



Perceptions and Barriers to Cadaveric Dissection: A Qualitative Study of Medical Students at Makerere University

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Abstract

Background: Only 24.4% of students engaged in hands-on dissections, 42.7% observed, and 31.7% relied on manuals. Some cadavers are incompletely dissected, a need for a deeper understanding of medical students' perceptions and the underlying cause of these behaviors with an of improving engagement and optimizing learning outcomes.

Methods: A qualitative study was conducted with first- and second-year medical students at Makerere University. Data were collected through focus group discussions and analyzed thematically following Braun and Clarke's inductive approach, continuing until data saturation was achieved.

Results: Thematic analysis of students' reflections revealed four overarching domains that shaped their experiences with cadaveric dissection. First, Perceptions and Emotional Response captured the spectrum of initial reactions ranging from awe and gratitude to anxiety, nausea, and sensory discomfort highlighting the emotional complexity of first exposure. Second, Challenges and Systemic Issues encompassed logistical constraints, poor specimen quality, overcrowding, and limited psychological preparation, which collectively undermined engagement and academic performance. Third, Ethical Concerns reflected tensions around body donation, cultural beliefs, and institutional transparency, often prompting moral introspection and calls for reform. Finally, Learning Strategies and Adaptation described students' evolving coping mechanisms, peer support, and reflective practices that facilitated emotional regulation and deeper anatomical understanding over time.

Conclusion: Cadaveric dissection is perceived as essential for achieving anatomical mastery and developing clinical competence, yet it simultaneously evokes considerable emotional discomfort and ethical unease among medical students. Enhancing cadaver quality, providing robust instructional support, coupled with transparent ethical practices and culturally sensitive approaches, can significantly improve student participation, reduce distress, and optimize learning in anatomy programs.

Keywords: Cadaveric Dissection; Medical Education; Perceptions; Barriers to Cadaver Dissections; Anatomy; Emotional Response; Ethical Concerns; Cultural Beliefs; Uganda

Introduction

Human anatomy forms the cornerstone of medical education, providing essential knowledge of the body's structure, function, and relationships. Mastery of anatomy is indispensable for clinical diagnosis, surgical procedures, and a comprehensive understanding of human health and disease [2]. For centuries, cadaveric dissection has been recognized as the gold standard for teaching gross anatomy, offering a unique, three-dimensional, and tactile learning experience that cannot be fully replicated by other modalities [9]. This hands-on engagement allows students to appreciate anatomical variations, develop psychomotor skills, foster teamwork, and confront the reality of human mortality, thus developing resilience and professionalism [23]. Despite its enduring value, cadaveric dissection is not without its complexities and challenges. The initial encounter with a cadaver can be profoundly impactful, evoking a wide spectrum of emotions ranging from awe and curiosity to anxiety, fear, and discomfort [7]. How students navigate these emotional landscapes and adapt to the unique learning environment of the dissection lab significantly influences their

perceptions towards dissection.

At Makerere University, cadaveric dissection is an integral part of the first and second-year medical curriculum. However, only 24.4% of students actively participate in hands-on dissections, with a larger proportion (42.7%) observing, and a substantial 31.7% relying solely on anatomical manuals and atlases [18]. Disturbingly, some cadavers are partially dissected whereas are abandoned by students, indicating potential challenges faced by students in the dissection laboratory. The observed low engagement, coupled with incomplete cadaver utilization, suggests a complex interplay of factors that are barriers to human dissections. While the value of dissection is widely acknowledged, the specific perceptions of medical students, and the barriers they encounter, remain underexplored. Understanding these nuances are crucial for developing targeted interventions to improve the quality of anatomy education and enhance student learning experiences.

Methodology

Study Design

This was a qualitative, cross sectional exploratory study. A qualitative approach was selected to capture the depth and complexity of subjective experiences.

Study Setting and Participants

The study was conducted at Makerere University College of Health Sciences, Kampala, Uganda. Participants were self-selected medical students in their first- and second-year year of their studies and actively engaged in cadaveric dissection. Recruitment was voluntary and facilitated through class briefings. Interested students contacted the research team through their class leader, they received detailed information about the study's purpose, procedures, and ethical safeguards.

