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Exploring the Holistic Process of How Students Use Feedback in Clinical Clerkship

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ABSTRACT

Effective feedback can only be achieved when students act to improve their performance based on the feedback. This becomes even more important in clinical learning as students face authentic and relevant experiences to shape them as medical doctors. However, students don't always use feedback, even with efforts to improve feedback provided by teachers. Hence, understanding how they use feedback is a step toward achieving effective feedback. This study aimed to explore the process of how students in undergraduate clinical settings use feedback. This qualitative phenomenology study involved medical students on their clinical clerkships, clinical teachers, and clinical rotation coordinators in the Faculty of Medicine at Universitas Indonesia, selected through a maximum variation sampling approach. Triangulation was done through document study. Data were analyzed using a thematic analysis approach. Seven focus groups and four in-depth interviews were conducted, and data saturation was reached. Students use feedback through a process of identifying, receiving, and acting on feedback. Performance was used as an indicator to identify feedback. Receiving feedback was found to be a process involving emotional reaction, reflection on feedback content, and reflection on performance. This process resulted in the acceptance or rejection of feedback, also memorizing or disregarding the feedback. Accepted feedback was acted upon by formulating an action plan, applying feedback, note-taking, and reading further references. This study proposes a holistic process of how students use feedback in clinical settings, which should be acknowledged in taking steps toward effective feedback through faculty development, student engagement, and developing a feedback culture.

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INTRODUCTION

Feedback is only effective when students act to improve their performance. However, students do not always learn and use feedback, despite studies and faculty development efforts centered on providing constructive feedback. (1–4) Feedback is defined as specific information about students' performance compared to the expected standard. (5,6) Feedback can increase students' performance, learning, reflection, and self-regulated learning skills, which will shape them into life-long learners. (1,7) Feedback is essential in clinical learning, since it is the heart of medical education, providing students with authentic and relevant learning experiences. In this phase, students learn how to truly become medical doctors. (8,9) Learning in clinical settings encompasses various competencies, including clinical and procedural skills, patient safety, and personal and professional development. Therefore, the importance of clinical learning requires students' optimal learning. (9,10) Feedback can promote optimal learning in clinical settings, as it reinforces good performance and bridges the gap between students' performance and the required standard for improvement. (4,7) However, clinical learning is unpredictable and dynamic, since it involves patient care, potentially resulting in unexpected and unplanned learning opportunities, leading to unforeseen feedback situations. (8–10)

It is crucial to provide feedback effectively in clinical learning. Ramani et al. (3) stated that feedback that only focuses on faculty development efforts and deems the students' role as passive cannot be effective. As active agents in feedback, students may reject or not use the provided feedback. (11–13) Therefore, understanding how students use feedback is a step toward achieving effective feedback. (5,14)

Various studies on medical education have discussed how students use feedback in various contexts. However, there has been limited evidence on the continuous process of how students use feedback in clinical settings. (12–14) Therefore, this study aims to explore the holistic process of how students in undergraduate clinical settings use feedback.

METHODS

Study Design and Context

This qualitative phenomenology study explored how undergraduate clinical students use feedback in the Faculty of Medicine at Universitas Indonesia (FMUI). FMUI is a public university with an intake of approximately 200–250 undergraduate students annually. The undergraduate program at FMUI uses a competency-based curriculum comprising seven semesters in the academic phase (Bachelor of Medicine) and five semesters in the clinical phase (Doctor of Medicine). The clinical phase consists of long clinical rotations (each nine weeks long), a longitudinal radiology module throughout the long rotations, short clinical rotations (each four weeks long), and a pre-internship module in which students are immersed in the community after completing all clinical rotations. Feedback opportunities in clinical rotations are integrated into learning and assessment methods, such as case presentations, clinical learning experiences, mini-clinical evaluation exercises, and direct observation of procedural skills. Clinical teachers are trained in faculty development programs and equipped with assessment rubrics to provide feedback.

Researcher Characteristics and Reflexivity

At the time of this study, the first author was a student of the Master of Medical Education program at FMUI, with an MD background also from FMUI. Hence, the first author had sufficient knowledge of the context and the observed phenomenon. However, the author did not have any relationship with any of the study participants.

