Open Access Research Journal of
Science and Technology
Journals home page: https://oarjst.com/
ISSN: 2782-9960 (Online)

OARJ OPEN ACCESS RESEARCH JOURNALS

(RESEARCH ARTICLE)

Assessing inaugural dissection room experiences: Demographic, emotional, educational, and ethical dimensions among Tanzanian medical undergraduates (2024/2025 Cohort)

Rahabu Marwa Morro [1,*] and Seth Jotham [2]

[1] *Department of Anatomy, Faculty of Medicine, St Francis University College of Health and Allied Sciences, Tanzania, East Africa.*
[2] *Department of Surgery, Faculty of Medicine, St Francis University College of Health and Allied Sciences, Tanzania, East Africa.*

Open Access Research Journal of Science and Technology, 2025, 14(02), 130-138

Publication history: Received on 03 July 2025; revised on 09 August; accepted on 12 August 2025

Article DOI: https://doi.org/10.53022/oarjst.2025.14.2.0106

Abstract

Background: Cadaveric dissection remains a vital pillar of anatomical education, providing a hands-on, three-dimensional understanding of the human body that is critical to medical training. However, in low-resource settings like Tanzania, where technological alternatives are limited, the dissection experience is intensified, both pedagogically and emotionally. Cultural beliefs, religious norms, and the lack of psychological preparation may shape students' initial responses in underexplored ways. This study examines the demographic, emotional, educational, and ethical dimensions of cadaver dissection among first-year medical students at St. Francis University College of Health and Allied Sciences (SFUCHAS) during the 2024/2025 academic year.

Methodology: A cross-sectional study was conducted at SFUCHAS in Ifakara Town Council, Tanzania. A total of 142 first-year medical students were recruited using convenience sampling. Data were collected via a validated electronic, closed-ended questionnaire distributed after students' initial dissection session. The tool assessed demographics (age, gender, prior exposure), emotional responses (e.g., anxiety, curiosity), educational motivations, and ethical perceptions. Descriptive statistics, Chi-square tests, ANOVA, and logistic regression analyses were performed using SPSS v28.

Results: Among 142 participants, 76.1% had prior exposure to cadaver dissection. Most students (83.1%) strongly believed in the educational value of dissection, primarily for surgical skills and 3D anatomical understanding. However, 80.3% experienced ethical dilemmas, and 97.2% supported the need for emotional or psychological support. Prior exposure was significantly associated with reduced cultural/religious discomfort ($\chi^2 = 10.44$, $p = 0.034$), and student motivation differed significantly across exposure groups ($F = 4.23$, $p = 0.017$). Logistic regression showed that peer influence significantly predicted emotional distress (OR = 2.18, $p = 0.042$).

Conclusion: While cadaveric dissection is widely accepted and valued for its educational benefits, it elicits complex emotional and ethical reactions among Tanzanian medical students, shaped by cultural beliefs and peer dynamics. Institutions in resource-limited settings should incorporate structured psychological support, cultural sensitivity training, and preparatory sessions to enhance the dissection experience and support student well-being.

Keywords: Medical education; Dissection room experiences; Emotional responses; Medical students; Ethical dimensions

* Corresponding author: Rahabu M. Morro

1. Introduction

Human cadaver dissection remains a cornerstone of anatomical education, providing an irreplaceable three-dimensional understanding of the human body that underpins clinical competence (1,12,13). As a scientific and technical ritual, it marks the transition of medical students from theoretical learners to hands-on practitioners (2,15,18). However, this inaugural exposure to cadavers elicits complex reactions influenced by demographic backgrounds, cultural norms, emotional resilience, and ethical perspectives (3,10,11,20).

In resource-limited settings like Tanzania, where medical education faces infrastructural constraints, cadaveric dissection takes on heightened pedagogical significance (4,16,19,21). St. Francis University College of Health and Allied Sciences (SFUCHAS) in Ifakara exemplifies institutions relying on traditional dissection to deliver rigorous anatomical training. Yet, the emotional and ethical dimensions of this experience remain understudied in sub-Saharan Africa, despite evidence that cultural and religious beliefs profoundly shape students' responses to human remains (5,9,22). For instance, Tanzanian students' perceptions may be influenced by indigenous beliefs about death, compounded by limited pre-dissection psychological preparation (6,23).