Data Collection Method and Tool

Data was collected through a series of focus group discussions (FGDs), each comprising an average of seven participants. FGDs fostered dynamic interaction, collective meaning-making, and the emergence of shared norms and attitudes that may not surface in individual interviews or through quantitative approaches.

Prior to formal data collection, the semi-structured discussion guide was piloted at Soroti University, a government training institution. The pilot involved medical students from the same year of intake as the study population, ensuring contextual relevance and experiential alignment. This pretesting phase was instrumental in refining the tool's clarity, emotional sensitivity, and thematic flow. Based on participant feedback and moderator observations, the guide was revised to rephrase emotionally sensitive questions to foster reflective engagement, introduce prompts that encouraged deeper exploration and clarify terminology to ensure consistent interpretation. The final discussion guide contained the questions below.

Q1. What's your thought about dissecting human bodies?

Q2. How did you feel when you encountered the human body for the first time? Has that feeling changed?

Q3. Please share your discomfort during dissection and how you overcame them

Q4. Is there any ethical concern that has been lingering your mind since your encounter with the dead bodies?

Q5. Have your views on cadaveric dissection changed ever since you got involved?

Q6. Do you have any suggestions to improve learning of anatomy?

All discussions were moderated by experienced qualitative researchers and audio-recorded with participants' informed consent. Field notes were taken to complement the recordings and capture non-verbal cues and contextual nuances. Data collection continued until data saturation was reached, ensuring comprehensive coverage of the research objectives.

Data Analysis

Verbatim transcripts from the focus group discussions were analyzed using thematic analysis, guided by Braun and Clarke's inductive framework (2006). The analytic process began with repeated reading of transcripts and accompanying field notes to achieve deep familiarization and immersion in the data. Salient features were identified and coded systematically across the dataset, with attention to both explicit content and underlying meaning.

Codes were then collated into preliminary themes based on conceptual similarity and relevance to the study's objectives. These themes were iteratively reviewed and refined to ensure internal coherence, conceptual clarity, and mutual exclusivity. Each theme was defined with clear labels and descriptive summaries to facilitate interpretive depth and transparency.

Illustrative quotes were selected to exemplify key patterns and preserve the authenticity of participant voices. To enhance credibility and conformability, two researchers independently conducted the coding and thematic development. Discrepancies in interpretation were resolved through collaborative discussion and consensus, ensuring analytical rigor and reflexivity throughout the process.

Ethical Considerations

Ethical approval was obtained from the Research and Ethics Committee (REC) of Makerere University College of Health Sciences. All participants were fully informed about the study's purpose, voluntary participation, and right to withdraw at any time without any penalty. Written informed consent was obtained. Confidentiality and anonymity were ensured through transcript de-identification and secure data handling. Findings were reported in a way that prevented identification of individual participants.

Results

A total of 64 medical students participated in Eight (8) focus group discussions. Participants included both first- and second-year students enrolled in the Bachelor of Medicine and Bachelor of Surgery (MBChB) program at Makerere University. The cohort was diverse in terms of gender, religious affiliation, and cultural background, reflecting the broader student population. Ages ranged from 19 to 40 years, with a near-equal distribution of 60:40 male and female participants. First year students were in their first semester whereas the second year students were in their third semester of their course

The thematic analysis revealed four overarching themes describing students' experiences with cadaveric dissection:

- Perceptions and Emotional Response
- Challenges and Systemic Issues
- Ethical Concerns
- Learning Strategies and Adaptation

Perceptions, Emotional Response and Adaptat

The medical students expressed a mixed perceptions towards cadaver dissections. They described a complex and evolving spectrum of emotions throughout their dissection experience. Initially, many expressed a sense of curiosity and excitement, viewing the opportunity as a privilege and a critical step in their medical journey. This initial enthusiasm was often linked to a desire for deeper understanding and a personal connection to the human body.

One student articulated: *"I was excited to dissect because I felt like I'd be viewing my own body from a different perspective."*

However, this excitement frequently gave way to intense fear, discomfort, and even trauma upon their first direct encounter with the cadaver. The reality of working with deceased human remains proved profoundly challenging for many, leading to vivid, negative memories. *"The first day in the cadaver room was a day I don't want to remember."*

For some, the emotional shift was compounded by physical reactions to the preservation chemicals used in the cadavers.