Data Collection and Analysis

This study involved year five and six FMUI clinical students, clinical teachers, and clinical rotation coordinators selected through a purposive sampling method. The respondents were selected considering maximum variation to capture various perspectives on the phenomenon. (15,16) The variations considered for students were their academic year and sex. Clinical teachers were selected considering sex, years of teaching experience, and current clinical department. Clinical rotation coordinators were selected based on their years of experience and surgical or nonsurgical clinical rotations. (17)

Data were collected after obtaining ethical clearance from FMUI's Research Ethical Committee (protocol number: 22-03-0249). The participants were asked to complete the written informed consent form before data collection. Data were collected through focus group discussions and in-depth interviews until the data were saturated while conducting iterative analysis. The participants of the focus groups and interviews are listed in Table 1. Questions for data collection were developed based on the research question and previous literature search by authors, and then they were discussed with all authors. The questions asked are listed in Table 2. Interview audio was recorded using Zoom Meeting features, and the observation of non-verbal cues was done by a note-taker; the recordings were then transcribed. The data were analyzed through thematic analysis using Otani's steps for coding and theorization model (SCAT) matrix. (18) Emerging themes and subthemes were discussed and agreed upon by all authors. Quotations are provided with information on FGD or interview number and participant codes (S: students, CT: clinical teachers, MC: module coordinators) at the end of the quotation.

Table 1: Focus group discussion and in-depth interview participants

FGD and Interview Number	Participant	Number of Participants
F1	Year 5 Students	5
F2	Year 6 Students	8
F3	Year 6 Students	7
F4	Year 5 Students	6
F5	Year 5 Students	8
F6	Clinical Teachers	9
F7	Clinical Teachers	6
IN1	Module Coordinator	1
IN2	Module Coordinator	1
IN3	Module Coordinator	1
IN4	Module Coordinator	1

Table 2: Focus group discussion and in-depth interview questions

Main Questions
1. During the clinical rotations, how do you interact with your students/teachers?
2. Between the mentioned interactions, were there any that you would consider "feedback"? How would you define "feedback"?
3. How do you react to feedback? What do you think about it?
4. What did you do with the feedback you received?

RESULTS

This study involved 34 students, 15 clinical teachers, and 4 clinical rotation coordinators. The findings showed that clinical students use feedback through three main processes (Figure 1): (i) identifying, (ii) receiving, and (iii) acting on feedback. The themes and subthemes identified in this study are listed in Table 3.
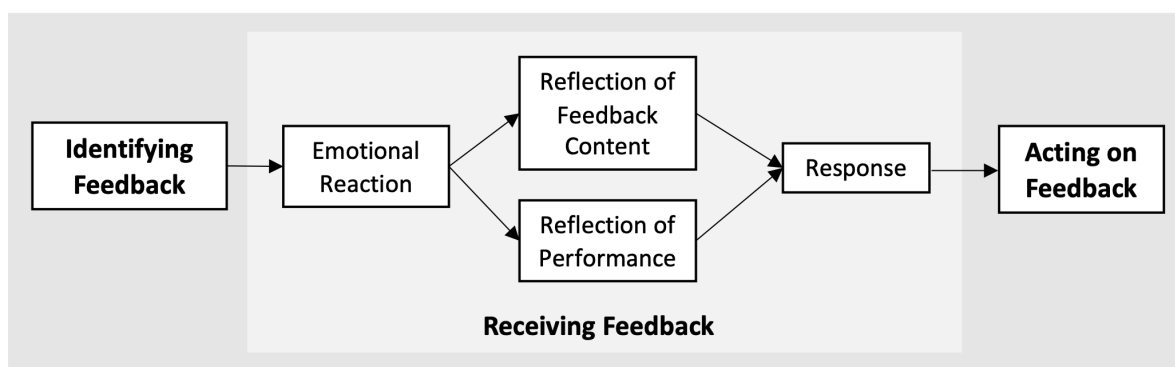

Figure 1: Process of using feedback by medical students in clinical clerkship

Table 3: List of themes and subthemes

Theme	Subtheme
Identifying Feedback	Performance as an indicator of feedback
	Challenges in identifying feedback
Receiving Feedback	Emotional reaction
	a. Feedback delivery
	b. Student emotional readiness and resilience in receiving feedback
	Reflection on feedback content
	a. Views on effective feedback
	i. Characteristics of effective feedback
	ii. Contents of effective feedback
	b. Student's well-being

	Reflection on performance
	a. Students' reflection and self-assessment skills
	b. Student's knowledge on subject content
	Response on receiving feedback
	Challenges in receiving feedback
Acting on Feedback	Action plan
	Applying feedback
	Taking notes
	Reading further references
	Challenges in acting on feedback

Identifying Feedback

The process of using feedback starts with identifying feedback. This study's findings defined feedback as information about the strengths and weaknesses of performance based on direct observation to improve students' performance. Therefore, feedback was identified as discussion after a performance. The students mentioned that one of the identifiers of feedback is direct observation. This becomes essential in feedback, since the information cannot not be perceived as feedback without this identifier.

