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La préparation des étudiants en médecine à l'externat est-elle optimale ? Une analyse de contenu de commentaires narratifs sur les compétences cliniques pendant la formation préclinique

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Résumé de l'article

Introduction : Le passage de la formation médicale préclinique à l'externat est une transition cruciale mais abrupte pour les étudiants en médecine. Une rétroaction efficace sur les compétences cliniques au cours de la formation préclinique peut mieux préparer les étudiants à l'externat et leur donner le temps de remédier rapidement aux difficultés rencontrées. L'objectif de cette étude était d'explorer si et comment les commentaires narratifs à ce stade étaient mis à profit pour réaliser cette transition.

Méthodes : Nous avons effectué une analyse de contenu pour catégoriser les commentaires narratifs sur les compétences cliniques de deux cohortes d'étudiants précliniques de troisième année dans un établissement universitaire.

Résultats : Les enseignants ont fait des commentaires narratifs pour 272 étudiants. Chaque commentaire a été divisé en unités d'analyse (n = 1 314 unités). Les commentaires étaient soit généraux (n = 187), soit axés sur l'attitude (n = 628), les connaissances et les processus cognitifs (n = 357), ou le raisonnement clinique (n = 142). Ils étaient en général positifs (n = 1 190) et rarement négatifs (n = 39). Peu d'entre eux (6 %) contenaient des suggestions d'amélioration.

Discussion : Dans cette étude, les commentaires narratifs sur les compétences cliniques avant l'externat ont semblé peu utiles, car ils étaient en grande majorité positifs et offraient rarement des suggestions. Cela donne à penser que des occasions d'intervention précoce ont pu être perdues. Les commentaires narratifs avant l'externat pourraient être optimisés en mettant davantage l'accent sur le raisonnement clinique, en abordant rapidement les défis rencontrés et en proposant des mesures d'amélioration réalisables.

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Brief Reports

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La préparation des étudiants en médecine à l'externat est-elle optimale? Une analyse de contenu de commentaires narratifs sur les compétences cliniques pendant la formation préclinique

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Abstract

Introduction: The progression from preclinical medical training to clerkship is a pivotal yet steep transition for medical students. Effective feedback on clinical skills during preclinical training can better equip students for clerkship and allows time for them to address difficulties promptly. The goal of this study was to explore whether and how narrative comments at this stage were being leveraged to achieve this transition.

Methods: We conducted a content analysis to categorize narrative comments on the clinical skills of two cohorts of third-year preclinical students at one academic institution.

Results: Teachers made narrative comments for 272 students. Each comment was divided into analysis units (*n* = 1,314 units). Comments were either general (*n* = 187) or focused on attitude (*n* = 628), knowledge and cognitive processes (*n* = 357), or clinical reasoning (*n* = 142). They were abundantly positive (*n* = 1,190) and marginally negative (*n* = 39). Few (6%) contained suggestions for improvement.

Discussion: In this study, narrative comments on clinical skills before clerkship seemed minimally helpful, as they were overwhelmingly positive and seldom offered suggestions. This could suggest missed opportunities for early interventions. Pre-clerkship narrative comments could potentially be optimized by increasing emphasis on clinical reasoning, addressing challenges early and providing actionable steps for improvement.

Résumé

Introduction : Le passage de la formation médicale préclinique à l'externat est une transition cruciale mais abrupte pour les étudiants en médecine. Une rétroaction efficace sur les compétences cliniques au cours de la formation préclinique peut mieux préparer les étudiants à l'externat et leur donner le temps de remédier rapidement aux difficultés rencontrées. L'objectif de cette étude était d'explorer si et comment les commentaires narratifs à ce stade étaient mis à profit pour réaliser cette transition.

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Introduction

The progression from preclinical medical training to clerkship is a pivotal yet particularly steep transition.[1] Transition periods lead to increased stress and uncertainty for learners, which can potentially jeopardize patient safety.[2,3] To alleviate these impacts, it is essential to optimize medical students' clinical preparation and guidance before they start their clinical rotations, particularly around the most common sources of student difficulties in this stage: medical knowledge and clinical reasoning.[1,4] Consequently, educators should aim to provide students with feedback on their clinical skills before clerkship to enhance its impact on their learning. In this context, we adhere to Boud's definition of feedback as a process where "learners obtain information about their work" to "generate improved work."[5]

Providing feedback early in training is vital to prevent delays in identifying students' difficulties.[6] Delayed identification leaves less time for effective remediation, potentially leading to critical care incidents before issues are addressed.[7,8] Conversely, patient outcomes may improve following feedback interventions in relation to safe prescribing, patient management and patient satisfaction.[9,10]