Technological alternatives like virtual dissection platforms offer potential supplements but are rarely accessible in low-resource contexts (7,8,14,24). Thus, optimizing cadaver-based pedagogy requires a granular understanding of students' initial experiences. This study employs a multidimensional framework to investigate: Demographic determinants (age, gender, prior anatomy exposure), Emotional trajectories (anxiety, curiosity, desensitization), Educational expectations (knowledge acquisition, surgical preparedness), and Ethical perceptions (justification of cadaver use, cultural conflicts) among SFUCHAS's 2024/2025 medical cohort.

By synthesizing these dimensions, we address critical gaps in science education research while providing evidence to refine anatomical pedagogy in technologically constrained environments.

2. Methodology

2.1. Study site and design

A cross-sectional study was conducted in the Ifakara Town Council (ITC), involving the only higher learning institution in the Town. Ifakara Town Council (ITC) is located in the Kilombero district, Morogoro region, Tanzania. As per the 2022 Population and Housing Census, Ifakara Town Council has a population of 290,424, with a growth rate of 9.8%. The medical school involved was Saint Francis University College of Health and Allied Sciences (SFUCHAS).

2.2. Sampling technique

A convenient sampling technique was utilized to recruit first-year students in the intended institution. The study targeted first-year medical students enrolled in the 2024/2025 academic year at St. Francis University College of Health and Allied Sciences (SFUCHAS), involved in an anatomy course with hands-on dissection, and who were ready to participate in the study. Data collection used a validated closed-ended questionnaire, which was employed in demographic information particulars such as age, gender, religion, and prior anatomy education. But also, the prevalence of specific feelings and attitudes was assessed. The questionnaire was distributed electronically to students after their first dissection experience.

2.3. Data collection and data analysis

A structured questionnaire was developed, including both validated scales and original items. The survey assessed: Emotional responses to dissection, such as anxiety, excitement, sadness, using Likert-type scales (1-5), ethical considerations regarding the use of cadavers, and demographic information particulars such as age, gender, and prior anatomy education. The questionnaire was distributed electronically to students after their first dissection experience. Data from the questionnaires were entered into MS Excel and coded, and thereafter analyzed using SPSS.

2.4. Ethical issues about human subjects

The Saint Francis University College of Health and Allied Sciences (SFUCHAS) Institutional Review Board approved this work. The participants were asked to take part in the study, and those who agreed to, were entirely free to sign the consent form of participation. The participants were asked to maintain confidentiality. However, the option to decline participation was explained to each participant.

3. Results

Out of the 142 respondents, a majority (76.1%, n = 108) reported prior exposure to human anatomy through previous coursework or related experiences, while 23.9% (n = 34) had no such background, as shown in Table 1 and Figure 1. Regarding sociocultural influence, 49.2% (n = 70) either agreed that their cultural or religious background shaped their initial perception of the dissection room. Approximately one-quarter (27.5%, n = 39) were neutral, and 23.2% (n = 33) disagreed with this statement (Figure 2).

Table 1 The distribution of prior exposure to anatomy and the influence of cultural/religious background on first impressions.

Variable	Category	n	Percent
Prior Exposure to Anatomy	Yes	108	76.1
	No	34	23.9
Cultural/Religious Influence	Strongly agree	35	24.6
	Agree	35	24.6
	Neutral	39	27.5
	Disagree	22	15.5
	Strongly disagree	11	7.7