> Feedback is also comments from the clinical teachers about what we did well in our performance. (F5, S4)

> If feedback is given without (teachers) observing our performance, like how we examine the patient, it's not feedback, it's just a scolding because they didn't observe us directly. (F1, S2)

Feedback after summative assessments was found to be one of the challenges in identifying feedback. The tense and stressful nature of summative assessments and providing feedback with anger hindered students from identifying feedback.

> It (feedback) depends on how it's delivered. During (summative) exams, it feels different. As a participant (in exams), it feels really uncomfortable. Even more, if the feedback is given emotionally, we need time to grasp the meaning behind those words, which is actually feedback. Maybe that's what they (clinical teachers) aimed for (feedback), but we perceive it differently. (F1, S2)

Receiving Feedback

Emotional reaction

Students' emotional reactions precede the process of receiving and reflecting on feedback and their performance. The students went through various emotions when receiving feedback, from anger, upset, shock, and appreciation to depression. Their emotional reactions were influenced by how the feedback was delivered and their emotional readiness to receive feedback. Strong emotional reactions might have hindered the students' reflection processes afterward.

> For me, the reaction (after feedback) would be either scared or, if the situation is really tense, I'd be (emotionally) down, before actually reflecting (the feedback). (F4, S4)

> It made me focus on the delivery instead of the feedback (contents), even though it's not that important. Receiving feedback takes more time because I'm not focusing on the feedback (contents) itself. (F1, S3)

Feedback delivery. Feedback delivery refers to how feedback is conveyed to students. The respondents mentioned various ways of delivering feedback: angry, condescending, gentle, apologizing, and facilitating.

While the students found angry feedback to be memorable, they were more focused on the delivery rather than the feedback content. Nevertheless, this type of delivery was found to have a place in learning, depending on the feedback content. However, condescending feedback was considered immature and unaligned with adult learning principles and therefore did not have a place in learning. Angry and condescending feedback were found to produce strong emotions that could hinder the continuation of the feedback-receiving process.

> My personal opinion, if the feedback content clearly shows where and why we (students) lack, also how the performance is supposed to be done, I don't mind being told in those kinds of ways (angry feedback delivery). (F1, S2)

> Don't consider them (students) as children, don't talk to them like they are one. Saying that the students are stupid and need to be punished are words said to a child, not an adult. (F6, CT1)

Gentle feedback was easier for the students to receive. Apologies after previous negative feedback delivery or before negative feedback were also appreciated by the students.

> Before giving negative feedback, the clinical teacher apologized first because she knew not everyone could handle criticism well, so she started by apologizing. From that, I learned that we could apologize before giving feedback to others, especially if others might not receive it well. (F3, S1)

Feedback delivery that adapted to the students' conditions could facilitate their feedback reception. However, regardless of students' condition, feedback delivery in a positive light mainly facilitate students' reception of feedback.

> We can see that there are students who are quite mature or who are vulnerable when we directly give feedback. In these situations, we can consider and choose what kind of technique (delivery) we will use in providing feedback to students. (F6, CT4)

Students' emotional readiness and resilience when receiving feedback. The students' emotional readiness to receive feedback influenced their emotional reactions. Students with better physical and psychological well-being could regulate their emotions better. In addition, the students' resilience could influence their emotional reactions and regulation, as seen in senior students.

> After going through and spending time as a clinical student, we (students) become stronger. So I would just shrug it off, no need to take it to heart if there's negative feedback. (F2, S3)

Reflection on feedback content

The reflection phase in receiving feedback involves students' reflecting on feedback content and their performance. Reflection on feedback content is a phase in which students reflect on whether the content of the received feedback is acceptable. The students could accept constructive feedback as valuable, which was influenced by their perceptions of effective feedback and their well-being.

