

## Perceptions of Undergraduate Students Regarding the Inclusion of Clinical Audit in their Curriculum

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### ABSTRACT

**Objective:** To find out undergraduate students' perceptions regarding the inclusion of clinical audits in their curriculum.

**Study Design:** Exploratory sequential mixed methods study.

**Place and Duration of study:** Combined Military Hospital, Lahore Pakistan, from Dec 2022 to Mar 2023.

**Methodology:** The first phase of the study comprised a quantitative research questionnaire regarding undergraduate students' perceptions about the inclusion of a clinical audit in their curriculum. These perceptions were explored in depth in the second phase with focus group discussions (FGD). Thirty students participated in the study, ten from the fourth year and twenty from the final year MBBS.

**Results:** The study included 30 participants. The results showed that (24, 80%) of participants were able to develop skills as team members, (22, 73%) were able to identify audit topics, collect data, write audit reports and understand conflicts of interest, and (21, 70%) were able to write audit proposal and develop skill in life long audit learning. The key themes emerging from clinical audit focus group discussions (FGD) were better clinical care, patient safety, lack of understanding about audit by students and faculty and improper implementation mechanisms.

**Conclusion:** In conclusion, a clinical audit promotes a safe, good-quality, and evidence-based environment for patient care. It also decreases the risk of clinical negligence and should be incorporated as an integral part of the undergraduate curriculum.

**Keywords:** Curriculum, Clinical audit, Exploratory sequential mixed methods study, Perception, Students.

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### INTRODUCTION

Clinical audits are systematic methods of assessing, evaluating and improving medical care used to enhance healthcare delivery and quality of life in patients.<sup>1-3</sup> Clinical audits are essential to clinical governance and provide a way to reflect and review clinical practice. Furthermore, these audits are opportunities to educate and train healthcare professionals.<sup>4,5</sup>

This study emphasises the importance of clinical audits as a valuable part of practice in the developed world. Most of our undergraduate students need more knowledge and understanding about audits and the audit cycle. This may be due to the need for more strategy and assessment procedures for audits in these students. Our study highlights the importance of clinical audits in safe medical practice and its value and needs for inclusion in our teaching curricula for undergraduate students.

### METHODOLOGY

The exploratory sequential mixed methods study was conducted at Combined Military Hospital, Lahore

Pakistan, from December 2022 to March 2023 after permission from the Institutional Ethical Review Board (428 /2022) was obtained.

**Inclusion Criteria:** Study Participants were undergraduate students of either gender of MBBS/BDS. Only fourth and final-year students were included.

**Exclusion Criteria:** Postgraduate students were excluded.

The paradigm of the study was pragmatism. The first phase of the study addressed a quantitative research questionnaire regarding undergraduate students' perceptions of including a clinical audit in their curriculum. These perceptions were explored in depth in the second phase with focus group discussions (FGD). Thirty students participated in the study, ten from the fourth year and twenty from the final year MBBS. Non-probability convenience sampling was used to collect quantitative data, while purposeful maximum variation sampling was done for the qualitative aspect of the study.

Thirty consenting undergraduate students from CMH Lahore Medical College/CMH Lahore were informed about the purpose of the study and were enrolled. A sensitisation lecture was delivered. All the

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consenting participants were allowed to perform an audit exercise under supervision. A formative assessment with feedback was provided during the audit process.<sup>6</sup> All the participating undergraduate students filled in the validated questionnaire adapted and based on the University of Notre Dame, Australia's audit questionnaire.<sup>3,7</sup> In order to confirm the construct and face validity, the questionnaire was piloted before its use. This method of quantitative numeric description allowed for understanding and studying the opinions of a population segment.

The purposive sampling technique was employed for the FGD, with undergraduate students as the population segment. A non-probability maximum variation purposive sampling technique was used for FGD in this population sample. The purpose of the FGD was to explore in depth the undergraduate students' opinions, thinking processes and attitudes regarding improvement in their professional growth and medical education. The participants in FGD were both homogeneous and heterogeneous to varying extents to achieve information sample.<sup>8-10</sup> A maximum variation of purposive sampling techniques was used to cater to the varying educational backgrounds.<sup>11,12</sup> The participating undergraduate students from fourth and final year MBBS were informed about the study's nature, purpose and details before enrolment.