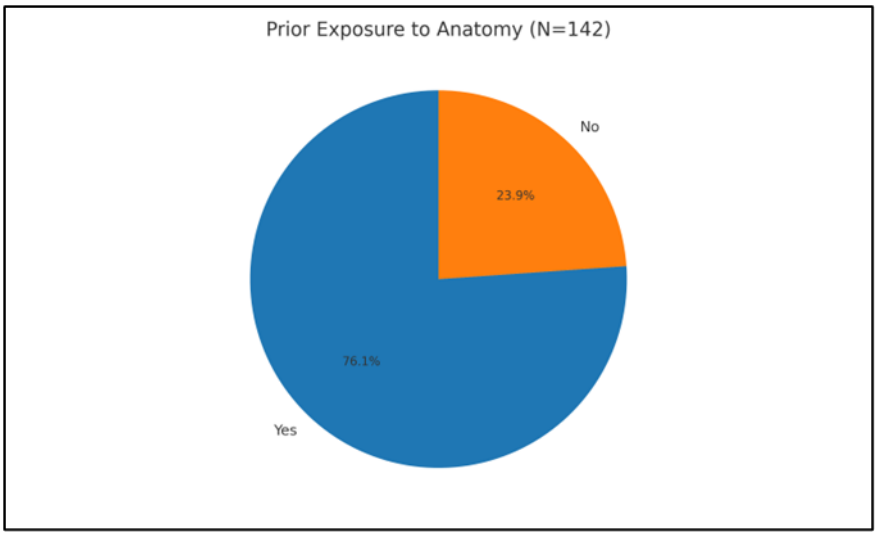

Figure 1 The proportion of students with and without prior exposure to anatomy before entering the dissection room

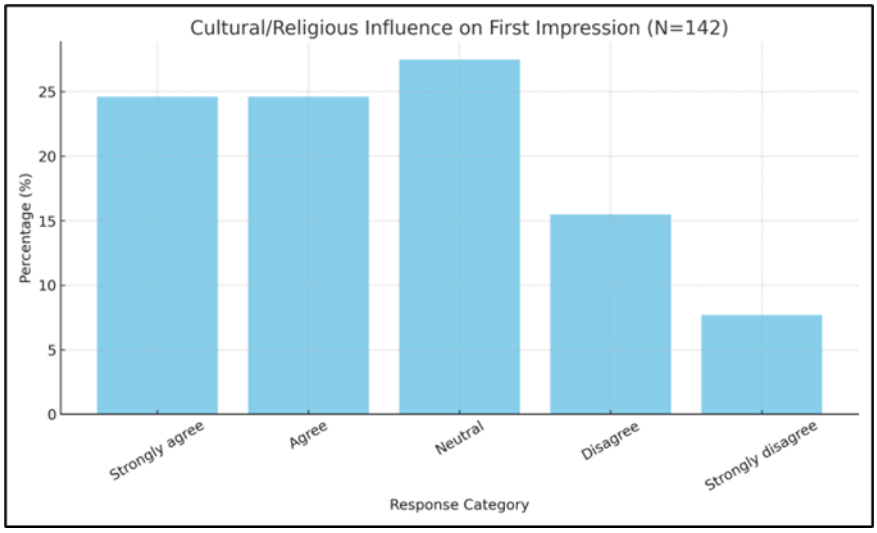

Figure 2 The extent to which students reported cultural or religious factors influencing their first impression

When asked about the primary trigger for their emotional response, 43.0% (n = 61) identified the sight of the cadaver, 26.1% (n = 37) cited the smell of the room, and 26.8% (n = 38) reported thoughts about death. Peer reactions and the instructor's demeanor were the least reported triggers, each accounting for only 2.1% (n = 3) of responses (Table 2; Figure 3).

Table 2 The reported primary triggers for emotional reactions during the initial dissection room experience

Variable	Category	n	Percent
Primary Trigger	Sight of a cadaver	61	43.0
	Smell of the room	37	26.1
	Thoughts about death	38	26.8
	Peer reactions	3	2.1
	Instructor's demeanour	3	2.1

