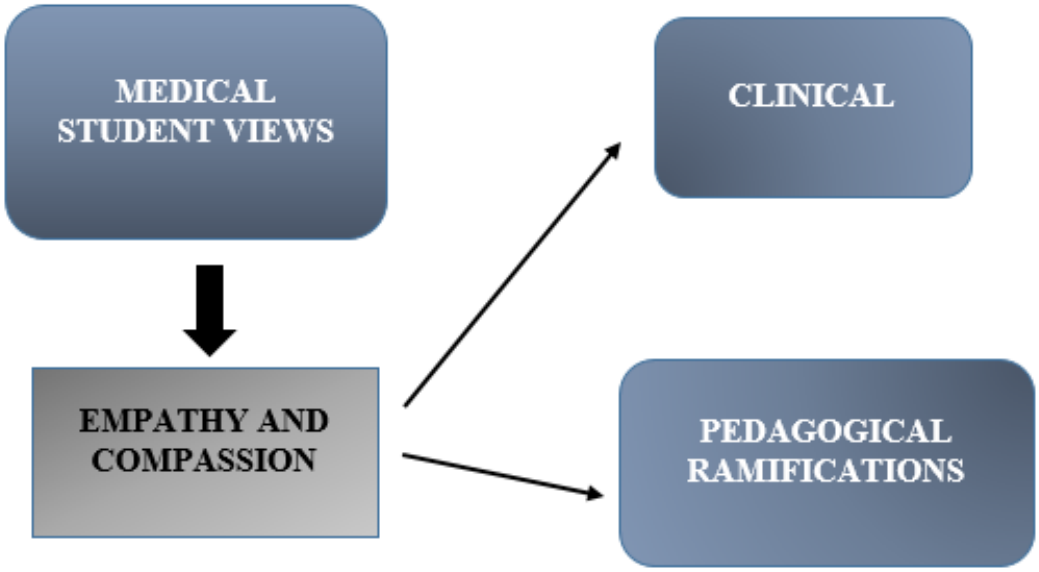
STATISTICAL SOFTWARE

Statistical analysis will be conducted using MS-Excel and SPSS 25.

STATISTICAL TOOLS

Descriptive analysis was utilised to comprehend the fundamental characteristics of the data. Validity will be assessed via factor analysis.

CONCEPTUAL FRAMEWORK



RESULT

The article "Talking with Clients and Peers: Medical Students' Difficulties in Learning Communication Skills" (A. Lumma, L. Sellentin) identified seven categories of student grievances: Establishing a secure environment 2. Analysing and organising the patient's financial documentation presenting controversial subjects the ambiance of the classroom the pedagogical importance of group discussions a common concern among medical students is whether their patients regard them as competent physicians. A lack of biological comprehension was recognised as a major element influencing pupils' feelings of inadequacy. Trustworthiness was assessed with external factors, such as white coats and seating configurations. Secondly, when faced with detailed explanations, several students indicated challenges in understanding the results. At other instances, they suggested that patients were overly reticent. Interrupting patients during dialogue and posing direct queries may be regarded as discourteous. Third, while discussing the patient's personal life or mental health issues, like job stress, solitude, depression, or dysfunctional family dynamics, students often encountered emotions of intrusiveness or curiosity. A multitude of individuals were ambivalent regarding the degree to which patients' personal history impacted their conditions. The emotional requirements of their patients, especially those experiencing pain, posed a challenge for the trainees. A multitude of persons had a lack in emotional intelligence, obstructing their capacity to provide genuine empathy to their patients. Self-evaluating one's interview performance by comparing personal conduct with the theoretical model may cause cognitive overload and impede the flow of conversation. The management approved the adoption of streamlined methodologies, using formulas for standard scenarios. They assisted the students in developing a specialised vocabulary that included metaphorical and categorical terms for commonly encountered scenarios and patient categories. The thorough assessment of their performance may be regarded

