Journal of Psychiatry Research & Reports

Research Article

Beyond Medical Knowledge: Medical Students' Perceptions of Non-technical Skills and Curricular Gaps in Undergraduate Training

Abdeslam BENALI* and Taha GADOUALI

Faculty of Medicine and Pharmacy of Marrakech, Cadi Ayyad University, Marrakech, Morocco.

Abstract

Background: Non-technical skills (NTS) are essential to clinical performance, patient safety, and quality of care. Despite their recognised importance, NTS teaching often remains implicit and insufficiently structured within undergraduate medical curricula. Understanding students' perceptions may help identify priorities and guide curricular development.

Methods: We conducted a descriptive cross-sectional study among 150 undergraduate medical students enrolled at the Faculty of Medicine and Pharmacy of Marrakech (Morocco) during the 2024/2025 academic year. Participants were stratified by curriculum cycle (50 per cycle). Data were collected using an anonymous questionnaire including multiple-choice items, ordinal scales, ranking tasks, and a limited number of open-ended questions. Analyses were descriptive, and qualitative responses were summarised using thematic content analysis.

Results: NTS were considered very important for medical training by 75.3% of respondents and at least significantly influential on quality of care by 98%. Communication (92%) and empathy (73.3%) were the most frequently cited skills. Only 8% of students considered current NTS training adequate, while 92% perceived it as insufficient, particularly regarding stress/emotion management (82%) and decision-making in critical situations (60.6%). More than half (54%) reported clinical difficulties related to NTS deficits. The most frequently perceived barriers were the absence of a pedagogical reference framework (80.6%) and assessment focused predominantly on technical competencies (67.3%).

Conclusions: Medical students strongly value NTS but report major shortcomings in their teaching. These findings support the need for a structured, progressive, and assessable integration of NTS into undergraduate medical education.

Keywords

Non-technical skills, Medical education, Patient safety, Undergraduate medical training, Competency-based education, Curriculum development, Morocco.

Corresponding Author Information

Abdeslam BENALI, M.D, Ph.D

Departement of Psychiatry, Faculty of Medicine and Pharmacy of Marrakesh, University of Cadi Ayyad, Morocco, Tel: 00212661402302

Received: 16 December 2025; **Accepted:** 22 January 2026; **Published:** 07 February 2026

Citation: Abdeslam BENALI, Taha GADOUALI. Beyond Medical Knowledge: Medical Students' Perceptions of Non-technical Skills and Curricular Gaps in Undergraduate Training. J Psychiatry Res Rep. 2026; 3(1):1-4.

Abbreviations

FMPM: Faculty of Medicine and Pharmacy of Marrakech, NTS: Non-technical skills.

Background

Non-technical skills (NTS) are non-procedural competencies that support clinical performance, healthcare quality, and patient safety, and require structured learning [1-4]. They include personal (cognitive, affective, behavioural) and interpersonal skills (communication, collaboration, shared decision-making) [3,4]. Evidence suggests that NTS training can enhance safety-relevant outcomes, although implementation and evaluation remain heterogeneous [1].

Despite their integration into competency frameworks [5], NTS teaching often remains implicit, shaped by role modelling and the "hidden curriculum", rather than explicit objectives, structured practice, and assessment [6]. Misalignment between what is valued and what is taught or assessed may reinforce fragmented learning and variable competence acquisition. In this context, exploring learners' perceptions can inform curricular priorities, identify perceived gaps, and support the development of a locally adapted NTS reference framework.

This study aimed to describe FMPM students' perceptions of NTS regarding (i) perceived importance and influence on quality of care, (ii) prioritisation, (iii) clinical situations perceived as NTS-dependent, (iv) perceived training gaps, and (v) perceived barriers to NTS learning, to guide future curricular structuring.

Methods

Study design and setting

A descriptive cross-sectional study was conducted at the Faculty of Medicine and Pharmacy of Marrakech (FMPM) to provide a situational overview without investigating causal relationships [7,8].

Participants and sampling

The target population comprised medical students enrolled at FMPM during the 2024/2025 academic year. A stratified sample was built with balanced distribution across curriculum cycles: 50 students in cycle 1, 50 in cycle 2, and 50 in cycle 3 (n = 150). This size was considered suitable for descriptive aims and trend identification [9].

Eligibility criteria

Inclusion criteria were: enrolment at FMPM (2024/2025), voluntary participation with informed consent, and completed questionnaire. Incomplete or inconsistent responses were excluded.

Instrument and data collection

A brief, structured, anonymous questionnaire was developed from the health professions education literature on survey design and adapted to the local context [10,11]. Items included multiple-choice questions, ordinal scales, ranking tasks, and a limited number of open-ended questions. Questionnaire length was kept concise to minimise response burden [12]. Data collection combined online dissemination (student cohorts) and in-person completion using mobile devices. The data collection period ran from 25 April to 10 May 2025.

