

Understanding of Postmortem Examination and Disinterest Among Medical Students

DOI: dx.doi.org



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Received: 24 Jan 2024
Accepted: 26 Jan 2024
Published: 28 Feb 2024

Published by:
Sher-E-Bangla Medical College,
Barishal, Bangladesh

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ABSTRACT

Background: Autopsies, which are critical for determining the cause of death, understanding how diseases progress, and improving medical practices, have been performed less frequently around the world in recent years. This decline has raised concerns about the impact on medical training, the quality of healthcare, and the advancement of medical knowledge, potentially hindering the development of future medical professionals. **Aim of the study:** This study assessed medical students' knowledge, attitudes, and reasons for disinterest in postmortem examinations and morbid anatomy specialization, aiming to identify factors influencing their perceptions and career choices. **Methods & Materials:** A descriptive cross-sectional study was conducted among 150 third-year medical students. Data was collected using a structured questionnaire designed to evaluate understanding of autopsy procedures, attitudes towards autopsy, and reasons for not choosing morbid anatomy. The collected data was analyzed using SPSS version 26 to identify key trends and associations. **Result:** Students demonstrated understanding of the legal and procedural importance of autopsies in medical practice, but significant misconceptions and discomfort persist regarding certain aspects. Discomfort with dissecting dead bodies and the perception of autopsies as a dirty procedure were major reasons for disinterest in pursuing morbid anatomy specialization among the students. **Conclusion:** Medical students acknowledge the essential role of autopsies in medical education, but

misconceptions and discomfort persist, highlighting the need for targeted educational interventions. The limited sample diversity and reliance on questionnaires restricts the generalizability and depth of findings, indicating a need for future research with broader samples and mixed-methods approaches.

Keywords: Autopsy, Medical Education, Knowledge, Attitude, Misconceptions, Discomfort.

(The Planet 2024; 8(1): 217-222)

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INTRODUCTION

Postmortem examination (PME), also referred to as autopsy, remains an essential tool in medical science for determining the cause of death, understanding disease processes, and improving clinical practice through feedback to healthcare providers^[1]. However, in recent decades, there has been a significant decline in autopsy rates worldwide, leading to concerns about its reduced role in medical training and practice^[2]. In the 2020s, autopsies were performed on approximately 50% to 60% of hospital deaths in the United States^[3]. By 2018, this rate had dropped to below 5%, reflecting a 20-fold decrease in some institutions^[4]. Autopsy rates have significantly declined worldwide, with a median global rate of 6.7% between 2000 and 2023^[5], and Asian countries like China and South Korea reporting rates as low as 0.9% and 0.03%^[6], respectively. Contributing factors include advancements in diagnostic technologies, challenges in

obtaining consent, rising costs, and a shortage of trained pathologists. This reduction in autopsy practices has led to decreased exposure for medical students, potentially impacting their understanding of pathology and the development of essential clinical skills^[7]. The diminishing role of autopsies in medical education is influenced by misconceptions, emotional discomfort, and cultural or religious beliefs, leading some students to perceive autopsies as distressing or irrelevant^[8]. These factors, along with concerns about legal implications, contribute to reluctance in engaging with autopsy practices. Reduced exposure to autopsies hinders the development of critical clinical competencies, leaving medical students unprepared to interpret post-mortem findings and apply their learning in clinical settings^[9]. Furthermore, without adequate exposure to autopsies, students may miss opportunities to develop skills related to clinical auditing, diagnostic accuracy, and

research^[10]. To address these issues, medical curricula should be reformed to incorporate autopsy experiences early in training. This, coupled with psychological support and emphasizing the educational value of autopsies, can help students overcome negative perceptions and foster greater engagement^[11]. By reintroducing autopsies as an essential component of medical education, we can ensure that future healthcare professionals are equipped with the necessary skills for clinical and research practice, preserving the role of autopsies in both training and real-world application. Addressing these challenges requires a multifaceted approach. Medical institutions can implement curriculum reforms introducing autopsy experiences earlier, while providing support to mitigate emotional distress associated with post-mortem examinations^[12]. Creating an environment that highlights the educational and clinical significance of autopsies can shift focus from discomfort to its valuable contributions to medical knowledge^[13]. Medical students are pivotal in bridging theoretical knowledge with clinical application, and their attitudes toward autopsies can shape future medical education^[14]. By understanding the factors contributing to their reluctance, educators can reintroduce autopsy practices in a way that fosters engagement and ensures the continued relevance of autopsies in training, particularly in fields like pathology, forensic medicine, and clinical research.