Surprisingly, however, feedback interventions do not consistently result in improvement for lack of detail.[11,12] Thus, for the intended positive impact, feedback interventions must explicitly specify, in concrete terms, what the student should do to achieve a different outcome.[13,14]

Written narrative comments can effectively serve this purpose.[15,16] While narrative comments are also used to document performance and inform decisions about academic progress, high-quality narrative comments additionally serve to describe a focused aspect of performance—such as knowledge, communication, teamwork, and interpersonal skills—with a balanced message using both positive and negative elements, and should provide recommendations to learners on how to improve their performance.[13,17–19] As qualitative descriptions of performance in a specific context, narrative comments can effectively inform students about gaps needing correction.[20,21]

Given the significance of feedback on clinical skills before preclinical students transition to clinical clerkship, and the common use of narrative comments for this purpose, we aimed to explore if narrative comments at this training stage guide students adequately and facilitate early difficulty detection and remediation.

Methods

Design

We used a mixed methods design to conduct an analysis of narrative comments made by teachers regarding the clinical skills of third-year preclinical students to be able to describe and count the type of comments. Adopting a pragmatic approach, we used a deductive and an inductive approach to describe the data. First, we based our analysis on the literature on narrative comments to set our general categories, and then used an inductive approach to describe the content in each category more precisely.[22]

Context

This study occurred in an undergraduate medical program at a French-Canadian university with urban and suburban locations in three regions across two provinces enrolling approximately 200 students per cohort. Before clerkship, students undergo four months of an integrative program which combines knowledge and clinical skills, emphasizing clinical reasoning through complex clinical scenarios, and involves 50 clinical teachers. Students initially worked individually and later joined eight-member groups weekly.

Among the various assessments in this training, we focused on narrative comments provided by clinical teachers because of their increasing use in medical education, and because they allow teachers to give more specific feedback to students on their clinical skill performances. The assessment grid included scores for five aspects of students' performance: knowledge, clinical reasoning, concept mapping, collaboration, and professionalism. Clinical teachers assessed these using a four-point scale, ranging from "Exceeds expectations," "Meets," or "Inconsistently meets expectations" to "Below expectations." A section for narrative comments was located at the end of the grid. This narrative comment was intended for the students. Written instructions for teachers were to give feedback and suggestions for improvement. A narrative comment became mandatory with any rating below "Meets expectations."

Data

We analyzed anonymized narrative comments from clinical teachers for two medical student cohorts (2018-2019 and 2019-2020). The study had institutional ethics committee approval (ref. no. 2017-1494), and students gave consent for data release. Feedback without narrative comments were excluded.

Content analysis of narrative comments

Our content analysis comprised three phases: data preparation, organization, and reporting findings.[22] During the data preparation phase, three members of the team familiarized themselves with the data and then divided narrative comments into individual units, each reflecting a distinct idea. A single comment could yield multiple units. In the organization phase, PB and MoC classified units into content (knowledge, skills, attitude, clinical reasoning) and valence (positive, negative, improvement suggestions) using a deductive approach. We drew the classification matrix from articles on narrative comments, the teachers' assessment grid, and the data themselves.[17–19] PB, MoC, and LB independently coded each unit, discussing disagreements with a fourth team member (CSO). Subsequently, using an inductive approach, the same three team members devised subcategories within the content categories. Each member focused on one or two primary categories. They grouped together recurring terms and words in the coding within a category, then identified the most appropriate terms to define these subcategories. Subsequently, they re-evaluated the content of each subcategory to ensure consistency and accuracy. For further consistency, all three team members reviewed and discussed each other's categories and subcategories until consensus was reached, involving a fourth member (CSO) when disagreement persisted. Finally, they counted the analysis units per narrative comment, category, subcategory, and valence (reporting findings phase).

Results

Our dataset had 272 narrative comments, equating one per student. These encompassed 1,314 analysis units. Each comment had one to 10 units, averaging 4.8 (SD = 1.8) units. Most comments (75.4%) had three to six units. We divided the analysis units into four main categories, which help distinguish the primary abilities on which students received narrative comments: Attitude with 628 units (47.8%); Knowledge and cognitive processes with 357 units (27.2%); Clinical reasoning with 142 units (10.8%); and General comments accounting for 187 units (14.2%). Each category's details and subcategory examples are in Table 1.