> What is done after a feedback? I think it's more of a reflection—is the feedback at least useful? So I would think if what was given is really relatable and useful for me. (F3, S7)

Perception of effective feedback. The students perceived that effective feedback had certain characteristics and content. According to them, effective feedback has the following characteristics: starts with reflection; dialogic feedback; direct observation; specific, frequent, and timely; systematic, non-judgmental; given to the right audience (individual/group); personalized; objective; contains appreciation and correction; and ends with an action plan. The contents of effective feedback are as follows: discussion of performance, notes on practical therapy, concrete examples, teachers' expertise, and feedback on student motivation. Feedback on practical therapy refers to practical patient management based on teachers' field experiences that might differ from textbooks or on how to apply optimal patient management on limited resources. Feedback with concrete examples enables students to better visualize the applications of the given feedback. Feedback from the teacher's expertise also helps students determine what to learn to understand the topic. Students also appreciate feedback about their motivation and how to further improve their learning. Regardless, students need to understand the content of the feedback for it to be effective.

> If it's only the dosage of drugs and such, I can find them in textbooks. If you want to examine a child, you'd have to rub your hands to make them warm … that is something I'd remember forever because I will use it in my future practices, and you can't find it in books. (F1, S2)

> Feedback has to be understood by students, so they know the reasons behind their actions and whether they were right or wrong. (F6, CT6)

Students' well-being. The students' well-being might influence the reflection process, since better physical and psychosocial well-being enables better student concentration to reflect feedback.

> When I'm really tired and the time itself is not so favorable, the feedback can't be fully well accepted because I have less concentration. It's the same for emotional states. When I feel sad or panic due to exams, I can't really concentrate on anything, even to the feedback from the teachers. (F1, S5)

Reflection on performance

In this phase, students reflected on the strengths and weaknesses of their performance and whether these required improvement. The students' reflections on their performance were influenced by their reflection and self-assessment skills and knowledge of the subject content.

> For me, when I get feedback, I would think it over, is the feedback valid? Did the feedback align with my actions? I'd reflect on it over, whether the feedback is correct or not. (F3, S1)

Reflection and self-assessment skills. Students' reflection and self-assessment skills play an important role in their performance. Alignment between students' self-assessments and the feedback provided influenced how they received feedback. In addition to how the students assessed their performance, their views on the effort given to the performance also contributed to the feedback-receiving process.

> For example, I checked the patient records, and I was really sure I'm right. It turns out the teacher said I was wrong. I didn't realize that maybe the teacher's feedback was right. (F1, S3)

> It's hard for me to receive constructive feedback from the teacher when I felt that I gave my all to write the medical records based on the references or textbooks, but when we discussed them, the teacher asked something that's not on the books. I tried to answer the best I could, based on the references, but it's still wrong. (F5, S2)

Students' knowledge of subject content. The students' knowledge of the subject content enabled them to perform adequate self-assessment and reflection in the feedback-receiving process.

> It (feedback) depends on students' preparation before the clinical phase, whether they read enough or possess sufficient knowledge. Because at clinical rotations, there will be lots of moments or cases they only get to see once, then it'll make them realize the need to have sufficient knowledge. If they have the knowledge, they'll know what they lack. (F6, CT8)

Response to receiving feedback

Students respond to feedback by accepting or rejecting it and remembering or forgetting it. Constructive feedback and students who acknowledge their flaws are factors in accepting and retaining feedback.

> In my opinion, those kinds of condescending comments are very common in clinical learning. I think we all have our own filters. If it's good for us, we accept it, but if it's bad for us, we reject it. (F3, S6)

> I don't really remember (negative feedback). When I receive negative feedback, I tend to block them. We all have negative and unpleasant experiences; I think I had way too many of them. Now, I just don't care and don't listen to those kinds of feedback. (F4, S3)

Challenges in receiving feedback

Certain characteristics might pose a challenge to students accepting the feedback, such as lack of feedback dialogue, lack of direct observation, nonspecific and judgmental feedback, and highly specialist or advanced content.

> If they (clinical teachers) didn't observe (our performance), then why bother? They'd be giving feedback for something they don't know whether we perform it correctly or not ... I'd be somewhat skeptical (towards the feedback); is this feedback really useful for me? Or is it just feedback for the sake of giving feedback? (F3, S7)

The students found it hard to relate to feedback that required clinical experience, since the COVID-19 pandemic required limited exposure to patients and a clinical learning environment. This issue also included feedback on managing different patients between clinical teachers, since medicine is an art. In addition, the students could not receive feedback related to tasks outside of their responsibilities.

> Because we had no clinical experience, we couldn't imagine what we would do to the patient. (F1, S3)

Acting on Feedback

Students act on accepted feedback to improve their performance. This is achieved through various mechanisms, such as formulating an action plan, applying feedback, note-taking, and reading further references. Students reflect on what can be improved in their performance and how to improve it before formulating an action plan with feedback providers. In this study, some students felt the need to apply the knowledge and skills obtained from the feedback to improve their knowledge. They would apply feedback based on the feasibility and availability of resources. In some cases, they had to apply the feedback repeatedly to achieve proficiency.