as emotionally taxing. This entailed the fabrication of comments for assessment. The engagement with actual patients was valued; yet, the presence of a video camera was regarded as a hindrance to authenticity and transparency. Peer students were employed for role plays aimed at implementing various tactics. Study III: "Perspectives of Medical Students on Collaborative and Autonomous Learning" (Lumma Sellenthin, A., 2012) 6.3 Researchers examined the influence of demographic variables, alongside problem-based and blended curricula, on freshmen students' perceptions of and engagement in group work for academic purposes. No significant gender disparities were noted in students' judgements regarding the significance of solitary versus group study or in their understanding of study methodologies. Students with prior health care experience exhibited enhanced group learning ($t(341) = 2.971$, $p = .003$), improved comprehension ($t(340) = 2.258$, $p = .025$), and superior control of learning processes ($t(333) = 3.307$, $p < .001$). Students with parents employed in the healthcare sector exhibited heightened awareness of their learning methodologies ($t(340) = 2.255$, $p = .025$). Participants exhibited heightened knowledge of social norms that facilitate engagement in group learning ($t(337) = 3.014$, $p = .003$). The most significant mean difference was observed between students from the German problem-based school in Witten/Herdecke and those from the German program at Marburg, which employs more traditional teaching methods. Marburg (Witten/Herdecke) = 1.45 (on a scale of 1 to 7), standard deviation = 0.181 ($p < 0.001$). The highest proportion of students with direct experience in the health care sector was recorded at Witten/Herdecke (90%), in contrast to 48% at Linköping, 64% at Marburg, and 51% at Gothenburg. It was revealed that group learning experiences in Swedish schools were not significantly different from each other. Students from Witten/Herdecke surpassed those from Gothenburg in adapting their learning tactics (mean difference 0.18, standard error 0.084, $p = .034$). Ultimately, in contrast to students from other universities, those from Linköping exhibited significantly higher levels of social pressure to participate in collaborative learning (mean difference Linköping vs. Witten/Herdecke 1.71, standard error = .303, $p = .000$; Linköping vs. Gothenburg 1.81, standard error = .281, $p = .000$; Linköping vs. Marburg 2.24, standard error = . Thus, there was no correlation between students' gender or age and their understanding of learning strategies or their perspectives on solo study and collaborative efforts. Fifty-four Work experience, whether individual or parental, correlated with improved metacognitive skills and collaborative work experience. This suggests that students' pre-academic clinical experience may establish critical conditions for achieving professional competence. The demographics of students, their metacognitive abilities, and their assessment of patient-centered care were examined alongside their perspectives on the importance of developing communication skills within conventional and problem-oriented courses in Germany and Sweden. The positive attitudes of students towards improving communication skills were anticipated by a caring patient orientation, robust self-regulation of learning processes, and female gender ($R2 = .23$, $F(9,310) = 9.72$, $p < .001$). The

students' age, gender, and motivation to enhance communication skills were substantial predictors of a compassionate patient orientation (R2=.23, F(9,307) = 13.48, p < .001). In comparison to students in Witten/Herdecke (Positive Attitude Scale (PAS): mean difference 0.49, on a 7-point Likert scale; SE = 0.07, p < 0.001), Linköping (PAS: mean difference 0.46, SE = 0.09, p < 0.001), and students in Marburg's traditional German curriculum (PAS: mean difference.

Table 1: Demographic characteristics of panel members.

	Number	Occupation	Gender
	02	Clinical teacher	Female
	02	Unit coordinator	Female
	02	Graduate nurse	Male
	02	Head nurse	01 Male, 01 Female
	02	Staff nurse	Female
Total	10		

The panellists were provided with a four-point Likert scale for each of the four criteria and directed to evaluate their level of agreement with each item in the Inventory. The criterion included the grading scale's relevance, clarity, comprehension, and suitability. The researcher requested feedback from the panel members concerning possible revisions to any item, as well as suggestions for improving the clarity of the Inventory's wording. The content validity index (CVI) was calculated at both the item and scale levels to evaluate the conceptual and content equivalence of the translated inventory.

The results demonstrate that the CVI for each item remained within acceptable parameters. The Item-level Content Validity Index (I-CVI) averaged 0.85 (Appendix M), while the Scale-level Content Validity Index (S-CVI/Ave) averaged 0.995.

Table 2: Average scale-level content validity index (S-CVI/Ave).

Inventory Subscales	S-CVI/Ave			
	Relevance	Clarity	Comprehensiveness	Adequacy of the rating scale
Affordances and Engagement (16 items)	.996	1.0	1.0	1.0
Student-centredness (18 items)	1.0	.996	.993	1.0
Enabling Individual Engagement (four items)	1.0	1.0	1.0	1.0
Valuing Nursing Work (three items)	.967	.983	.983	1.0
Fostering Workplace Learning (six items)	.997	1.0	1.0	1.0
Innovative and Adaptive Workplace Culture (three items)	.977	.943	.943	1.0

Revisions made in response to the comments provided by the panellists: Concerning the content of the item, multiple modifications were implemented to align with the observations provided by the panel members. Concerning point 5, examples were provided subsequent to the phrase “new ideas” to clarify whose new ideas were being referenced. The linguistic framework of item 19a/b has been modified for enhanced clarity and comprehension. Furthermore, examples were incorporated into item 20 to elucidate the reference of the phrase “others.” The final translated version (Appendix N) was finished and finalised thereafter.