One participant noted: *"My initial feeling was excitement. But then with interaction with the cadavers, the feeling changed. The excitement reduced because that chemical, which they used to preserve them, it started irritating my nose and my eyes."* This sensory discomfort added another layer of aversion, reinforcing the emotional intensity of early exposure.

Even before entering the dissection room, some students experienced anticipatory anxiety triggered by prior expectations.

One participant recalled being told by A-level teachers that they would perform cadaver dissections on real human bodies: *"Before we came here, I think we were told by our A-level teachers that we were going to have cardiac dissections on real human bodies. So what came into my mind... I thought of many things. My mind was controversial—actually studying on human beings."* This reflection highlights the internal conflict and moral questioning that preceded the physical experience, suggesting that emotional preparation begins long before the first incision.

Over time, and with repeated exposure, a significant number of students reported a process of emotional desensitization and eventual acceptance. This adaptation allowed them to shift their focus from the emotional impact of death to the academic task of learning anatomy, often viewing the cadaver as a 'first patient' or a teaching tool rather than a deceased individual. *"The trauma and shock I had before—now it is not there. It's like, it's a normal body now."*

One student described this emotional transition in terms of reconciling initial shock with professional purpose: *"So I was shocked. But then with time, I comforted myself because now I looked at it—first of all, you're going to be doctors. You have to save people. Now we cannot study on dummies because we are so YouTube, and there are some dummies which they use. And it—it comes out."*

Challenges and Systemic Issues

Students identified several significant institutional and systemic barriers that hindered their learning and contributed to their distress during dissection.

Lack of Guidance and Supervision

A predominant concern was the perceived absence of adequate

instructional guidance and supervision within the dissection laboratory. Students often felt isolated and left to their own devices, struggling to connect theoretical knowledge with practical observation.

"There was no one. So we had to just use our practical manuals and try to figure things out for ourselves." This lack of direct mentorship led to frustration and a sense of being unsupported, forcing them into highly self-reliant learning modes.

Poor Cadaver Condition

The physical condition and preservation quality of the cadavers were frequently cited as a major impediment to effective learning. Students reported discrepancies between textbook illustrations and the reality of the dissected specimens, making identification of structures challenging.

"You are reading the anatomy, but what you are seeing is different. Sometimes the structures are difficult to recognize because of the preservation or previous dissections." This issue not only frustrated students but also created cognitive dissonance, affecting their ability to confidently learn and retain anatomical knowledge.

Ethical Concerns

A subset of students expressed profound ethical concerns regarding the origin of cadavers and the integrity of the consent process. The uncertainty surrounding whether donors had willingly agreed to the use of their bodies for dissection weighed heavily on participants, evoking discomfort and moral reflection.

One student questioned, *"Did these people consent to be here? It sometimes makes me feel uncomfortable, thinking about their dignity."* Such reflections underscored a persistent tension between educational utility and respect for human remains.

Beyond formal consent, cultural and religious beliefs significantly shaped students' emotional responses and moral reasoning. Several participants described internal conflict rooted in traditions that emphasize spiritual rest, ancestral reverence, and posthumous dignity. For some, the act of dissection was perceived as a transgression against deeply held beliefs about the sanctity of the body after death.

One student shared: *"At first I didn't believe that dead people would be dissected, and then you're there removing people's organs and looking at them. I felt bad. I felt like it is inhuman... Like, it's something which came into me, and I was like, why would we be dissecting people here?"*

This discomfort was compounded by cultural narratives that associate bodily disturbance with spiritual unrest or dishonor. Another participant reflected: *"You begin with excitement, but then when you see the real cadaver, you feel a bit empathetic. You feel like... this person has also been living, but now he's dead. Now we are playing with their bodies."*

Importantly, some students described a gradual shift in perspective over time, as they grappled with the ethical and cultural tensions. One participant explained: *"So the feeling did change with time. First of all, I had to think about it and be like—burying your dead body and it rots, and then maybe studying on it, so you can save another person who may be suffering from a serious disease—somehow I felt it was justifiable."*

These reflections reveal how cultural and religious frameworks not only influence initial reactions but also shape the emotional labor

required to reconcile professional training with personal values. The desensitization process, often assumed to be linear, was complicated by these layered belief systems, making the anatomy lab a site of both learning and ethical negotiation.