> I'd reflect on the feedback and think how to improve myself based on the given feedback. (F3, S1)
>
> On their first day, I gave students feedback about abdominal palpation. The next day, they probably would make another mistake. But I thought, oh well, a skill needs to be practiced; at least they're heading towards improvement. (F7, CT1)

The students took note of the feedback, especially on their knowledge, which enabled them to read it over when needed and share it with other students. They also acted on the feedback by reading further references to improve their performance.

> Feedback from the previous patient (encounters) are applied afterward on other patients, or we usually take notes (on feedback) and compile them to share with our friends, to help each other prepare for exams. (F4, S4)

The challenge of acting upon feedback is the availability of opportunities to apply it, which became problematic since patient encounters were limited during the COVID-19 pandemic.

> We often get feedback at the end of the rotation, so we have no time to apply the feedback. When we do get the feedback (early), there are fewer opportunities to apply the feedback because we have to take turns with other students. (F5, S4)

DISCUSSION

This paper proposes a detailed process for students' feedback utilization in clinical settings. The findings indicate that the feedback utilization process comprises three main aspects: identifying, receiving, and acting on feedback. This array of processes is influenced by many factors, making feedback an interplay between the people inside the process and contextual factors. (3)

Acknowledging students' active role in the feedback process becomes crucial to achieving effective feedback. (3,12–14) This study's findings are consistent with those of several studies on students' feedback utilization processes in various medical education contexts, such as how students recognize, use, and seek feedback (14), which also included the role of emotional regulation, reflection, and self-assessment (13), and bridging these findings into one continuous process as the emerging themes were found to be in sequence.

The findings are also consistent with how medical doctors use feedback in healthcare settings, as reported by Sargeant et al. (19). However, the studies differ in sequence and context. Sargeant et al. (19) discussed how medical doctors compare the feedback to their self-assessment before responding emotionally, contrasting with the findings of this study, where the students first reacted emotionally after identifying the feedback. This difference could reflect a difference in emotional maturity between medical students and doctors, since students' emotional development continues throughout their education with active participation and meaningful learning experiences. (20)

The process of using feedback starts with identifying the message as feedback, which becomes a prerequisite for students to receive and act upon the feedback. (14,21) Students identify feedback through discussions about performance, aligning with their definition of feedback: information about strengths and weaknesses in performance. Despite this definition, this study's findings argue that the feedback utilization process is constructed by students and teachers, transcending the previous definition of feedback as a one-way communication process. (6,22) However, the students in this study did not include the comparison of standard and performance in this definition, focusing more on strengths and weaknesses, according to the clinical teachers. Suhoyo et al. (23) discussed similar findings in hierarchical and collectivist settings, where feedback aims to correct errors, while a standard is only viewed as an additional learning resource. Due to the power disparity, the students were driven to learn from their teachers, valuing their comments as feedback. (23) The students were more focused on what they had to do to maintain and improve their performance. They also associated the definition of feedback with direct observation; the message was not considered feedback without it. This echoes the findings of van de Ridder et al. (6), who argued that observation is a key element in feedback definition. This is due to the inseparable nature of direct observation and students' performance in feedback. Furthermore, direct observation can strengthen feedback credibility, which influences students' receptivity to feedback. (24,25)

This study's findings argue that summative assessments might pose a barrier to identifying feedback. All types of assessments are eligible venues for feedback, despite the original intention of summative assessments to determine students' competence and progress.

However, due to the nature of summative assessments combined with the fear of failure or punishment, students cannot view them as learning opportunities and disregard feedback. (26)

Feedback identification is followed by a feedback-receiving process that includes students' emotional reactions, reflections on content and performance, and responses to the process. Emotional reaction was found to delay students' feedback-receiving process, since they will focus more on the emotional reaction than the contents of the feedback. (13,19,27) Negative emotions are also known to negatively influence information organization in learning and are easier to retain in memory. These negative memories are easier to accrue and might contribute to burnout. (13) However, emotional reactions to feedback might be inevitable since performance is closely related to oneself. Therefore, emotional regulation is an essential skill in using feedback. (13,19,27) The students' emotional readiness and resilience were also found to prepare them to receive feedback, since it promotes better emotional regulation. (28) Sargeant et al. (19) also highlighted the role of reflection in facilitating emotional regulation in learning.