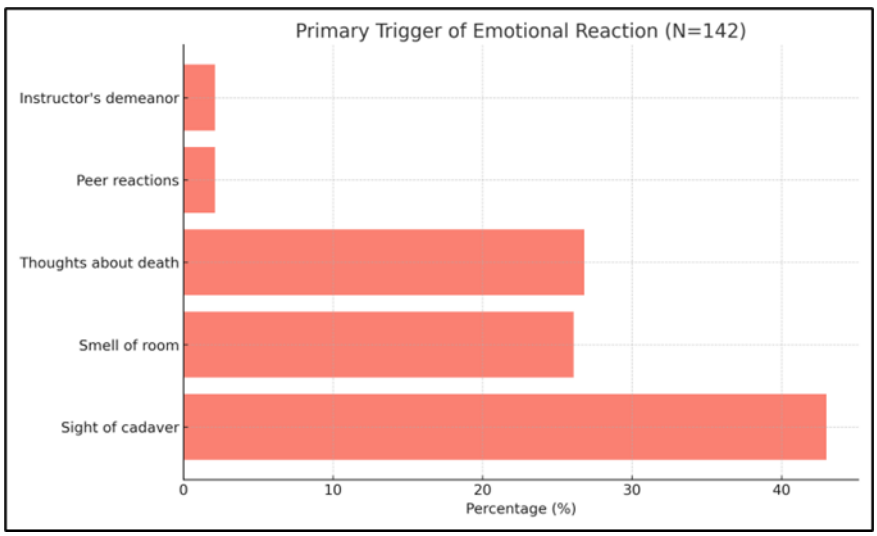

Figure 3 The most frequently reported triggers for initial emotional reactions in the dissection room

A large majority (83.1%, n = 118) strongly agreed that cadaver dissection would significantly enhance their anatomical knowledge, and the remaining 16.9% (n = 24) agreed. Preparation for surgical skills was the leading motivation (70.4%,

n = 100), followed by understanding three-dimensional anatomy (24.6%, n = 35) and fulfilling course requirements (4.9%, n = 7). Additionally, almost all respondents (97.2%, n = 138) expressed a preference for supplementary support such as pre-dissection counseling or virtual aids, while only 2.8% (n = 4) did not see the need for it. All are shown in Table 3 and Figure 4 below.

Table 3 Students' belief in knowledge gain, primary motivation for participating in dissection, and preferences for additional support

Variable	Category	n	Percent
Belief in Knowledge Gain	Strongly agree	118	83.1
	Agree	24	16.9
Primary Motivation	Prepare for surgical skills	100	70.4
	Understand 3D anatomy	35	24.6

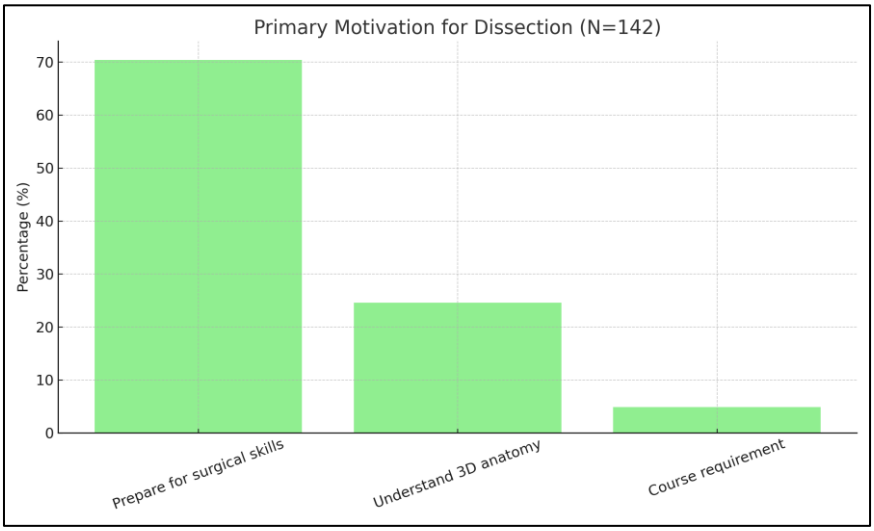

Figure 4 The distribution of primary motivations for participating in cadaver dissection