The survey questionnaire responses were collected on a five-point Likert scale, matching responses against a sequence of questions.<sup>13,14</sup> The data collected was analytical. The FGD explored the opinions of the undergraduate students in detail, and the responses were categorised into themes and sub-themes.<sup>15</sup> The participants carried out the discussion, and the verbatim transcription of the entire conversation was incorporated into the data analysis for FGD.<sup>16,17</sup> This was followed by the data coding in the relevant transcripts. No assumptions were made, and the actual descriptions and details of what was said by the participants were incorporated into data collection and analysis, followed by generating themes and sub-themes and analysis through Nvivo.<sup>18,19</sup>

Quantitative data was analysed using the Statistical Package for Social Science version 23:00. Frequency and percentage were calculated for categorical variables, and Median (IQR) was calculated for ordinal data.

### RESULTS

The study included 30 participants. The results showed that (24, 80%) of participants were able to

develop skills as a team member, (22, 73%) were able to identify audit topics, collect data, write audit reports and understand conflict of interest and (21, 70%) were able to write audit proposal and develop skill in life long audit learning. On the contrary, (17, 56%) participants said they could devise an effective data collection tool, (14, 46%) were confident about audit topic selection and (13, 43%) were likely to engage in audit experience. The students' responses to other do-mains are listed in Table-I. The overall responses included Strongly Disagree (2.4%), Disagree (8%), Neutral (16.5%), Agree (34.5%), Strongly Agree (29.3%) & Unable to Comment (9%). In Merge Category: Strongly Disagree plus Disagree (10.45%, Median(IQR) 3.14(1.36)), Neutral (16.5%, Median(IQR) 4.95(2.10), Agree plus Strongly Agree (63.9%, Median (IQR) 19.18 (2.92)) and Unable to Comment (9%, Median(IQR) 2.73(1.72)).

The major themes emerging from FGD of clinical audit (Table-II) were safe practice, clinical effectiveness, risk management, clinical governance and incomplete understanding and misconception regarding clinical audit. Main themes, explanations, and descriptions based on the student's verbatim responses with minor grammatical corrections without compromising the meaning are presented below. Yes, it will help minimise the differences in clinical approach between different clinicians, and everybody will get similar standardised health care. This was a very helpful activity and helped me understand what an audit is. I think clinical audit can have a great impact on clinical practice. If clinicians are aware that they will be regularly audited, they are more likely to be careful and meticulous with their work, which will ensure excellent patient care and mitigate negligence. I did not know about audit, and I thought audit was record management. Practice of clinical audit should be held in every hospital. If clinical audit is conducted regularly, doctors will remain informed of new and existing guidelines. It is an integral part of hospital quality standards. This was fun to experience and certainly made me learn about managerial aspects of medical training. I think through an audit, we can set criteria, which every doctor can follow in order to bring improvements in healthcare. I think that it helps to bridge the gap between theoretical and practical knowledge and helps doctors in identifying and improving an already established technique. Clinical audit is effective in assessing and evaluating the performance. I got an idea of what clinical audit is through this activity. I learnt how to perform a clinical audit and its importance in clinical practice."

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**Table-I: Merge Categories on Likert Scale (n=30)**

Question the Audit Project Enabled me to:	Strongly Disagree & Disagree	Neutral	Agree & Strongly Agree	Unable to Comment
Identify topics	4(13.3%)	1(3.3%)	22(73.3%)	3(10.0%)
Select audit topic	5(16.7%)	6(20.0%)	14(46.6%)	5(16.7%)
Write aims and objectives for my audit	3(10.0%)	8(26.6%)	15(50.0%)	4(13.3%)
Understand appropriate standards	1(3.3%)	6(20.0%)	19(63.3%)	4(13.3%)
Select appropriate sample size	2(6.7%)	6(20.0%)	19(63.3%)	3(10.0%)
Develop an effective data tool collection	4(13.3%)	6(20%)	17(56.7%)	3(10.0%)
Understand consent requirements	5(16.7%)	5(16.7%)	20(66.7%)	0(0.0%)
Write audit proposal	2(6.7%)	5(16.7%)	21(66.7%)	2(6.7%)
Understand formative assessment	2(6.7%)	6(20.0%)	20(66.7%)	2(6.7%)
Data collection	1(3.3%)	5(16.7%)	22(73.3%)	2(6.7%)
Analyze data	4(13.3%)	5(16.7%)	18(60.0%)	3(10.0%)
Interpret results	1(3.3%)	7(23.3%)	18(60.0%)	4(13.3%)
Feedback from supervisor	5(16.7%)	7(23.3%)	15(50.0%)	3(10.0%)
Write audit report	3(10.0%)	3(10.0%)	22(73.3%)	2(6.7%)
Develop knowledge of audit	3(10.0%)	6(30.0%)	20(66.7%)	1(3.3%)
Engage in audit experience	3(10.0%)	6(30.0%)	13(43.3%)	8(26.7%)
Develop skill in life long audit learning	5(16.7%)	4(13.3%)	21(70.0%)	0(0.0%)
Develop written communication skills	5(16.7%)	4(13.3%)	19(63.3%)	2(6.7%)
Develop my evidence-based approach	2(6.7%)	8(26.7%)	19(63.3%)	1(3.3%)
Develop skills as a team member	3(10.0%)	0(0.0%)	24(80.0%)	3(10.0%)
Develop understanding of conflict of interest	3(10.0%)	3(10.0%)	22(73.3%)	2(6.7%)
Develop understanding of my limitations in knowledge	3(10.0%)	2(6.7%)	22(73.3%)	3(10.0%)
Total	69(10.45%)	109(16.5%)	422(63.9%)	60(9.09%)
Median(IQR)	3.14(1.36)	4.95(2.10)	19.18(2.92)	2.73(1.72)