This study's findings argue for the influence of feedback delivery in evoking positive and negative emotional reactions. Despite this issue, students might accept the feedback if its content is deemed useful, continuing the receiving process to reflect on the content. The students in this study drew the line at condescending feedback, perceiving them as disrespectful and unacceptable for adult learning. (29) Soemantri et al. (30) argued that teachers in hierarchical and collectivist settings might have different perceptions and expectations of feedback, which prevents them from delivering acceptable feedback to students.

The feedback-receiving process then proceeds to reflection on the feedback content and performance. Students reflect on the feedback's content to assess whether it is useful and acceptable to them. This process is influenced by their perception of effective feedback based on its characteristics and content. The characteristics of constructive feedback were found to facilitate feedback reception in students. (4,25) Barriers to receiving feedback were found to be related to the characteristics of unconstructive feedback (e.g., lack of observation, nonspecific, and judgmental), which further highlights the role of clinical teachers in providing constructive feedback in students' receptivity toward feedback. (4,5)

This study's findings highlight the contents of feedback deemed useful by students. Some of these contents focus on teachers' experience and expertise, which might result from high power disparity settings. (23) Suhoyo et al. (23) found that teacher expectations and goals in hierarchical settings significantly impact students' learning. Finally, understanding feedback content becomes mandatory for students to be able to accept and use feedback. (13) Feedback content should also be relevant for students, considering their limited clinical experience. Students find it difficult to relate to feedback that requires further clinical experience or that is outside of their responsibilities, regarding them as irrelevant to their performance. (31)

The students in this study reflected on the strengths and weaknesses of their performance when receiving feedback. In this phase, their self-assessment and reflection skills became essential. Alignment between students' self-assessment and feedback is essential in increasing their receptivity towards it, since they acknowledge a gap between their expected and actual performance. (3,13,32) Learning culture also plays a role in students' ability to admit errors as a catalyst for improvement, emphasizing errors as a learning opportunity for improvement. (11,33) However, students' self-assessments are known to have limited accuracy, even in the later years of medical school, leading to the importance of facilitating self-assessment and reflection through feedback. (4,34,35)

The students' reflection processes were found to be affected by their knowledge of the subject content and well-being. Self-assessments require students to compare their performance to a certain standard. Therefore, knowledge of standards and subject content is essential for effective feedback. (36) The students' physical and psychological well-being also contributed to the feedback-receiving process, since declines in well-being are associated with those in cognitive performance and learning. (37)

Based on the aforementioned receiving process, students will formulate a response toward feedback, either accepting or disregarding it. The students in this study disregarded negative feedback with unpleasant delivery, desensitizing themselves to negative feedback to decrease possible emotional reactions. (38) Besides accepting the feedback, the students found it easier to remember emotional feedback. Feedback containing information about weaknesses that aligns with what they acknowledge as lacking is also easier to remember since it might evoke emotional reactions. Students might remember but reject feedback due to the emotions contained in the experience. (39)

Effective feedback can only be achieved when students act to close the gap between their performance and the standard. (5) Students might act upon accepted feedback to improve themselves. Garino et al. (13) stated that acting upon feedback requires students' willingness and ability to act upon it, which closely relates to their self-regulation learning skills. Students must be able to identify their learning gaps and resources to improve their performance and develop a feasible action plan. (13,14) Clinical teachers and students should work together to construct an action plan as part of the feedback. Students will then apply the feedback to the next performance with repetition as needed to achieve proficiency. (40)

This study's findings emphasized availability of time and opportunities to apply feedback to subsequent tasks, which was found to be limited given the dynamic and time-constrained nature of clinical learning. (4,41) Assuring the continuity of the feedback loop and making feedback an institutional culture become essential in improving students' performance and learning. (3,36) Acting upon feedback also comes in many forms, such as note-taking and searching for further references. (40,41) This study found that the act of seeking feedback is limited. The feedback-seeking process involves students weighing the risks and benefits of seeking feedback, which can be explained by the hierarchical settings that discourage students from seeking feedback. (42,43)

Achieving effective feedback involves many factors, such as context, the teacher as the provider, and the students as the receiver. (3,44) Clinical teachers should aim to provide constructive feedback and facilitate feedback reception in students, empowered through faculty development efforts. (3,4) Teachers in hierarchical settings can create a safe space for discussion and encourage reflection in students. (23,30) Based on the knowledge of this process, it becomes beneficial for students to reflect on their experiences and brace themselves for the upcoming feedback. Students should be encouraged to engage in their learning process and seek feedback in clinical settings through various efforts, such as explicit teaching on feedback. (14,19) Finally, developing a feedback culture becomes critical in facilitating the feedback process and assuring that the feedback loop continues in learning. (3,4,36)

This study was performed at a single institution in Indonesia, which might represent a limitation of this study. However, this study's results comprehensively elaborate on students' feedback utilization process. Moreover, this is the first study to examine the feedback utilization process in this context, which might resemble the process in similar hierarchical and collectivist settings.