Learning Strategies and Adaptation

In response to the pedagogical and emotional challenges of cadaveric dissection, students proactively adopted a range of self-directed learning (SDL) strategies to optimize their understanding and navigate the demanding environment.

Reliance on Digital Resources

Digital tools—particularly online video platforms—emerged as indispensable learning aids. Students frequently turned to resources such as YouTube to supplement practical sessions, clarify ambiguous anatomical structures, and compensate for limited instructional support.

One participant noted, *“Watching a YouTube video saves more time than trying to figure it out yourself when there’s no one to ask.”* Another added, *“Videos help immensely, especially when we are not guided in actual dissections. They show you step-by-step what to look for.”* These reflections highlight the critical role of digital media in modern anatomy education, serving not only as supplementary tools but, in some cases, as primary sources of instruction in resource-constrained settings.

Enduring Value of Hands-on Dissection

Despite the utility of digital resources, students consistently emphasized the irreplaceable value of hands-on cadaveric dissection. No simulation, they argued, could replicate the tactile experience, spatial orientation, and depth of learning gained from direct engagement with human tissue. The physical act of tracing and visualizing structures in situ was deemed essential for long-term retention and conceptual clarity.

As one student expressed, *“When you trace something and see it, you’re sad to forget it. It sticks with you in a way a picture or video never can.”* This sentiment underscores that while digital tools are vital complements, they are not perceived as substitutes for the experiential learning offered by cadaver dissection.

Emotional Hesitation and Peer Influence

Learning strategies were also shaped by students’ emotional readiness and the social dynamics within the dissection room.

One participant described spending two weeks merely observing, unable to touch the cadaver due to fear and emotional discomfort: *“I spent like two weeks without touching anybody—just coming and observing what people were doing. I was fearing.”*

In contrast, some peers displayed striking confidence, even extracting teeth from cadavers with ease. Their assertiveness created a perceived divide in emotional resilience and professional identity.

As the same student recounted, *“They had a kind of confidence which I never had.”* Moreover, these confident peers often dismissed emotional sensitivity, framing it as a lack of professionalism: *“They were like, people shouldn’t be feeling so sympathetic. Because they said, if someone was responsible enough, he or she couldn’t be here in the cadaveric room.”*

Evolving Perspective and Professional Motivation

Some students described a transformative shift in mindset as

they reconciled initial discomfort with their emerging professional identity.

One participant reflected: *“So I was shocked. But then with time, I comforted myself because now I looked at it—first of all, you’re going to be doctors. You have to save people. Now we cannot study on dummies because we are so YouTube, and there are some dummies which they use. And it—it comes out.”* This statement illustrates the internal negotiation between emotional reaction and vocational purpose. While digital simulations and models were acknowledged, they were ultimately seen as insufficient substitutes for the depth and realism of cadaveric learning.

Together, these reflections reveal how students adapted cognitively, emotionally, and socially to the dissection experience—balancing technological innovation, peer influence, and professional aspiration in their pursuit of anatomical mastery.

Discussion

Perceptions and Emotional Response

The study reveals a profound and common emotional trajectory experienced by medical students during the gross anatomy course, confirming its role as a key element of professional socialization. This journey moves from initial excitement to intense distress, culminating in a necessary process of professional detachment.

The Initial Phase: Excitement, Anticipation, and Ethical Conflict

Initially, students expressed curiosity and excitement, perceiving the opportunity as both a privilege and a foundational moment in their medical careers. This positive anticipation, often linked to a desire for a “deeper understanding”, which is a widely reported finding in medical education literature [15]. However, this enthusiasm was often counter balanced by anticipatory anxiety, triggered by expectations or prior misinformation. The student’s reflection on being told about “cadaver dissections on real human bodies” highlights a pre-existing internal ethical conflict and moral questioning. This finding aligns with research suggesting that significant emotional discomfort can manifest in the phase prior to cadaver exposure, demonstrating that the challenge is not only physical but cognitive from the outset [26].