**Table-II: Themes and Sub-Themes (n=30)**

Theme	Sub-Themes
Misconceptions	Little concept of standardized care Assumption as record management Assumption as record keeping
Training Opportunity	Faculty not conversant about audits Students not aware of clinical audit Training opportunity for curriculum developers
Learning Opportunity	Better skills Better clinical approach Bridges practice barriers
Quality care	Assessment of care Assessment of practice Standard setting Healthcare improvement
Institutional environment and support	Lack of awareness Better outcome measures Reduced clinical negligence
Hospital quality standards	Quality enhancement process Awareness of the managerial aspects of medical training Enjoyable experience
Patients safety	Evidence-based practice Guidelines Criteria-setting

### DISCUSSION

Clinical audits allow healthcare professionals to monitor and improve healthcare practices at their institutions and, using this evidence-based technique, aid healthcare professionals in preventing clinical

negligence in their practices.<sup>20,21</sup> Audits maintain good practices, improvements in efficiency and better allocation of resources.<sup>22,23</sup> According to our study, most undergraduate students perceive clinical audits to be an important part of clinical governance, and these students also expressed their desire for audits to be included in their curriculum. Our study highlighted the importance of clinical audits in promoting safe, high-quality, evidence-based care for patients.

Despite their importance, medical literature regarding clinical audits is lacking and needs to be improved in our country. Anjum *et al.*<sup>2</sup> highlighted the importance of audits in practice in a local study. Previous studies have explored the subject,<sup>24,25</sup> and we aim to contribute further to this relatively neglected subject. This, however, needed the essential standard-setting pre-requisite for an audit.<sup>26</sup> Our study highlighted these rather neglected areas and domains.

A clinical audit is performed by measuring performance against preset standards, using the results to initiate incremental improvements and using a re-audit to show that the desired changes have occurred.<sup>27,28</sup> Audits are a part of clinical governance and are considered pivotal in quality assurance in many healthcare systems globally.<sup>29</sup> Mak *et al.*<sup>4</sup> emphasised the importance of audits in providing safe and effective patient care by concluding that audits are important for doctors and the community. They

also highlighted the numerous benefits for students in understanding the complexities of the adult spiral process and providing safe and effective care for patients.<sup>30</sup>

Our healthcare system seriously lacks the concept of clinical governance, and this highlights an urgent need for healthcare professionals to be internally motivated, responsible, knowledgeable and skilful in ensuring patient safety. Likely obstacles to the inclusion of clinical audits and clinical governance measures are scarce resources and guidance relating to the audit project plan, design and analysis, expertise and organisational barriers surmounted by a lack of will, initiative and understanding.<sup>31</sup>

Most studies have explored the different dimensions of clinical specialities and are descriptive narratives rather than standard-based, which is an essence of clinical audits.<sup>32</sup> Our institutions have published little about these quality improvement domains, and knowledge about them needs to be higher. Modern medical record systems, effective training, and dedicated staff are the main facilitating factors for audits. These factors are, however, only sometimes available. Integration of these measures in our system is pivotal.<sup>33</sup> Our study attempts to address a literature gap related to undergraduate students and supervisors' perceptions and responses regarding audits in our healthcare system. Millart *et al.*<sup>34</sup> performed a study in Scotland that showed the positive perceptions of participants towards audits. More such studies need to be done locally. There is no need for literature seeking undergraduate students' perceptions about clinical audits.<sup>35,36</sup> Our study represents the first of its kind in this regard.