Table 1. Examples of units of analysis for each subcategory

Category/subcategory	Examples	N (%)
Attitude		627 (47.7%)
Student's personal characteristics	great attitude, authentic, confident, courageous, dynamic, enthusiastic, mature, responsible, pragmatic, timid	77 (12.3%)
Collaboration and communication	good collaboration, works well in a group, excellent collaborative spirit, always receptive to colleagues' comments, would benefit from trying to understand others' point of view when opinions differ, positive leadership, takes charge of communications for the whole group, very good in their role as intendant, good participation, could speak up more often in the group, brings a lot of ideas to group discussions, relevant interventions, assumes their place in the group, pleasant, respectful	241 (38.4%)
Professionalism in student's role	well prepared, organized, structured, works well, professional, curious, motivated, asks questions, takes criticism well, wants to improve	309 (49.2%)
Knowledge and cognitive processes		357 (27.2%)
Student's knowledge	has good knowledge, has excellent knowledge, uses their knowledge well, has good fundamental knowledge that they apply well in clinical contexts, very good integration of concepts	193 (54.1%)
Cognitive abilities of the student	understands the usefulness of lab exams, has an excellent understanding of problems, good systematic thinking, knowledge is well organized	62 (17.4%)
Quality and characteristics of concept maps	good concept map, detailed concept map, incomplete concept map, short concept map, clear concept map	102 (28.6%)
Clinical reasoning		142 (10.8%)
Specific clinical reasoning elements	applies their knowledge to problem solving, sometimes has difficulty distinguishing the important elements of the problem, premature closure, early closure of differential diagnosis, management of uncertainty improved throughout the session, good problem formulation, [student's] intervention [in the group] oriented toward clinics	62 (43.7%)
Overall clinical reasoning quality	good clinical reasoning, clinical reasoning at a higher level, clinical reasoning evolving well, clinical reasoning exceeds expectations, clinical reasoning very organized, clinical reasoning well developed, clinical reasoning in the process of consolidation, clinical reasoning still needs work	80 (53.6%)
General comments		188 (14.3%)
Encouragement or positive reinforcement	continue, great progress, good luck, ready for clerkship, keep up the good work	88 (46.8%)
Global performance assessment	good student, very good student, excellent student, expert student, performance exceeds expectations or above average, competent	81 (43.3%)
Potentiality and predictions about future performance	undeniable, high, good, excellent potential, should be successful moving forward, will make an exceptional doctor, bound for a great career	12 (6.4%)
Educational prescription	continue to invest time, continue to invest energy, read more, focus more on the objectives	7 (3.7%)

Attitude

The predominant narrative comment category pertained to students' attitudes. It encompasses non-competence-related personal characteristics (i.e., *students' personal characteristics*), using qualities to describe the students. *Professionalism in the student's role,* emphasizing students' diligence, interest, and eagerness to improve, was the most prevalent. Comments about *collaboration and communication* (either general or more specific on certain aspects) covering students' group role, participation, contribution, and approach, were also common.

Knowledge and cognitive processes

The "Knowledge and cognitive processes" category addressed aspects of students' knowledge, cognitive abilities, and concept maps (drawing on knowledge and cognitive functions).[23] Teachers commented on the depth and applicability of students' knowledge and how they employed and integrated it. Units of analysis related to *cognitive abilities of the student* highlighted students' understanding, synthesis skills, and knowledge organization. Feedback on *quality and characteristics of concept maps* varied from general remarks to specific adjectives outlining their quality and features.

Clinical reasoning

Units of analysis for clinical reasoning were divided into 1) specific clinical reasoning elements and 2) overall clinical reasoning quality. *Specific elements of clinical reasoning* included problem-solving, selectivity, differential diagnosis, management of uncertainty, hypothesis generation, and problem representation. For *overall clinical reasoning quality,* clinical teachers employed adjectives (i.e., good, evolving well, very organized) to depict trainees' clinical reasoning abilities.

General

The General category captured comments on students' overall performance unrelated to other skills categories. It covered 1) encouragement or positive reinforcement, 2) global performance assessment, 3) potentiality and predictions about future performance, and 4) educational prescriptions. Nearly half of these comments constituted *encouragement or positive reinforcement*. For *global performance assessment*, clinical teachers gave overall judgments or a description of the student's performance. Adjectives were used to describe *potentiality and predictions about future performance*. *Educational prescriptions* consisted of nonspecific recommendations for performance enhancement.