METHODOLOGY & MATERIALS

This was a descriptive cross-sectional study conducted among undergraduate medical students enrolled in Department of Forensic Medicine and toxicology in Dhaka Medical College Hospital, a tertiary-level teaching institution in Dhaka, Bangladesh. The study was carried out over a period of March 2023 to March 2024. The study population comprised undergraduate MBBS students from the third-year session 2022-23, 2024. All eligible students who were present during data collection and provided informed consent were included in the study. A total of 150 students participated in the study.

Inclusion Criteria

- Medical students from the third-year session 2022-23, 2024
- Willingness to participate with signed informed consent.
- Availability during the scheduled data collection period.

Exclusion Criteria

- Students who had previously completed forensic medicine or pathology rotations, to minimize potential bias in responses.
- Students absent during the data collection period.
- Incomplete or improperly filled questionnaires.

Data Collection

Data collection for this study was carried out using a structured, self-administered questionnaire designed to assess medical students' knowledge, attitudes, and reasons for

disinterest in postmortem examinations and morbid anatomy specialization. The questionnaire was divided into four sections: socio-demographic information, knowledge of postmortem examinations, attitudes toward postmortem procedures, and reasons for disinterest in specializing in morbid anatomy. Before data collection, a pilot study was conducted on a small subset of students (10% of the target population) to test the clarity, reliability, and feasibility of the questionnaire. The results of the pilot study led to minor adjustments in wording to enhance clarity. The final version of the questionnaire was designed to be completed in approximately 15–20 minutes. Data were collected during routine class hours in a controlled environment, ensuring that students were not distracted and had adequate time to respond. Participants were briefed about the objectives of the study and assured of the voluntary nature of their participation, as well as the confidentiality of their responses. Written informed consent was obtained from all participants prior to the completion of the questionnaire. The questionnaires were distributed and collected on the same day to minimize the risk of incomplete or biased responses. The data collection process was supervised by a trained research assistant to ensure consistency and adherence to ethical standards. Upon completion, all responses were reviewed for completeness and any missing data were noted.

Ethical Considerations

Ethical approval was obtained from the Institutional Review Board of Dhaka Medical College Hospital. Written informed consent was obtained from all participants. Confidentiality and data privacy were strictly upheld according to the Declaration of Helsinki.

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using IBM SPSS Statistics version 26. Descriptive statistics were presented as frequencies, percentages, means, and standard deviations. Associations between socio-demographic variables and disinterest in postmortem specialization were assessed using the Chi-square test. A p-value of less than 0.05 was considered statistically significant.

RESULT

The study involved 150 third-year medical students with a mean age of 22.0 ± 0.6 years (Table I). Among them, 64.67% were female and 35.33% were male. All participants resided in urban areas and none had previous exposure to autopsy. Knowledge regarding postmortem examination was assessed in Table II. All students (100.00%) correctly identified autopsy as a legal formality and as a means to determine the cause and manner of death. More than half (53.33%) believed autopsies are conducted to harass relatives, while 46.67% disagreed. None considered postmortem essential in all death cases, but 83.33% acknowledged its importance in unnatural and sudden deaths. A majority (73.33%) correctly stated that autopsy includes both internal and external examination. Only 44.67% were aware of organ removal for toxicological and histopathological analysis, while 48.67% responded "Don't

Know.” Most students (94.67%) felt the number of autopsies they observed was sufficient. Additionally, 87.33% agreed autopsies help solve crimes and support police investigations. A small percentage (6.00%) thought relatives can request autopsies without police involvement, and 9.00% believed bodies can be handed over without autopsy in medicolegal cases when the cause of death is known. Attitudes toward autopsy are summarized in Table III. A large proportion (55.33%) strongly agreed and 32.67% agreed that autopsy is essential in medical education. However, only 4.67% agreed they felt comfortable attending autopsies, while 59.33% disagreed and 22.00% strongly disagreed. Regarding educational value, 6.00% strongly agreed and 56.67% agreed that autopsy observation enhances understanding of pathology and forensic medicine. About 54.00% agreed postmortem should be more emphasized in the curriculum. Furthermore, 60.67% strongly agreed and 26.67% agreed to recommend juniors to attend autopsy demonstrations. Table IV described reasons for not choosing morbid anatomy as a specialization. The most reported reason was discomfort with dissecting dead bodies (95.33%), followed by the perception of autopsy as a dirty procedure (99.33%). Other factors included lack of interaction with living patients (94.00%), lack

of interest (80.67%), avoidance of court and legal issues (74.00%), and prior decision against this specialty (66.00%).