In summary, the clinical audit represents a continuous learning process and translates into quality care in all healthcare systems. For this reason, it should be at the heart of everyday clinical practice. The clinical audit programmes are based on sound educational principles, including situated and participatory learning and reflective practice. This provides multiple benefits for students to learn the complexities of conducting an effective audit in professional practice and for health services to facilitate quality improvement. Our study attempts to identify these perceptions and responses at the undergraduate level at the outset. Subsequently, the goal will be to extend this concept across the healthcare system. This will be made possible through a blame-free environment and

audit-conducive learning climate amidst the will, insight and effort of all the stakeholders.

### CONCLUSION

Clinical audits must be incorporated as an integral part of the undergraduate curricula. Curriculum planners and educators should focus on the benefits of clinical audits, clinical governance and effective learning strategies to assist students in reaching their goals of audit practice and quality assurance measures.

**Conflict of Interest:** None.

### Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

MD & AK: Data acquisition, data analysis, data interpretation, critical review, approval of the final version to be published.

HS & TM: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

MM: Conception, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

### REFERENCES

1. Jafary MH, Jawaid SA. Departmental clinical audit, Audit principles and the present status in Pakistan. *Pak J Med Sci* 2005; 21(1): 1-5.
2. Anjum Q. Clinical audit: Time to mandate. *J Pak Med Assoc* 2012; 62(7): 637.
3. Van Gelderen SC, Zegers M, Robben PB, Boeijen W, Westert GP, Wollersheim HC, et al. Important factors for effective patient safety governance auditing: a questionnaire survey. *BMC Health Serv Res* 2018; 18(1): 798. <https://doi.org/10.1186/s12913-018-3577-9>.
4. Mak DB, Mifflin B. Clinical audit in the final year of undergraduate medical education: towards better care of future generations. *Med Teach* 2012; 34(4): e251-257. <https://doi.org/10.3109/0142159X.2012.660216>.
5. Ross P, Hubert J, Saunders M, Wong WL. The importance of a supportive environment in clinical audit: a pilot study of doctors' engagement with the NHS National PET-CT audit programme. *Nucl Med Commun* 2014; 35(10): 1052-1057. <https://doi.org/10.1097/MNMM.0000000000000161>.
6. Gachau S, Ayieko P, Gathara D, Mwaniki P, Ogero M, Akech S, et al. Does audit and feedback improve the adoption of recommended practices? Evidence from a longitudinal observational study of an emerging clinical network in Kenya. *BMJ Glob Health* 2017; 2(4): e000468. <http://doi.org/10.1136/bmjgh-2017-000468>.
7. Scally G, Donaldson LJ. Clinical governance and the drive for quality improvement in the new NHS in England. *BMJ* 1998; 317(7150): 61-65. <https://doi.org/10.1136/bmj.317.7150.61>
8. Thornley P, Quinn A, Elley K. A qualitative evaluation of foundation dentists' and training programme directors'