Data analysis

Quantitative data were analysed descriptively (frequencies, percentages, rank means, standard deviations). No inferential analyses were performed, as the objective was to identify structuring educational trends. Open-ended responses were summarised through descriptive thematic content analysis [13].

Ethical considerations and funding

Participation was voluntary, anonymous, and non-remunerated. Participants received information on objectives and data use and provided informed consent prior to completion. No external funding was received.

Results

Respondent characteristics

A total of 150 students were included (50 per cycle). Mean age was 22.8 ± 2.6 years (range 18– 31; median 24). Females represented 55.3% (n = 83).

Knowledge and representations of NTS

All respondents reported prior exposure to NTS (100%). The terms most frequently associated with NTS were communication (92%), empathy (73.3%), stress management (70%), teamwork (64%), ethics (62%), time management (57.3%), and leadership (56%).

Table 1: Terms associated with non-technical skills as cited by students.

Term	Count (n)	Percentage (%)
Communication	138	92.0
Empathy	110	73.3
Stress management	105	70.0
Teamwork	96	64.0
Ethics	93	62.0
Time management	86	57.3
Leadership	84	56.0

Perceived importance and influence on quality of care

NTS were rated as very important for medical training by 75.3% of students and important by 24.7%, with no "low/not important" responses. Regarding quality of care, 75.3% reported a very strong influence, 22.7% a significant influence, and 2% a weak or no influence.

Prioritisation of NTS

Mean ranks (1 = highest priority; 5 = lowest) were: communication (1.9), empathy (2.3), clinical decision-making (2.72), ethics/conflict management (3.186), stress management (3.37), teamwork (3.57), time management (3.86), and leadership (3.88).

Table 2: Prioritization of non-technical skills according to students' perceptions.

Competency	Mean rank	Standard deviation (SD)
Communication	1.90	1.097
Empathy	2.30	1.086
Clinical decision-making	2.72	1.240
Ethics (conflict management)	3.186	1.220
Stress management	3.37	1.250
Teamwork	3.57	1.290
Time management	3.86	1.247
Leadership	3.88	1.120

Clinical situations perceived as highly NTS-dependent

The most frequently cited situations were breaking bad news (93.33%) and managing emotions with a critically ill patient (88.66%). Intermediate consensus concerned team coordination (72.6%) and conflict resolution (68.66%). Medical emergencies were cited by 56% of students. Prescribing was least associated with NTS (32.66%) and decreased across cycles (56% in cycle 1 vs 18% in cycle 3).

Table 3: Clinical situations perceived by students as requiring non-technical skills as a priority.

Clinical situation	Count (n)	%
Breaking bad news to a patient	140	93.33
Managing emotions when caring for a critically ill patient	133	88.66
Coordination with the healthcare team	109	72.60
Conflict resolution with colleagues	103	68.66
Management of a medical emergency	84	56.00
Medical prescribing	49	32.66

Perceived gaps and reported clinical difficulties

Only 8% considered NTS training adequate, whereas 92% deemed it insufficient—particularly stress/emotion management (82%), decision-making in critical situations (60.6%), communication/empathy with patients (60%), and leadership/team management (57.3%). Overall, 54% reported having encountered clinical difficulties attributed to NTS deficits.

Table 4: Students' perceived causes of non-technical skills training gap.

Perceived cause	Count (n)	%
Absence of a pedagogical reference framework	121	80.60
Assessment focused on technical competencies	101	67.33
Insufficient teaching time	82	54.66
Lack of faculty training in NTS	62	41.33
Insufficient practical scenarios	40	26.66

Perceived barriers and curricular expectations

The most frequently cited barriers were the absence of a pedagogical reference framework (80.6%), assessment focused mainly on technical competencies (67.33%), insufficient teaching time (54.66%), lack of faculty training in NTS (41.33%), and insufficient practical scenarios (26.66%). Finally, 96.7% supported mandatory integration of NTS within technical courses.

Discussion

This study shows that FMPM medical students strongly value NTS and perceive them as influential on care quality, yet report substantial shortcomings in current training. This aligns with evidence that NTS training can support patient safety and quality outcomes, while implementation often remains inconsistent [1,3,4]. Students' perception that NTS teaching is insufficient may reflect reliance on implicit transmission and the hidden curriculum, which can lead to variability in learning opportunities and assessment [6].