Demographic characteristics of the sample: Out of 216 eligible participants, 209 completed the Inventory. This yields a response rate of 97% for the researchers. Among the total, there were 188 females and only 24 males, or 11.5% of the total. This sample comprised individuals, with a mean age of 20.6 years and a standard deviation of 0.72 years. Over fifty percent of the individuals proceeded to complete their college degree promptly following high school graduation (56%). Students had the opportunity to rotate among various wards during their latest clinical rotation, including General Medical, Intensive Care Unit, Ophthalmology, Dental and Maxillofacial, Ear, Nose, and Throat, and General Surgical. The preceding clinical rotation in which they engaged had an average duration of 1.54 weeks. Before this semester, no students participated in this clinical rotation. Only two students were absent from the scheduled clinical rotation for a whole day, constituting 1% of the overall student population. The other demographic facts can be located in the table.

Table 3: Demographic characteristics (n = 209).

Characteristic	Result (n, %)
Gender	
Female	185 (88.5%)
Male	24 (11.5%)
Age (mean, SD)	20.6 ± .72 years
Clinical practice location	
General Medical	52 (24.9%)
ICU	61 (29.2%)
Ophthalmology	22(10.5%)
Dental and Maxillofacial	27 (12.9%)
Ear, Nose, and Throat	26 (12.4%)
General Surgical	21 (10.0%)
Length of the clinical rotation (n, %)	
01 weeks	96 (45.9%)
02 weeks	113 (54.1%)
Number of participants absent from the clinical rotation (n, %)	
No	207 (99%)
Yes	2 (1%)
Repeated clinical rotation (n, %)	
No	209 (100%)
Yes	0 (0%)

Testing of the V-CLEI's psychometric properties Reliability: The first Inventory was finalised by 209 students, signifying that an adequate number of items was established to evaluate the instrument's construct reliability. The main aim was to assess the instrument's reliability; hence, Cronbach's coefficient of reliability was calculated for each V-CLEI subscale. Cronbach's alpha was determined to be .88 for the 50 variables included in the V-CLEI. A notable disparity was seen in the Cronbach's values of the six distinct subscales, ranging from .19 to .75 (see Table 6.6 for further information). A Cronbach's alpha below 0.70 is considered acceptable for this subjective scale; hence, the reliability of subscales 1 (Affordances and Engagement) and 2 (Student-centredness) was assessed as robust, with values of 0.75 and 0.74, respectively.

The score of 0.60 on Subscale 3 (Enabling Individual Engagement) was below the established level. The dependability of this subscale mostly persisted after the systematic elimination of items from the scale. Subscale 5 (Fostering Workplace Learning) exhibited a value of =.66, which is below the acceptable threshold, and this value remained unchanged despite the removal of any items from the scale. The reliability of subscale 6 (Innovative and Adaptive Workplace Culture) was shockingly low, reported at a value of .58, and the elimination of individual questions similarly did not enhance the score. The reliability of the fourth subscale, "Valuing Nursing Work," was the lowest, with a coefficient alpha of only 0.19. The value rose to 0.23 following the elimination of item 10; nonetheless, it still remained well below the

acceptable threshold. The dependability of subscales including b-items associated with preceptors did not enhance following the elimination of these b-items. Various experimental modifications were undertaken, including the removal and amalgamation of subscales; however, these alterations did not improve the total coefficient to an acceptable standard.

Table 4: V-CLEI: Internal consistency reliability measure.

	Cronbach's α	Cronbach's α (without *b*-items)	The modified CLEI (original English version)
Subscales			
1. Affordances and Engagement	.75	.75	.88
2. Student-centredness*	.74	.69	.88
3. Enabling Individual Engagement	.60	.60	.65
4. Valuing Nursing Work	.19	.19	.57
5. Fostering Workplace Learning*	.66	.59	.67
6. Innovative and Adaptive Workplace Culture	.58	.58	.50
Overall	.88		

Note. * Subscales consist of *b*-items (preceptor items).