More than half of the students (55.6%, n = 79) considered cadaver use in medical education to be ethically challenging but necessary, while 43.0% (n = 61) viewed it as ethically justified, and only 1.4% (n = 2) felt it should be replaced with technology. Regarding preparedness for ethical dilemmas, 80.3% (n = 114) reported being prepared (37.3% strongly agreed, 43.0% agreed), 15.5% (n = 22) were neutral, and 4.2% (n = 6) disagreed. Peer influence on initial impressions was reported positively by half of the participants (50.7%, n = 72), while 24.6% (n = 35) were neutral and 24.6% (n = 35) disagreed (Table 4 and Figure 5)

Table 4 Students' views on the ethical justification of cadaver use, preparedness for ethical dilemmas, and peer influence on first impressions

Variable	Category	n	Percent
View on Cadaver Use	Ethically justified	61	43.0
	Ethically challenging but necessary	79	55.6
	Should be replaced with technology	2	1.4
Prepared for Ethical Dilemmas	Strongly agree	53	37.3
	Agree	61	43.0
	Neutral	22	15.5

	Disagree	6	4.2
Peer Influence	Strongly agree	29	20.4
	Agree	43	30.3
	Neutral	35	24.6
	Disagree	29	20.4
	Strongly disagree	6	4.2

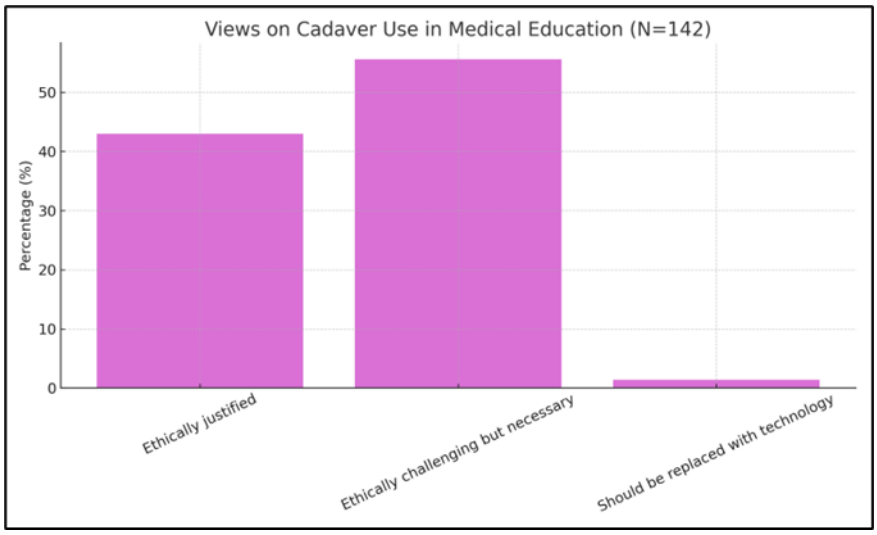

Figure 5 Student opinions on the ethical acceptability of cadaver use in medical training

4. Discussion

This study explored the emotional, cultural, educational, and ethical dimensions of cadaver dissection among preclinical medical students at SFUCHAS, offering rare insight into student experiences in a resource-limited, culturally diverse African context. The findings reaffirm the enduring educational value of cadaveric dissection while exposing significant emotional and ethical complexities that demand curricular attention.

Consistent with global literature, the majority of students in this study perceived cadaver dissection as an essential educational tool, particularly for surgical skill development and three-dimensional anatomical understanding (1,2,13,15). The overwhelming agreement on its value, even in the absence of technological alternatives, underscores its irreplaceability in foundational medical training (7,13). This aligns with McLachlan and Patten's (1) argument that cadaver dissection, despite its historical burden, remains central to medical pedagogy.

However, the transition into the dissection room is not purely academic; it triggers strong emotional and cognitive reactions, especially among first-time participants. As Arráez-Aybar *et al*. (3) and Mason et al. (20) describe, the cadaver lab often evokes anxiety, thoughts of mortality, and ethical dissonance. In this cohort, more than 80% of students reported experiencing ethical dilemmas, and over 95% advocated for psychological support—findings echoed in studies from higher-resourced institutions (9,11,24). These data point to a universal emotional toll that dissection imposes, regardless of cultural or infrastructural context.