The Crisis of Encounter: Shock, Trauma, and Sensory Aversion

The transition from anticipation to reality was marked by intense fear, discomfort, and trauma upon their first direct encounter. Statements such as “The first day in the cadaver room was a day I don’t want to remember” powerfully illustrate the immediate psychological shock that accompanies confronting deceased human remains. This initial adverse reaction including apprehension, stress, and anxiety is consistent with the body of literature detailing the immediate emotional impact of cadaver dissection [10].

A notable compounding factor was the sensory irritation caused by preservation chemicals. The irritation experienced in the nose and eyes added a tangible, physical dimension to students’ aversion, diminishing their initial enthusiasm and intensifying emotional discomfort. This sensory challenge is consistently documented in the literature, where the pungent odor of preservation chemicals—particularly formalin—is frequently cited as a primary trigger for distress. Lalit et al. (2018) found that 20.28% of first-year medical students reported nausea, alongside dizziness, restlessness, and other physical symptoms during their initial exposure to cadaveric dissection

[15]. These findings reinforce the argument that environmental discomfort can significantly dampen early engagement and heighten emotional vulnerability in the dissection hall.

The Resolution: Desensitization and Professional Identity Formation

Over time, students underwent a process of emotional desensitization and acceptance. This adaptation allowed them to successfully reframe the cadaver from a deceased individual to an academic tool a necessary strategy for professional task completion. This shift is a classic example of intellectualization, a coping mechanism that enables future practitioners to manage the emotional labor required in medicine [22].

Critically, this detachment was actively rationalized in the context of their future roles. Viewing the cadaver as the "first patient" allowed students to link the difficult experience directly to their overarching professional purpose ("you're going to be doctors. You have to save people"). This cognitive reframing confirms that the gross anatomy laboratory serves as a catalyst for professional identity formation, teaching students to effectively manage their personal feelings while maintaining a professional focus on the demands of medical training [3]. The emotional trajectory, therefore, underscores the anatomy lab's function as the initial and essential site for learning resilience and ethical, task-oriented professionalism.

Systemic Challenges and Institutional Barriers

The student experiences in the anatomy laboratory reveal critical systemic challenges that transform a potentially rich educational environment into a source of distress and compromised learning. Chief among these are the lack of instructional guidance and the suboptimal condition of cadaveric specimens both of which reflect institutional shortcomings requiring urgent pedagogical and logistical reform.

The Burden of Under supervision and Forced Autonomy

A recurring theme in student narratives was the absence of direct instructional supervision: *"There was no one... So we had to just use our practical manuals and try to figure things out for ourselves."* This sentiment underscores a significant deficit in faculty presence during dissection sessions. The gross anatomy lab is designed to be a scaffolded, hands-on learning space where demonstrators guide students in translating two-dimensional textbook knowledge into three-dimensional anatomical understanding [15]. When such guidance is lacking, students are prematurely thrust into a self-reliant learning mode that may exceed their emotional and technical readiness.

While autonomy is a valued professional trait, it's premature imposition in a cognitively demanding and emotionally charged setting can be counterproductive. Faculty presence is not only essential for reinforcing anatomical knowledge but also for supporting students' emotional adaptation to cadaveric dissection. Studies have shown that demonstrators play a key role in fostering respectful attitudes, managing emotional distress, and modeling professional behavior [10, 22]. The absence of this instructional safety net exacerbates anxiety, reduces confidence, and impairs the acquisition of spatial and procedural skills.

Comparatively, anatomy programs in Central Europe and East Asia emphasized structured mentorship and peer-led tutorials to mitigate the emotional and cognitive burden of dissection, with

demonstrable improvements in student engagement and retention [6, 14]. These models highlight the importance of institutional investment in faculty development and student-centered pedagogy.

The Impediment of Suboptimal Cadaver Quality

Equally disruptive was the issue of poor cadaver preservation. Students reported difficulty in identifying anatomical structures due to tissue degradation and prior dissection damage: *"You are reading the anatomy, but what you are seeing is different. Sometimes the structures are difficult to recognize because of the preservation or previous dissections."* This disconnect between theoretical knowledge and physical observation creates cognitive dissonance, undermining confidence and impeding retention.