Quantitative data

Table 2 displays the frequencies of analysis units categorized by type and valence. Positive units of analysis were the most prevalent, totaling 1,190 (90.6%). When focusing on the number of negative units of analysis, they were higher in the Attitude category compared to other categories. However, when focusing on the categories, the percentage of negative comments was almost equal for Attitude and Clinical Reasoning, and nearly absent in Knowledge, Cognitive Processes, and General Comments. Suggestions for improvement were most frequently associated with knowledge and cognitive processes.

Table 2. Number of units of analysis by category and valence

Category	Negative	Positive	Suggestion for improvement	Total
	N (%)	*N* (%)	*N* (%)	*N (%)*
Percentage of comments by category in each valence				
Attitude	29 (74.4%)	575 (48.3%)	23 (27.1%)	627 (47.7%)
Knowledge and cognitive processes	2 (5.1.%)	319 (26.8%)	36 (42.4%)	357 (27.2%)
Clinical reasoning	8 (20.5%)	115 (9.7%)	19 (22.4%)	142 (10.8%)
General comments	0 (0.0%)	181 (15.2%)	7 (8.2%)	188 (14.3%)
Total	39 (100%)	1,190 (100.0%)	85 (100.0%)	1314 (100.0%)
Percentage of comments by valence in each category				
Attitude	29 (4.6%)	575 (91.7%)	23 (3.7%)	627 (100.0%)
Knowledge and cognitive processes	2 (0.6.%)	319 (89.3%)	36 (10.1%)	357 (100.0%)
Clinical reasoning	8 (5.6%)	115 (81.0%)	19 (13.4%)	142 (100.0%)
General comments	0 (0.0%)	181 (96.3%)	7 (3.7%)	188 (100.0%)
Total	39 (3.0%)	1,190 (90.6%)	85 (6.5%)	1314 (100.0%)

Discussion

We sought to determine whether narrative comments toward the end of preclinical training gave students enough guidance to prepare them adequately for their upcoming transition to clerkship, while also facilitating early identification and remediation of students' difficulties.

First, we described the narrative comments to discern if they had the potential to effectively guide students preparing for their imminent clinical clerkships, according to best practices in feedback.[5] While medical knowledge

and clinical reasoning are often areas of difficulty with significant implications for patient care, our findings showed teachers provided different feedback content, that did not optimize learner improvement.[4,24] Almost half of the clinical teachers' comments pertained to students' attitude. Meanwhile, only about a tenth of comments and a fifth of suggestions targeted the clinical reasoning skills, even though these pose a more frequent challenge and have a greater impact on patient care.

Early identification of student difficulties is considered a gold standard, particularly before joining clinical wards.[25] This period offers more direct observation chances and deeper insights into clinical reasoning with minimal patient risk. At this training phase, clinical skills often receive more direct observation, which decreases once students join the wards.[26,27] Our findings suggest that this opportunity is underutilized by teachers, since in our study, an underwhelming minority (3%) of narrative comments did not simply state positive elements. While positive feedback can motivate students, this low percentage contrasts with the expected 10%-15% of students typically struggling in this context.[6,28]

Ideally, and in the perspective of Boud's definition of feedback, effective feedback involves providing a clear, concrete description of what the student should do differently next time to improve or achieve better results.[5,13] However, in our study, a remarkably low number of comments (only 6.4%) offered guidance on how to improve, which is even less than what was found in a two-decade-old study.[14] It seems that the program may miss an opportunity to provide a better structure for teachers to give meaningful narrative comments with suggestions for improvement in key areas to assist students with their transition to clerkship.

The opportunity ahead of students' transition to clerkship appears to have been underutilized. Nevertheless, our findings align with comments made by clinical teachers at later training stages, resembling those of in-training evaluation reports (ITER), team-based assessments during clerkship rotations, or end-of-rotation assessments for postgraduate trainees.[17,19,29] To enhance students' clinical skills, teachers may benefit from formal instructions or training on composing effective narrative comments.[30] Researchers could investigate factors that influence teachers feedback practices or habits and ways to implement best feedback practices.

Limitations

The narrative comments described in this study originated from one integrated session at a sole university, albeit with many campuses, which could limit the transferability of our findings.

Conclusion

The comments in our study were overwhelmingly positive, which does not align with the type of effective narrative feedback needed to help students transition to clerkship. Offering teachers more explicit instructions on effective narrative comments could be beneficial to ensure their meaningful impact in preparing students for clerkship and early detection and resolution of student difficulties. Further research could investigate the impact of such instructions on the quality of narrative comments and explore how students utilize these comments.

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