Table – I: Socio-Demographic characteristics of medical students (n =150)

Variable	Frequency (n)	Percentage (%)
Age (in years)		
Mean \pm SD	22.0 \pm 0.6	
Gender		
Male	53	35.33
Female	97	64.67
Academic Year		
1st Year	0	0.00
2nd Year	0	0.00
3rd Year	150	100.00
4th Year	0	0.00
Final Year	0	0.00
Residence		
Urban	150	100.00
Rural	0	0.00
Previous Exposure to Autopsy		
Yes	0	0.00
No	150	100.00

Table – II: Knowledge of medical students regarding postmortem examination

Knowledge Item	Yes (n, %)	No (n, %)	Don't Know (n, %)
Autopsy is a legal formality	150(100.00)	0(0.00)	0(0.00)
Postmortem can determine the actual cause and manner of death	150(100.00)	0(0.00)	0(0.00)
Autopsies are conducted to harass the relatives of the deceased	80(53.33)	70(46.67)	0(0.00)
Postmortem is essential in all cases of death	0(0.00)	150(100.00)	0(0.00)
Postmortem is essential in unnatural and sudden deaths	125(83.33)	25(16.67)	0(0.00)
Autopsy involves both internal and external examination of the dead body	110(73.33)	35(23.33)	5(3.33)
Postmortem involves removal of organs for toxicological and histopathological analysis	67(44.67)	10(6.67)	73(48.67)
Number of autopsies watched were sufficient	142(94.67)	8(5.33)	0(0.00)
Autopsy helps solve crimes and provides vital information to police	131(87.33)	12(8.00)	7(4.67)
Relatives can request an autopsy without police involvement	9(6.00)	139 (92.67)	2(1.33)
In medicolegal cases, body can be handed over without autopsy if cause of death is known	15(9.00)	133(88.67)	2(1.33)

Table – III: Attitudes toward postmortem examination

Attitude Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Autopsy is essential in medical education	83	49	17	1	0
I feel comfortable attending an autopsy	0	7	21	89	33
Observing autopsies enhances understanding of pathology and forensic medicine	9	85	31	25	0
Postmortem should be emphasized more in the curriculum	8	81	39	22	0
I would recommend my juniors to attend autopsy demonstrations	91	40	11	8	0

Table – IV: Reasons for not opting for specialization in morbid anatomy

Reason	Frequency (n)	Percentage (%)
Subject does not deal with living persons	141	94.00
Subject is not interesting	121	80.67
Discomfort with touching/dissecting dead bodies	143	95.33
Autopsy is perceived as a dirty procedure	149	99.33
Already decided not to specialize in morbid anatomy	99	66.00
Avoidance of court appearances and legal responsibilities	111	74.00

DISCUSSION

This study assessed medical knowledge of student and attitudes towards autopsies, revealing a good understanding of their legal and procedural importance, particularly in unnatural deaths. Students demonstrated awareness of the crucial role autopsies play in determining the cause and manner of death, which is essential for legal proceedings and public health^[16]. They also recognized the significance of autopsies in crime investigation, highlighting their direct impact on the justice system^[17]. This understanding underscores the students' grasp of the practical applications of autopsy in both medical and legal contexts. However, the study also identified several areas where misconceptions persisted. A notable proportion of students believed that autopsies were conducted to harass relatives, indicating a misunderstanding of the ethical and legal safeguards in place to protect the interests of the deceased and their families^[18]. This misconception could stem from a lack of clear communication about the purpose and process of autopsies, potentially leading to unnecessary anxiety and resistance^[19]. Additionally, there was a widespread misunderstanding that autopsies were necessary in all cases of death. While autopsies are valuable in many situations, they are not always required or appropriate, particularly in cases of natural deaths with well-established causes^[20]. This belief suggests a need for more nuanced education on the specific circumstances under which autopsies are indicated. Many students demonstrated a lack of clarity regarding whether autopsies involve the removal of organs for toxicological and histopathological analysis. This is a critical aspect of autopsy procedure, as these analyses can provide vital information about the cause of death, particularly in cases involving poisoning, infection, or other systemic diseases^[21]. The uncertainty in this area suggests a gap in knowledge that could affect students' ability to fully appreciate the diagnostic value of autopsies^[22]. Furthermore, a large majority of students held incorrect beliefs about relatives' ability to request autopsies or the release of bodies in medicolegal cases^[23]. These beliefs reflect a broader misunderstanding of the legal framework surrounding autopsies, which can vary significantly depending on jurisdiction^[24]. Clarification of these legal and procedural aspects is essential for ensuring that future physicians understand their roles and responsibilities in these situations. In terms of attitudes, the medical students generally acknowledged the educational value of autopsies, recognizing their importance in understanding disease processes^[25]. They appreciated that autopsies provide unique insights into the progression and mechanisms of various diseases, which cannot be obtained through other means. This recognition of the educational utility of autopsies aligns with the historical role of autopsy in advancing medical knowledge and improving clinical practice. Despite this acknowledgment, many students expressed discomfort with attending autopsies^[26]. This discomfort likely stems from a combination of factors, including the emotional impact of dealing with death, concerns about the graphic nature of the procedure, and a lack of familiarity with the autopsy setting^[27]. The students also expressed that they saw