Communication and empathy emerged as the core priorities, consistent with NTS frameworks and competency models that place relational competencies at the centre of safe practice [3-5]. Importantly, the clinical situations perceived as most NTS-dependent—breaking bad news and managing emotions with critically ill patients—are those characterised by high emotional load and uncertainty, supporting the need for structured educational approaches and practice opportunities. Stress/emotion management and decision-making under pressure were key unmet needs. This is educationally relevant given the association between high-pressure environments, cognitive load, and safety-relevantperformance. Taken together, these findings suggest that the main challenge is not a lack of student motivation, but a structural curricular gap requiring explicit learning objectives, progressive milestones, and aligned assessment strategies.

NTS curricula may benefit from experiential strategies such as simulation, structured debriefing, role-play, and feedback, which have demonstrated educational value when designed and facilitated appropriately [14-18]. The strong emphasis on the absence of a reference framework suggests that formalising expectations (learning outcomes, progressive milestones, assessment strategies) is a critical step to move beyond fragmented learning [6].

Finally, inter-cycle trends suggest that perceptions evolve with clinical exposure and responsibility. A spiral approach—early introduction, reinforcement in clinical cycles, and consolidation through supervised practice—may support progressive competence development [19].

Limitations

This monocentric study relied on self-reported perceptions and did not include objective performance assessment. The stratified but non-probabilistic sampling supports descriptive trends rather than population inference. However, the balanced cycle distribution and internal coherence of findings provide useful decision-support indicators for curricular planning [9]. Nevertheless, the consistency of perceptions across curriculum cycles supports the conceptual transferability of these findings beyond the local context.

Conclusions

FMPM medical students consider NTS essential to training and quality of care but report major gaps in current teaching, particularly regarding stress/emotion management and decision-making in critical contexts. The perceived absence of a pedagogical reference framework and a technically oriented assessment culture highlight the need for structured, progressive, and assessable NTS integration within technical and clinical teaching.

Acknowledgements

The authors thank the medical students of the Faculty of Medicine and Pharmacy of Marrakech for their participation and engagement.

References

1. Gordon M, Darbyshire D, Baker P. Non-technical skills training to enhance patient safety: a systematic review. Med Educ. 2012; 46:1042-1054.
2. Gamborg ML, Salling LB, Rölfing JD, Jensen RD. Training technical or non-technical skills: an arbitrary distinction? A scoping review. BMC Med Educ. 2024; 24:1451.
3. Prineas S, Mosier K, Mirko C, Guicciardi S. Non-technical skills in healthcare. Springer. 2021; 413-434.
4. Flin R, O'Connor P, Crichton M. Safety at the Sharp End: A Guide to Non-Technical Skills. CRC Press. 2017.
5. Frank JR, Snell L, Sherbino J. CanMEDS 2015 Physician Competency Framework. Ottawa: Royal College of Physicians and Surgeons of Canada. 2015.
6. Hafferty FW. Beyond curriculum reform: confronting medicine's hidden curriculum. Acad Med. 1998; 73:403-407.
7. Setia MS. Methodology series module 3: Cross-sectional studies. Indian J Dermatol. 2016; 61:261-264.
8. Wang X, Cheng Z. Cross-Sectional Studies: Strengths, Weaknesses, and Recommendations. CHEST. 2020; 158:65-71.
9. Burmeister E, Aitken LM. Sample size: how many is enough? Aust Crit Care. 2012; 25:271-274.
10. Artino AR Jr, La Rochelle JS, Dezee KJ, Gehlbach H. Developing questionnaires for educational research: AMEE Guide No. 87. Med Teach. 2014; 36:463-474.
11. Artino AR Jr, Phillips AW, Utrankar A, Ta AQ, Durning SJ. The Questions Shape the Answers: Assessing the Quality of Published Survey Instruments in Health Professions Education Research. Acad Med. 2018; 93:456-463.
12. Rolstad S, Adler J, Rydén A. Response burden and questionnaire length: is shorter better? A review and meta- analysis. Value Health. 2011; 14:1101-1108.
13. Bardin L. L'analyse de contenu. Paris: PUF. 2013.
14. Issenberg SB, McGaghie WC, Petrusa ER, Gordon DL, Scalese RJ. Features and uses of high-fidelity medical simulations that lead to effective learning: a BEME systematic review. Med Teach. 2005; 27: 10-28.
15. Fanning RM, Gaba DM. The role of debriefing in simulation-based learning. Simul Healthc. 2007; 2: 115-125.
16. Nestel D, Tierney T. Role-play for medical students learning about communication: Guidelines for maximising benefits. BMC Med Educ. 2007; 7: 3.
17. Ramani S, Krackov SK. Twelve tips for giving feedback effectively in the clinical environment. Med Teach. 2012; 34:787-791.
18. Eva KW. What every teacher needs to know about clinical reasoning. Med Educ. 2005; 39: 98-106.
19. Croskerry P. A universal model of diagnostic reasoning. Acad Med. 2009; 84: 1022-1028.