CONCLUSION

Medical students' feedback utilization involves three main processes: identifying, receiving, and acting upon feedback. Acknowledging this holistic process can provide a thorough approach to taking steps toward effective feedback through faculty development, student engagement, and developing a feedback culture.

REFERENCES

1. Krackov SK, Pohl HS, Peters AS, Sargeant JM. Feedback, reflection and coaching: a new model. In: Dent JA, Harden RM, Hunt D (eds.) A practical guide for medical teachers. 5th ed. Edinburgh: Elsevier; 2017:281-8.

2. Noble C, Billett S, Armit L, Collier L, Hilder J, Sly C, et al. "It's yours to take": generating learner feedback literacy in the workplace. *Adv Health Sci Educ Theory Pract.* 2020;25:55-74. Available from: https://doi.org/10.1007/s10459-019-09905-5

3. Ramani S, Könings KD, Ginsburg S, van der Vleuten CPM. Feedback redefined: principles and practice. *J Gen Intern Med.* 2019;34(5):744-9. Available from: https://doi.org/10.1007/s11606-019-04874-2

4. Ramani S, Krackov SK. Twelve tips for giving feedback effectively in the clinical environment. *Med Teach.* 2012;34:787-91. Available from: https://doi.org/10.3109/0142159X.2012.684916

5. Wood DF. Formative assessment: assessment for learning. In: Swanwick T, Forrest K, O'Brien BC. Understanding medical education: evidence, theory, and practice. 3rd ed. Oxford: Wiley Blackwell; 2019:361-71.

6. van de Ridder JMM, McGaghie WC, Stokking KM, ten Cate OTJ. What is feedback in clinical education? *Med Educ.* 2008;42:189-97. Available from: https://doi.org/10.1111/j.1365- 2923.2007.02973.x

7. Burgess Am van Diggele C, Roberts C, Mellis C. Feedback in the clinical setting. *BMC Med Educ.* 2020;20(Suppl 2):460. Available from: https://doi.org/10.1186/s12909-020-02280-5

8. Dent JA, Ramani S. Learning with patients: inpatient and outpatient. In: Dent JA, Harden RM, Hunt D (eds.) A practical guide for medical teachers. 5th ed. Philadelphia: Elsevier; 2017:58-67.

9. Ramani S, Leinster S. AMEE Guide no. 34: teaching in the clinical environment. *Med Teach.* 2008;30:347-64. https://doi.org/10.1080/01421590802061613

10. Amin Z, Eng KH. Basics in medical education. 2nd ed. Singapore: World Scientfic; 2009:145-54.

11. Eva KW, Armson H, Holmboe E, Lockyer J, Loney E, Mann K, et al. Factors influencing responsiveness to feedback: on the interplay between fear, confidence, and reasoning processes. *Adv in Health Sci Educ.* 2012;17:15-26. Available from: https://doi.org/10.1007/s10459-011-9290-7

12. Algiraigri AH. Ten tips for receiving feedback effectively in clinical practice. *Med Educ Online*. 2014; 25141. Available from: http://dx.doi.org/10.3402/meo.v19.25141

13. Garino, A. Ready, willing and able: a model to explain successful use of feedback. *Adv in Health Sci Educ.* 2020;25:337-61. Available from: https://doi.org/10.1007/s10459- 019-09924-2

14. Bowen L, Marshall M, Murdoch-Eaton D. Medical student perceptions of feedback and feedback behaviors within the context of the "educational alliance". *Acad Med*. 2017;92(9):1303-12. Available from: https://doi.org/10.1097/ACM.0000000000001632

15. Creswell JW, Poth CN. *Qualitative inquiry & research design: choosing among five approaches.* California: Sage Publications; 2018.