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- perceptions of clinical audit in general dental practice. *Br Dent J* 2015; 219(4): 177-181. <https://doi.org/10.1038/sj.bdj.2015.647>.
9. Paton JY, Ranmal R, Dudley J, RCPCH Clinical Standards Committee. Clinical audit: still an important tool for improving healthcare. *Arch Dis Childhood Educ Pract* 2015; 100(2): 83-88. <http://doi.org/10.1136/archdischild-2013-305194>.
  10. Henley E. A quality improvement curriculum for medical students. *Jt Comm J Qual Improv* 2002; 28(1): 42-48. [https://doi.org/10.1016/S1070-3241\(02\)28005-0](https://doi.org/10.1016/S1070-3241(02)28005-0).
  11. Mirza IA, Usmani A. Attribution to success and failure among medical students. Experience at Bahria University Medical and Dental College Karachi. *Pak Armed Forces Med J* 2017; 6(67): 890-898.
  12. Jonathan Potter DM, MA CF, Ferris M. Local clinical audit: Handbook for physicians. Royal College of Physicians, London; 2010.
  13. National Institute for Clinical Excellence (Great Britain). Principles for best practice in clinical audit. Radcliffe Medical Press; 2016.
  14. Moon JA. Reflection in learning and professional development: Theory and practice. First edition. Routledge; 2000. Available at: <https://doi.org/10.4324/9780203822296>.
  15. Ivers N, Jamtvedt G, Flottorp S, Young JM, Odgaard-Jensen J, French SD, et al. Audit and feedback: effects on professional practice and healthcare outcomes. *Cochrane Database Syst Rev* 2012; (6): CD000259. <https://doi.org/10.1002/14651858.CD000259.pub3>.
  16. Tor E, Stekete C, Mak D. Clinical audit project in undergraduate medical education curriculum: an assessment validation study. *Int J Med Educ* 2016; 7(1): 309. <https://doi.org/10.5116/ijme.57da.c89a>.
  17. Alam MM. Audit of the audits. *J Ayub Med Coll Abbottabad* 2015; 27(2): 499-500.
  18. Rao RK, Alva J, Sudhakar C, Lhamo N, Jose DM, Mathew J, et al. Perception of staff nurses regarding quality audit process in hospitals of mangalore district, karnataka. *Nurs J India* 2012; 103(5): 204-205.
  19. Gude WT, Roos-Blom MJ, van der Veer SN, Dongelmans DA, de Jonge E, Francis JJ, et al. Health professionals' perceptions about their clinical performance and the influence of audit and feedback on their intentions to improve practice: a theory-based study in Dutch intensive care units. *Implement Sci* 2018; 13: 33. <https://doi.org/10.1186/s13012-018-0727-8>.
  20. Wong LP. Focus group discussion: a tool for health and medical research. *Singapore Med J* 2008; 49(3): 256-260.
  21. Rosaline SB. Making sense of focus groups. *Med Educ* 2005; 39(7): 742-750. <https://doi.org/10.1111/j.1365-2929.2005.02200.x>.
  22. McLafferty I. Focus group interviews as a data collecting strategy. *J Advan Nurs* 2004; 48(2): 187-194. <https://doi.org/10.1111/j.1365-2648.2004.03186.x>.
  23. Creswel JW. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. Third edition, Sage Publications; 2003.
  24. Johnson RB, Christensen L. Educational research: Quantitative, qualitative, and mixed approaches. Fifth edition, Sage Publications; 2019.
  25. Schifferdecker KE. Using mixed methods research in medical education: basic guidelines for researchers. *Med Educ* 2009; 43(7): 637-644. <https://doi.org/10.1111/j.1365-2923.2009.03386.x>.
  26. Alinnor EA, Ogaji DS. Physicians' knowledge, attitude and practice of clinical audit in a tertiary health facility in a developing country: a cross-sectional study. *Pan Afr Med J* 2022; 43: 22. <https://doi.org/10.11604/pamj.2022.43.22.33800>.
  27. McLafferty I. Focus group interviews as a data collecting strategy. *J Advan Nurs* 2004; 48(2): 187-194. <https://doi.org/10.1111/j.1365-2648.2004.03186.x>.
  28. Jouhari Z, Haghani F, Changiz T. Factors affecting self-regulated learning in medical students: a qualitative study. *Med Educ Online* 2015; 20(1): 28694. <https://doi.org/10.3402/meo.v20.28694>.
  29. Sitticharoon C, Srisuma S, Kanaviton S, Summachiwakij S. Exploratory study of factors related to educational scores of first preclinical year medical students. *Advan Physiolo Educa* 2014 ; 38(1): 25-33. <https://doi.org/10.1152/advan.00162.2012>.
  30. Gupta A, Saks NS. Exploring medical student decisions regarding attending live lectures and using recorded lectures. *Med Teach* 2013; 35(9): 767-771. <https://doi.org/10.3109/0142159X.2013.801940>.
  31. Patel R, Tarrant C, Bonas S, Yates J, Sandars J. The struggling student: a thematic analysis from the self-regulated learning perspective. *Med Educ* 2015; 49(4): 417-426. <https://doi.org/10.1111/medu.12651>.
  32. Ivers NM, Maybee A. Engaging patients to select measures for a primary care audit and feedback initiative. *CMAJ* 2018; 190(Suppl): S42-S43. <https://doi.org/10.1503/cmaj.180334>.
  33. Lord J, Littlejohns P. Impact of hospital and community provider based clinical audit programmes: perceptions of doctors, nurses and other health professionals. *Int J Qual Health Care* 1996; 8(6): 527-535. <https://doi.org/10.1093/intqhc/8.6.527>.
  34. Millard A. Perceptions of clinical audit: a preliminary evaluation. *J Clin Effect* 1996; 1(3): 96-99. <https://doi.org/10.1108/eb020845>.
  35. Chong JA, Chew JK, Ravindranath S, Pau A. Clinical Audit Teaching in Record-Keeping for Dental Undergraduates at International Medical University, Kuala Lumpur, Malaysia. *J Dent Educ* 2014; 78(2): 206-212. <https://doi.org/10.1002/j.00220337.2014.78.2.tb05671.x>.
  36. Taylor L, Jones S. Clinical governance in practice: closing the loop with integrated audit systems. *J Psychiatr Mental Health Nurs* 2006; 13(2): 228-233. <https://doi.org/10.1111/j.1365-2850.2006.00945.x>.
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