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PERCEPTIONS OF ANATOMY TEACHING AND LEARNING AMONG ALLIED HEALTH SCIENCES STUDENTS IN FAR-WESTERN NEPAL

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Abstract: Background: Human Anatomy is a foundational discipline for Allied Health Sciences, yet its teaching presents unique challenges in resource-limited settings. **Objective:** This study aimed to investigate student perceptions regarding the teaching and learning of Human Anatomy among Undergraduate Allied Health Sciences students in Far-Western Nepal. **Study Design:** A quantitative, descriptive, and exploratory study was conducted during the first semester of the 2024-2025 academic year. **Setting:** The study was conducted at the Faculty of Health Sciences, Dadeldhura, Far-Western Nepal. **Method:** Ninety-two students from BMLT, B.Sc. Nursing, and BPH programs, enrolled in Human Anatomy and attending Anatomy Laboratory sessions, participated. Data were collected using semi-structured interviews and analyzed using descriptive statistics. **Results:** Majority of participants (70.65%) were female. Workload was perceived as insufficient by 28.26%, while 65.21% considered cadaveric study indispensable. Passive teaching methodologies dominated (39.41%), with mannequins as the primary practical tool (93.4%). Additionally, 83.69% emphasized developing an image bank for anatomy study. **Conclusion:** A significant gap exists between student expectations and current pedagogical practices. Students strongly value cadaveric study, yet instruction remains reliant on passive methods. Urgent curriculum reform integrating cadaveric dissection, expanded practical sessions, and supplementary resources is needed.

Keywords: Human Anatomy, Anatomy Education, Allied Health Sciences, Student Perceptions, Teaching Methodologies, Far-Western Nepal.

Introduction

Anatomy remains a cornerstone of health science education despite challenges that have seen a significant reduction in contact hours over recent decades [1, 2]. Human Anatomy is an essential component of the first years' curriculum of health science schools, providing students with their initial understanding of human body structure, which forms the basis for comprehending pathological and clinical issues [3, 4].

Higher education in health has been criticized in recent decades, with growing societal questioning of institutions' capacity to fulfill program objectives, including developing students' intellectual potential, analytical capacity, critical problem-solving skills, and a creative, inquiring approach [5, 6]. Human Anatomy remains an obligatory discipline for health science courses worldwide, with programs generally focusing on cardiovascular, endocrine, gastrointestinal, genitourinary, immune, metabolic, musculoskeletal, nervous, reproductive, respiratory, and surface anatomy [7].

The teaching of Anatomy has gradually evolved with new cadaver preservation techniques, dissection methods, technological advancement, and evolving didactic approaches [8, 9, 10]. The corpse remains an essential material, enabling focused study of individual organs and providing the

primordial foundation for future clinical practice [11]. However, despite these methodological changes, no significant transformation in teaching has been perceived to date [12]. The teaching practice in this discipline continues to demonstrate traditional, passive, banking education approaches.

In Far-Western Nepal, similar challenges persist. Teaching practices are often compromised by inadequate methodologies and limited access to cadavers for all higher education institutions in regions outside major centers. Understanding these practices is fundamental to promoting improvement in the Anatomy teaching and learning process. Based on these premises, the objective of our study was to investigate student perceptions regarding the teaching and learning of Human Anatomy among Undergraduate Allied Health Sciences students at the Faculty of Health Sciences, Dadeldhura, Far-Western Nepal.

Methods

A cross-sectional study of quantitative, descriptive, and exploratory nature was conducted involving undergraduate Allied Health Sciences students at the Faculty of Health Sciences, Dadeldhura, Far-Western Nepal. The study population consisted of 180 students, and the sample comprised 92 students from BMLT, B.Sc. Nursing, and BPH programs who were enrolled in Human Anatomy and had attended Anatomy Laboratory sessions.

Data were collected using a semi-structured questionnaire containing easy-to-understand questions, previously tested in a pilot study. The instrument was based on the work of Neves et al. [13], modified to include socio-demographic characterization (gender, age, current occupation) as well as objective and subjective questions related to Anatomy teaching and learning.

The questionnaire assessed students' perceptions regarding the teaching and learning process of Human Anatomy using a five-point Likert scale (0-5), where the lowest score represented "absolutely false" and the highest represented "absolutely true." For negative statements, values were inverted during scoring. Additionally, students and researchers evaluated the course curriculum, including the pedagogical project, syllabus, and anatomy teaching plan.

The sample was calculated using stratified probabilistic sampling, considering a 95% confidence level and 5% margin of error. Data were analyzed using descriptive statistics.

Ethical approval was obtained from the Institutional Ethical Committee of Faculty of Health Sciences, Dadeldhura and informed consent was secured from participants prior to data collection.

Results

The majority of participants (70.65%) were female, with ages ranging from 17 to 40 years (mean age: 25.46 ± 1.05 years). Most students (93.4%) resided in the interior region of Far-Western Nepal, and the majority were pursuing their first higher education qualification.

Regarding teaching methodologies, traditional, passive approaches dominated instruction, with 38.28% of classes utilizing plastic mannequins, 29.14% theoretical lectures only, 16% seminars, 6.29% scientific debates, 5.71% article readings, 2.86% clinical case discussions, and 1.72% other methods. Notably, 100% of students reported no practical classes with cadavers at their institution, with their only exposure being a single visit to another institution's anatomy laboratory.