DISCUSSION

While there is significant variation between domains, individuals, and time points, this study found that learners' preparedness before graduation is typically on the upswing. So far as the researcher is aware, this is the first longitudinal quantitative study to track how much medical students' readiness for practice changes between their undergraduate and graduate years. Even if there are several cohort studies that assess the same issue, the majority of them solely include the years spent in college or university. More subjective indicators, such as a person's feeling of professional identity and their experience working in a team, may be associated with practice readiness, according to this study. The study indicates that subjective endpoints, including survey findings and self-reported prior academic performance, correlate with objective learning outcomes, such as clinical rotation grades. Comprehensive preparation, encompassing all facets of competence, is believed to correlate with heightened self-efficacy. The current study provided further evidence of the correlation between preparation and other subjective indicators. The more the students' sense of preparedness, the more they perceived themselves as valued

physicians and the stronger their sense of belonging to the medical team. The aforementioned association may establish a beneficial feedback loop that could ultimately influence the learner's supervisor and other members of the healthcare team. This contributes to elucidating the connection between preparedness and the mean clinical rotation grade, a product of objective learning. A portion of the rotation mark is based on the supervisor's subjective evaluation.

CONCLUSION

Students often feel compassion for their patients beyond what is expected at the professional level. They meet the people who are looking for them, and they meet their loved ones as well. It is crucial for medical professionals to avoid burnout by not taking their patients' suffering personally, even if it is natural for them to feel empathy for their patients' struggles with illness. The majority of medical students' empathy education centres on behavioural components. Through role-playing, students can practise connecting with patients in a sympathetic manner. Although there is no proof that LEAP is a good method for teaching empathy, this study does set the stage for studies that will address related questions in the future. Reversing the decline in emotional intelligence that usually happens during a professional career is certainly within the realm of possibility. A more well-rounded education in empathy can be provided to medical school students by combining LEAP with other humanistic medicine courses. As part of LEAP, students develop empathy and participate in patient-centred activities while maintaining an ongoing conversation with a real patient. In addition to learning about healthcare, students can take part in activities that help them develop empathy. Nonetheless, LEAP exemplifies the trend towards patient-centred learning that is being adopted by an increasing number of medical schools. The value of empathy in healthcare and the relationship between doctors and patients is being discussed in more lectures.

REFERENCES

1. Kononowicz AA, Hege I, Edelbring S, Sobocan M, Huwendiek S, Durning SJ. The need for longitudinal clinical reasoning teaching and assessment: Results of an international survey. Medical teacher. 2020:1–6.
2. Liu, J., Gill, E., & Li, S. (2021). Revisiting cultural competence. Clinical Teacher, 18(2), 191–197.
3. Torralba, K. D., Jose, D., & Byrne, J. (2020). Psychological safety, the hidden curriculum, and ambiguity in medicine. Clinical Rheumatology, 39(3), 667–671.
4. Watling, C., Ginsburg, S., LaDonna, K., Lingard, L., & Field, E. (2021). Going against the grain: An exploration of agency in medical learning. Medical Education, 55(8), 942–950.
5. Webb, J., Arthur, R., McFarlane-Edmond, P., Burns, T., & Warren, D. (2021). An evaluation of the experiences of the hidden curriculum of Black and

minority ethnic undergraduate health and social care students at a London university. Journal of Further and Higher Education, 46, 1–15.
6. Price SL, Sim M, Little V, et al. Pre-entry perceptions of students entering five health professions: implications of interprofessional education and practice. J Interprof Care. 2019; 22: 1–9.
7. Khalili H, Orchard O. The effects of an IPS-based IPE program on interprofessional socialization and dual identity development. J Interprof Care. 2020; 1–11.
8. Price S, MacMillan K, Awad C, Paynter M. Reimaging nursing: an evidence-informed re-branding project. Nurs Stand. 2019; 34(11): 24-28.
9. Hasan R., Caron R., Kim H., Phillipi G. M., et al. (2020) The Student Navigator Project (SNaP): Preparing Students Through Longitudinal Learning.Medical Science Educator.30(2), pp. 833–841.
10. Pinnock, R, Anakin, M, Lawrence, J, Chignell, H, Wilkinson, T. Identifying developmental features in students' clinical reasoning to inform teaching. Med Teach 2019;41:297–302.
11. Kolbe M, Eppich W, Rudolph J, et al. Managing psychological safety in debriefings: A dynamic balancing act. BMJ Simul Technol Enhanc Learn. 2020;6(3):164–171.
12. Bußenius L, Harendza S (2019) The relationship between perfectionism and symptoms of depression in medical school applicants. BMC Med Educ 19(1):370.