The cadaver, often referred to as the "first teacher," offers unparalleled exposure to anatomical variability and tactile realism [3]. However, when specimens are poorly preserved—desiccated, atrophied, or chemically degraded—the pedagogical value is severely compromised. Students struggle to reconcile textbook illustrations with distorted specimens, leading to wasted time, misidentification, and diminished appreciation of three-dimensional relationships [9].

Moreover, cadaver quality reflects broader institutional resource management. Inadequate preservation techniques not only impair learning but also intensify negative sensory experiences—Sensory triggers—such as strong chemical odors and mucosal irritation—have been consistently linked to heightened emotional distress and avoidance behaviors among medical students during initial cadaveric exposure (Az-Zahir et al., 2020). These physical reactions not only amplify psychological discomfort but also contribute to disengagement, underscoring the need for preparatory interventions and environmental safeguards in dissection-based anatomy education. Complementary findings by Sinha et al. (2024) reinforce this concern, with 55.1% of students reporting the smell of formalin as repulsive and over 75% experiencing eye irritation during their first month of dissection. Such responses highlight the tangible impact of environmental conditions on emotional adaptation and underscore the importance of institutional strategies that mitigate sensory aversion while fostering respectful, reflective engagement.. Comparative studies in low-resource settings, such as Tanzania and Nepal, consistently report that poor specimen quality correlates with heightened anxiety and diminished academic performance, reinforcing the imperative for standardized preservation protocols and transparent donor programs. In Tanzania, Marwa and Jotham (2025) found that inadequate psychological preparation and suboptimal cadaveric conditions contributed to emotional distress and ethical discomfort among first-year medical students. Complementing these findings, (Rahabu Marwa Morro, 2025) revealed that Tanzanian medical schools rely exclusively on unclaimed bodies, with an average delay of nine days before embalming resulting in fungal degradation and compromised tissue quality. These conditions not only hinder anatomical learning but also raise serious ethical concerns, underscoring the urgent need for body bequest programs and institutional reform in cadaver procurement practices [16].

Institutional Accountability and Reform

These systemic challenges under supervision and poor cadaver quality represent avoidable institutional failures that place undue burden on students. Addressing them requires a multifaceted response: reducing faculty-to-student ratios in the lab, investing in demonstrator training, and ensuring consistent funding for high-quality body donation and preservation programs. As Sugand et al.

(2010) argue, modernization of anatomy education must include infrastructural and ethical reforms that uphold both pedagogical integrity and student well-being [23].

Ethical Negotiation, Cultural Beliefs, and Professional Identity in Cadaveric Dissection

The findings vividly illustrate that medical students' engagement with gross anatomy is a process fraught with ethical and emotional labor, where professional learning collides with deep-seated personal and cultural values. The anatomy lab, therefore, functions not merely as a site for cognitive and psychomotor skill acquisition, but as a crucible for early professional identity formation and moral negotiation.

Ethical Anxiety and the Question of Consent Integrity

A critical finding is the pervasive ethical anxiety stemming from student uncertainty regarding the integrity of the consent process for body donation. Students' explicit doubts "Did these people consent to be here?" underscore a fundamental tension. The cadaver is immediately recognized as a former human being whose autonomy and dignity may have been compromised. When the ethical foundation of body acquisition is perceived as shaky, the act of dissection transitions in the student's mind from a privileged learning opportunity to a potential act of disrespect.

This psychological burden is a critical barrier to professional development. A student grappling with the fear of violating a deceased person's wishes cannot fully commit to the clinical lessons the cadaver offers. As literature emphasizes, transparency in donation programs is non-negotiable for building trust, not just with the community of donors, but with the future physicians who are learning to practice ethical medicine [17]. The persistent questioning of dignity points to an institutional responsibility to provide not just a signed document, but a clear, reassuring narrative about the donor's gift and the process used to ensure respect, a call for structured governance echoed in policy discussions [5].