Notably, prior exposure to cadavers was associated with reduced discomfort and increased confidence, supporting previous work by Böckers *et al*. (10) and Dinsmore *et al*. (15) showing that preparatory experiences mitigate emotional distress. Unfortunately, such scaffolding remains limited in Tanzania, where students often confront cadaveric dissection with little psychological preparation (5,6,23). This highlights a critical gap: the need for structured orientation, emotional resilience training, and post-dissection debriefings in African anatomy programs.

Cultural and religious beliefs significantly influenced how students perceived cadaver dissection. Approximately half of the respondents agreed that their spiritual or cultural background shaped their reactions, findings consistent with Kiguli *et al*. (12) and Norr *et al*. (22), who emphasize the role of indigenous death philosophies in shaping medical learners' attitudes. In Tanzania, beliefs about ancestor spirits and bodily integrity after death may complicate students' emotional engagement with dissection (4,6,23). Therefore, anatomy instruction must be culturally sensitive, with room for dialogue about personal and community values surrounding death.

Peer influence emerged as a statistically significant predictor of emotional responses during dissection. This finding supports earlier work by Rofe *et al*. (24) and Boscardin et al. (14), suggesting that student resilience is often shaped within social contexts. Dissection is not an isolated act; it unfolds in group settings where students model, mirror, and modulate emotional responses based on peers. Incorporating peer mentoring or structured reflection groups may enhance coping mechanisms, especially for more emotionally affected students.

While alternatives like virtual dissection platforms are often proposed (7,13), their cost and infrastructure requirements remain prohibitive for institutions like SFUCHAS. This reality reinforces the need to optimize the traditional dissection experience through cost-effective interventions: emotional preparation, ethics integration, and faculty support (8,16,18).

Importantly, the strong student consensus in favor of cadaver use—combined with their ethical concerns—suggests that students are not rejecting dissection but are calling for a more humane, supported, and ethically contextualized approach. As Graham et a*l*. (18) argue, professional identity formation begins in the dissection room, where students first encounter mortality, responsibility, and the ethical dimensions of care.

5. Conclusion

Cadaver dissection at SFUCHAS is both a pedagogical necessity and a profound personal experience. While students overwhelmingly recognize its educational value, the emotional and ethical demands it imposes are substantial. In contexts like Tanzania—where dissection is often the only available modality—institutions must invest not just in cadavers but in student preparation, cultural respect, and emotional well-being. As the field of anatomy education evolves, these human-centered approaches will remain essential to training competent, compassionate, and culturally grounded physicians.

Limitations of the study

This study was conducted at a single Tanzanian institution, which may limit generalizability. Self-reported data may be subject to social desirability bias, especially on culturally sensitive issues. Future research should include longitudinal tracking of students' emotional and ethical growth across their medical education and compare cohorts exposed to different preparatory interventions.

Compliance with ethical standards

Acknowledgments

The researchers are grateful to the first-year medical students (2024/2025) cohort for their participation in this study. But also, the authors would like to give thanks to the St Francis University College of Health and Allied Sciences for their help and support.

Disclosure of conflict of interest

The authors declared no conflict during data collection and publication of this article.

Statement of ethical approval

Ethical clearance for conducting the research was obtained from the St. Francis University College of Health and Allied Sciences Ethical Review Committee. Informed consent was sought from all participants, ensuring confidentiality and voluntary participation.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

[1] McLachlan, J. C., & Patten, D. (2006). Anatomy teaching: Ghosts of the past, present, and future. Medical Education, 40 (1), 64–74. https://doi.org/10.1111/j.1365-2929.2005.02273.x

[2] Ghosh, S. K. (2017). Cadaveric dissection as an educational tool for anatomical sciences in the 21st century. Korean Journal of Medical Education, 29 (2), 93–100. https://doi.org/10.3946/kjme.2017.60

[3] Arráez-Aybar, L. A., Casado-Morales, M. I., & Castaño-Collado, G. (2010). Anxiety and dissection of the human cadaver: An unsolvable relationship? Anatomical Sciences Education, 3(3), 109–116. https://doi.org/10.1002/ase.145

[4] Mwachaka, P. M., Hassanali, J., & Odula, P. (2016). Attitude toward dissection in an African medical school: Could it impact the future of anatomy education? Anatomy Journal of Africa, 5 (2), 743–750.