Despite this, 65.21% of respondents considered cadaveric study indispensable for effective anatomical practice. Regarding workload, 28.26% perceived the allocated hours as insufficient. When suggesting improvements, 42.42% recommended cadaver use, 21.97% advocated increased workload, 19.7% suggested laboratory improvements, and 15.91% called for more practical classes. Additionally, 83.69% emphasized the importance of developing an image bank for anatomy study.

Students expressed a clear need for curriculum reform, including increased workload, better integration between basic sciences and clinical practice, and improved distribution of teaching hours. These adjustments should be reflected in the pedagogical project and course syllabus through collaborative discussions between basic and clinical faculty.

Table 1: Socio-demographic characteristics of participants (N=92)

Gender	n	%
Male	27	29.35
Female	65	70.65
Total	92	100

Table 2: Teaching methodologies used in Human Anatomy instruction

Methodological Resource	n	%
Practical class with plastic mannequin	67	38.28
Theoretical lecture	51	29.14
Seminars	28	16.00
Scientific debates	11	6.29
Article reading	10	5.71
Clinical case discussions	5	2.86
Others	3	1.72
Total	175	100

Table 3: Didactic resources used in practical sessions

Resources	n	%
Practical classes with plastic mannequin	86	93.47
Other resources	6	6.53
Total	92	100

Table 4: Student suggestions for improving Anatomy teaching

Suggestions	n	%
Use of cadavers and anatomical specimens	56	42.42
Increase theoretical teaching hours	29	21.97
Improve laboratory infrastructure	26	19.70
Increase number of practical classes	21	15.91
Total	132	100

Table 5: Student perceptions regarding Anatomy teaching and learning

Perception Items	n	%
Consider cadaveric study indispensable	60	65.21

Perceive workload as insufficient	26	28.26
Emphasize importance of image bank	77	83.69

Discussion

Anatomy education faces significant challenges, primarily due to reduced curriculum time and limited access to cadavers. To overcome these constraints, technology-assisted self-regulated learning methods, such as blended learning, should be integrated alongside traditional face-to-face teaching [14]. Additionally, innovative teaching methodologies are necessary to promote meaningful learning in the classroom.

Our findings reveal a heavy reliance on passive, traditional teaching methodologies, with 38.28% of classes utilizing practical sessions with mannequins and 29.14% employing theoretical lectures. This predominance of "banking education"- criticized by Paulo Freire - reinforces the division between educator and learner, denying dialogue and promoting mechanical memorization rather than critical thinking [15, 16, 17]. These results corroborate studies conducted in Brazil, where the exclusive use of traditional methodologies and lack of cadavers contribute to mechanical learning and student disengagement [18].

Active methodologies, including problem-based learning (PBL), team-based learning (TBL), and culture circles, have been identified as important tools for improving Anatomy teaching [19]. Chickering and Gamson [20] emphasized active methodologies among the seven principles for good educational practice, particularly activities involving cooperation, interaction, and learner responsibility in small groups. The Anatomy laboratory serves as an ideal setting for faculty-student interaction and active learning [21]. However, the difficulty in implementing these methods often stems from inadequate teacher training and insufficient human resources.

Our study found that 65.21% of students considered cadaveric study indispensable for effective anatomical practice, yet 100% reported no practical classes with cadavers at their institution. This finding aligns with global trends of reduced cadaver-based teaching, driven by curriculum integration and system-based approaches [22, 23]. The lack of cadavers in Far-Western Nepal can be attributed to multiple factors: the proliferation of health science programs without adequate infrastructure, cultural and religious barriers to body donation, and limited access to anatomical specimens from forensic medicine sources. Consequently, plastic mannequins (93.47%) remain the primary practical tool, as observed in our study.

Regarding workload, 28.26% of students perceived the allocated hours as insufficient. While the 100-hour workload analyzed in our study aligns with many institutions, increasing hours alone may not yield satisfactory outcomes [19]. Instead, meaningful curriculum reform is essential, integrating basic sciences with clinical practice to enhance anatomical knowledge retention and application.

Students strongly emphasized the importance of developing an image bank (83.69%) to supplement anatomy study. This finding corroborates studies by Neves [13], where 98% of respondents affirmed the value of 3D image banks. Such resources serve as low-cost, practical tools for teaching anatomical concepts [24].

In conclusion, our findings highlight the urgent need for curriculum reform at the Faculty of Health Sciences, Dadeldhura, integrating cadaveric dissection, expanding practical sessions, adopting active methodologies, and developing supplementary resources to enhance the teaching-learning process in this resource-constrained setting [25].

Conclusion

The findings of this study reveal a significant gap between student expectations and current pedagogical practices in Human Anatomy education at the Faculty of Health Sciences, Dadeldhura, Far-Western Nepal. Students strongly value cadaveric study and practical exposure, yet instruction remains heavily reliant on passive methodologies and mannequin-based demonstrations.

To address these challenges, the introduction of active teaching methodologies - such as problem-based learning - is essential to facilitate meaningful learning and reduce mechanical memorization. However, successful implementation requires adequate teacher training and institutional support. Additionally, integrating information technology, including 3D anatomical models and image banks, offers a low-cost, practical strategy to supplement traditional teaching and enhance student engagement [24].

Furthermore, establishing a structured body donation program at the university would provide students with access to cadaveric dissection, fulfilling the expressed need of 65.21% of respondents who considered cadaveric study indispensable.

Urgent curriculum reform is needed, integrating cadaveric dissection, expanding practical sessions, adopting active methodologies, and developing supplementary resources. These measures will bridge the gap between student expectations and current practices, ultimately improving the quality of Anatomy education in this resource-constrained setting.

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