Cultural Conflict and the Sanctity of the Body

The powerful influence of cultural and religious beliefs on students' reactions highlights the deeply personal nature of this educational experience. For many participants, the act of dissection is seen as a transgression against spiritual and traditional mandates that stress the sanctity of the body after death. The internal conflict described feeling that the act is "inhuman" or expressing empathy for the body being "played with" demonstrates the clash between the objective, scientific view of the body and the subjective, spiritual view held by their cultural upbringing.

This suggests that the process often assumed to be simple desensitization is, in reality, a complex, layered form of ethical negotiation. Students are required to perform significant emotional labor to reconcile these conflicting frameworks. This finding cautions against a one-size-fits-all approach to anatomy instruction and underscores the necessity of integrating cultural competency and ethics modules into the curriculum. By explicitly acknowledging the validity of these conflicts, institutions can support students as they navigate the emotional and ethical terrain of cadaveric dissection, they undergo a critical transition one that helps them distinguish between cultural respect for the dead and professional obligation to the living. This duality is eloquently explored by [21], who argue that anatomy education must foster not only technical competence but also ethical discernment rooted in autonomy, dignity, and cultural

sensitivity. Their work emphasizes that cadaveric dissection is not merely a pedagogical tool but a moral encounter, where students learn to reconcile reverence for the deceased with the imperative to serve the living [21].

This process of ethical negotiation is particularly salient in culturally diverse contexts, where beliefs about death, bodily integrity, and spiritual rest may conflict with the clinical demands of medical training. By confronting these tensions early in the curriculum, students begin to internalize a professional identity that balances empathy with objectivity—a concept often referred to as "detached concern" [4, 12]. The anatomy lab thus becomes a formative space where cultural values are not erased but engaged, allowing students to develop a nuanced understanding of what it means to care, to dissect, and ultimately, to heal.

Reconciliation through Justification and Utilitarian Reframing

Crucially, the results offer a path toward ethical reconciliation. The student who actively reframes the experience from an act of desecration to one of altruistic utility in the service of saving future lives demonstrates a vital step in professional identity formation. This utilitarian justification allows the student to morally sanction the temporary disturbance of the body for the greater good of medical knowledge.

This cognitive shift, where the cadaver becomes a teacher whose sacrifice is justified by its benefit to humanity, is central to the development of gratitude and professional respect [8]. It signifies the beginning of the physician's moral commitment: the ability to face the difficult realities of human mortality and bodily intrusion while maintaining profound reverence. Therefore, anatomy education should be intentionally framed to facilitate this moral progression, emphasizing the noble nature of the donor's gift and the ultimate purpose of the acquired knowledge.

Learning Strategies and Adaptation in Cadaveric Dissection

The findings reveal a multifaceted landscape of self-directed learning (SDL), emotional adaptation, and professional identity formation among medical students navigating the anatomy lab. These strategies are shaped not only by pedagogical necessity but also by institutional constraints and the emotional gravity of cadaveric dissection.

Compensatory Role of Digital Resources

Students' reliance on digital platforms particularly YouTube as primary instructional tools reflects a pragmatic response to instructional gaps. Rather than serving as supplementary aids, these resources function as necessity-driven substitutes for real-time faculty guidance. This behavior exemplifies SDL as defined by [13], where learners independently diagnose their needs, set goals, and identify resources.

The use of video tutorials to bridge instructional gaps is consistent with findings by [24], who noted that digital platforms offer step-by-step procedural clarity, especially in resource-constrained settings. Students described digital tools as cognitively efficient, with one noting, "*Watching a YouTube video saves more time than trying to figure it out yourself.*" This sentiment aligns with Al-Rubaie (2025), who emphasized that digital anatomy tools enhance visualization and reduce cognitive load.

However, the data also underscore a critical tension: while digital tools improve accessibility and confidence, their use is often reactive—compensating for institutional deficits rather than enriching a well-supported curriculum. This reflects broader concerns in anatomy education about over-reliance on technology in the absence of pedagogical scaffolding.

Unwavering Value of Hands-on Experiential Learning

Despite the utility of digital media, students consistently affirmed the irreplaceable value of cadaveric dissection. This aligns with [25] and [11], who argue that tactile engagement with human tissue fosters deep spatial learning and haptic memory critical for clinical competence.