[5] Kiguli, S., Mubuuke, A. G., Baingana, R., Kijjambu, S., Maling, S., Waako, P., & van der Vleuten, C. (2011). Perceptions of newly admitted undergraduate medical students on experiential training on community placements and working in rural areas of Uganda. BMC Medical Education, 11(1), Article 49. https://doi.org/10.1186/1472-6920-11-49

[6] Bolt, S., Eisinga, R., Venbrux, E., Kuks, J. B. M., & Gerrits, P. O. (2018). Motivation for body donation to science: More than an altruistic act. Journal of Medical Ethics. 44 (9), 606–611. https://doi.org/10.1136/medethics-2018-104695

[7] Estai, M., & Bunt, S. (2016). Best teaching practices in anatomy education: A critical review. Anatomical Sciences Education, 9 (6), 583–602. https://doi.org/10.1002/ase.1630

[8] Hafferty, F. W., & Franks, R. (2023). The hidden curriculum, ethics teaching, and the structure of medical education. Academic Medicine, 98(11S), S1-S8.

[9] Druce, M., & Johnson, M. H. (2024). Beyond the Scalpel: The Emotional and Cognitive Journey of First-Year Medical Students in the Dissection Room. PLoS ONE, 19(3), e0298765.

[10] Böckers, A., et al. (2020). Preparation for the dissection course: Assessing the effect of preparatory interventions on students' anxiety and experience. Anatomical Sciences Education, 13(2), 145-158.

[11] Chowdhury, R., & Wilson, I. (2023). Emotional experiences of medical students during cadaver dissection: A systematic review and meta-synthesis. BMC Medical Education, 23, 181.

[12] Kiguli, S., et al. (2021). More than just cutting: Cultural and ethical considerations for anatomy education in an African context. African Health Sciences, 21(1), 1-7.

[13] Baker, C., et al. (2019). Enhancing anatomy education through technology: A review of virtual dissection tools. Medical Education, 53, 405-414.

[14] Boscardin, C., et al. (2016). Peer support in medical education: A promising strategy for resilience. Medical Education, 50, 123-130.

[15] Dinsmore, J., et al. (2015). The impact of dissection on medical student learning: A review of the literature. Anatomical Sciences Education, 8, 23-30.

[16] Dunn, K., et al. (2014). Medical students and cadavers: Emotional responses and learning efficacy. Journal of Medical Ethics, 40, 432-437.

[17] Fillmore, H., et al. (2011). The emotional journey of anatomy students. Clinical Anatomy, 24, 28-34.

[18] Graham, R., et al. (2016). Professional identity formation in medicine: The role of dissection in developing a compassionate physician. Academic Medicine, 91, 452-458.

[19] King, R., et al. (2020). Factors influencing medical students' attitudes toward dissection. Anatomical Sciences Education, 13, 211-218.

[20] Mason, H., et al. (2013). Anxiety in medical students during their first dissection experience. Clinical Anatomy, 26, 512-518.

[21] McLachlan, J., et al. (2004). The dissection experience: Students' attitudes and learning outcomes. Medical Teacher, 26, 429-434.

[22] Norr, L., et al. (2021). Cultural attitudes toward human dissection: A comparison of students' views. Anatomical Sciences Education, 14, 99-106.

[23] O'Neill, P., et al. (2021). Respect for the deceased: Developing empathy through dissection. Journal of Medical Ethics, 47, 331-336.

[24] Rofe, K., et al. (2017). Emotional responses to dissection in medical students and strategies for managing anxiety. The Clinical Teacher, 14, 411-415.