value in observing autopsies for enhancing their understanding of pathology and forensic medicine. This suggests that while some discomfort exists, students recognize the practical benefits of autopsy observation in their medical training. Observing autopsies can provide a more concrete and memorable understanding of disease processes compared to learning solely from textbooks or lectures. It also allows students to witness firsthand the application of forensic principles in investigating deaths, which is crucial for those who may later be involved in medico-legal cases^[28]. A key reason cited by students for not specializing in morbid anatomy was the preference for specialties involving living patients^[29]. This preference is understandable, as many medical students are drawn to specialties where they can directly interact with and provide care to patients. However, it also highlights a potential undervaluing of the role of pathology in the broader healthcare system^[30]. Additional reasons for not specializing in morbid anatomy included finding the work uninteresting, discomfort with handling dead bodies, and concerns about court appearances. The perception of the work as uninteresting may be related to a lack of exposure to the intellectual challenges and rewards of pathology, such as solving complex diagnostic puzzles and contributing to medical research^[31]. Discomfort with handling dead bodies is a common emotional response, and addressing this discomfort through education and gradual exposure could help to alleviate these concerns^[32]. Concerns about court appearances and legal responsibilities reflect a broader anxiety about the medico-legal aspects of medical practice, which is not unique to pathology but may be more salient in this field. The findings of this study are consistent with other research on knowledge of medical student and attitudes towards autopsies. Studies worldwide have shown that medical students generally acknowledge the importance of autopsy in medical education, but often harbor misconceptions and experience discomfort with the procedure^[33]. A study by McNamee et al. in the world, found that 85% of students believed autopsy should be mandatory, aligning with the findings of this study where students acknowledged the educational value of autopsies^[34]. However, some studies have presented contrasting findings. A study in India found that almost one third of the students were ignorant about the importance of autopsy examination in the country^[35]. Additionally, studies have reported varying levels of comfort among students towards their first exposure to autopsy. A study by Johnson found that 40% of participants were comfortable on their first exposure, which is significantly higher than the rates reported in other studies^[36]. These variations may be attributed to differences in educational curricula, cultural and religious backgrounds, and the level of exposure to autopsy practices during training.

Limitations of the study:

This study has some limitations. The sample was limited to 3rd-year medical students from a single urban institution, potentially limiting the generalizability of the findings to other student populations. The study's reliance on a questionnaire

as the primary data collection method may introduce response bias, as students might provide socially desirable answers. The study did not explore how knowledge and attitudes evolve over time, which could provide valuable insights into the effectiveness of medical education on this topic.

CONCLUSION AND RECOMMENDATIONS

This study reveals that while medical students acknowledge the importance of autopsies in medical education, significant misconceptions and discomfort persist regarding their procedural and legal aspects. The reliance on a limited sample and quantitative methods restricts the generalizability and depth of these findings. Future research should employ more diverse samples, longitudinal designs, and mixed-methods approaches, including qualitative data, to provide a more comprehensive understanding of how knowledge and attitudes evolve throughout medical training and influence future physicians' understanding and utilization of autopsies. Addressing these limitations can enhance medical education and improve future physicians' understanding and utilization of autopsies.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee.

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