Students described the embodied nature of dissection as transformative: *“Tracing and visualizing structures in situ sticks with you in a way a picture or video never can.”* This experiential depth supports the acquisition of non-traditional discipline-independent skills (NTDIS), including teamwork, resilience, and ethical sensitivity skills not cultivated through passive observation alone.

Emotional Dynamics and Identity Formation

The dissection hall emerged as a crucible for emotional and professional development. Students’ initial reactions ranged from curiosity to visceral discomfort, with some reporting avoidance behaviors such as *“spending two weeks without touching anybody.”* These responses mirror findings by [19], who documented emotional dissonance and identity negotiation during early dissection experiences among medical students in Singapore.

Peer dynamics further shaped emotional adaptation. Students who expressed hesitation were sometimes labeled as “unprofessional,” reflecting a culture of enforced detachment. This echoes [12], who cautioned that intellectual detachment—while protective—may suppress empathy and hinder the cultivation of “detached concern,” a balanced blend of emotional engagement and clinical objectivity essential to ethical medical practice.

Importantly, some students demonstrated transformative motivation, reframing their discomfort through vocational purpose: *“I comforted myself because now I looked at it—first of all, you’re going to be doctors. You have to save people.”* This internal dialogue reflects a pivotal moment in professional identity formation, where emotional adaptation is aligned with ethical imperatives and clinical responsibility. Such reframing parallels the findings of [1], who argue that cadaveric dissection fosters humanistic values and deepens students’ appreciation of personhood.

Recommendations

To enhance cadaveric dissection and improve learning outcomes in Uganda, the following actions are recommended. These measures aim to create a more ethical, respectful, and effective learning environment for future healthcare professionals.

1. Establish Ethical Transparency. Develop and disseminate clear guidelines for body donation, ensuring informed consent is rigorously obtained. Integrate legal and ethical education on body sourcing into the anatomy curriculum from the outset. Display transparent information on cadaver acquisition to reassure students and uphold donor dignity.

2. Introduce Donor Recognition Rituals. Organize formal ceremonies (e.g., memorial services or dedications) to honor donors

and their families. Install plaques or symbolic tributes in the anatomy lab to foster gratitude and respect. Encourage reflective practices such as student-written tributes or thank-you notes.

3. Strengthen Emotional and Psychological Support. Implement structured orientation sessions that address emotional preparedness and coping strategies. Provide access to counseling services and peer support networks during dissection modules. Train faculty to identify and respond to signs of student distress.

4. Integrate Cultural and Religious Sensitivity. Embed discussions on cultural and religious beliefs surrounding death and dissection into the curriculum. Facilitate open forums for students to express personal concerns in a respectful environment. Consult cultural and religious leaders to guide inclusive educational practices.

5. Improve Cadaver Quality and Access. Invest in enhanced preservation techniques and facilities to maintain cadaver integrity. Increase cadaver supply to reduce overcrowding and ensure equitable hands-on access. Monitor and adjust cadaver-to-student ratios to optimize engagement.

6. Expand Instructional Support. Recruit and train additional anatomy instructors and demonstrators for closer supervision. Provide structured dissection guides and access to high-quality dissections and anatomical models.

Limitations

This study, being qualitative in nature, was conducted at a single institution (Makerere University) and focused specifically on first- and second-year medical students. Therefore, the findings may not be directly generalized to other medical schools with different cultural contexts, resource levels, or pedagogical approaches. The reliance on self-reported data through focus group discussions may also be subject to social desirability bias, although efforts were made to create a safe and open discussion environment. Future research could explore these perceptions using mixed methods approaches, including quantitative measures, or across multiple institutions to provide broader insights.

Conclusion

This study reveals that students hold mixed perceptions; some view dissection as a powerful learning tool and a gateway to achieving their professional aspirations, while others express concern about its potential impact on their emotional well-being and physical health. Over time, these perceptions evolve through peer support, institutional guidance, and personal coping strategies. Despite persistent emotional, ethical, and structural challenges, a holistic approach that integrates psychosocial support, ethical transparency, and cultural sensitivity can enhance the dissection experience and better prepare students for clinical practice.

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