16. Tavakol M, Sandars J. Quantitative and qualitative methods in medical education research: AMEE guide no. 90: part ii. *Med Teach.* 2014;36:838-48. Available from: https://doi.org/10.3109/0142159X.2014.915297

17. El Boghdady M, Alijani A. Feedback in surgical education. *The Surgeon.* 2016;1-6. Available from: http://dx.doi.org/ 10.1016/j.surge.2016.06.006

18. Otani T. "SCAT" a qualitative data analysis method by four-step coding: easy startable and small-scale data-applicable process of theorization. Bulletin of the Graduate School of Education and Human Development (Educational Sciences), Nagoya University. 2007;54(2):27–44.

19. Sargeant JM, Mann KV, van der Vleuten CPM, Metsemakers JF. Reflection: a link between receiving and using assessment feedback. *Adv in Heath Sci Educ.* 2009;14:399-410. Available from: https://doi.org/10.1007/s10459-008-9124-4

20. Helmich E, Bolhuis S, Laan R, Dornan T, Koopmans R. Medical students' emotional development in early clinical experience: a model. *Adv in Health Sci Educ.* 2014;19:347–59. Available from: https://doi.org/10.1007/s10459-013-9477-1

21. Winstone NE, Nash RA, Parker M, Rowntree J. Supporting learners' agentic engagement with feedback: a systematic review and a taxonomy of recipience processes. *Educational Psychologist.* 2017:52(1);17-37. Available from: http://dx.doi.org/10.1080/00461520.2016.1207538

22. Ajjawi R, Regehr G. When i say...feedback. *Med Educ.* 2018:53(2);1-3. Available from: https://doi.org/10.1111/medu.13746/

23. Suhoyo Y, van Hell EA, Kerdijk W, Emilia O, Schönrock-Adema J, Kuks JBM, Cohen-Schotanus J. Influence of feedback characteristics on perceived learning value of feedback in clerkships: does culture matter? *BMC Med Educ.* 2017;17(69):1-7. Available from: https://doi.org/10.1186/s12909-017-0904-5

24. Watling C. Cognition, culture, and credibility: deconstructing feedback in medical education. *Perspect Med Educ.* 2014;3:124-128. Available from: https://doi.org/10.1007/s40037-014-0115-2

25. Lefroy J, Watling C, Teunissen PW, Brand P. Guidelines: the do's, don'ts and don't knows of feedback for clinical education. *Perspect Med Educ.* 2015;4:284-99. Available from: https://doi.org/10.1007/s40037-015-0231-7

26. Harrison CJ, Könings KD, Schuwirth L, Wass V, van der Vleuten C. Barriers to the uptake and use of feedback in the context of summative assessment. *Adv in Health Sci Educ.* 2015;20(1):229-45. Available from: https://doi.org/10.1007/s10459-014-9524-6

27. Sargeant J, Lockyer J, Mann K, Holmboe E, Silver I, Armson H, et al. Facilitated reflective performance feedback: developing an evidence and theory-based model that builds relationship, explores reactions and content, and coaches for performance change (R2C2). *Acad Med.* 2015;90(12):1698-706. Available from: https://doi.org/10.1097/ACM.0000000000000809

28. Nyklíček I, Vingerhoets A, Zeelenberg M. Emotion regulation and well-being: a view from different angles In: Nyklíček I, Vingerhoets A, Zeelenberg M (eds.) *Emotion regulation and well-being.* New York: Springer; 2011. Available from: https://doi.org/10.1007/978-1-4419-6953-8_1

29. Cohen LG, Sherif YA. Twelve tips on teaching and learning humanism in medical education. *Med Teach.* 2014;36(8):680-4. Available from: https://doi.org/10.3109/0142159X.2014.916779

30. Soemantri D, Nurokhmanti H, Qomariyah N, Claramita M*.* The practice of feedback in health professions education in the hierarchical and collectivistic culture: a scoping review. *Med Sci Educ.* 2022;32:1219-29. https://doi.org/10.1007/s40670-022-01597-8

31. van de Ridder JMM, McGaghie WC, Stokking KM, ten Cate OTJ. Variables that affect the process and outcome of feedback, relevant for medical training: a meta-review. *Med Educ.* 2015;49:658-73. Available from: https://doi.org/10.1111/medu.12744

32. Lockyer J, Armson H, Chesluk B, Dornan T, Holmboe E, Loney E, et al. Feedback data sources that inform physician self-assessment. *Med Teach.* 2011;33(2):e113-20. Available from: https://doi.org/10.3109/0142159X.2011.542519

33. Ramani S, Könings KD, Mann KV, Pisarski EE, van der Vleuten CPM. About politeness, face and feedback: exploring resident and faculty perceptions of how institutional feedback culture influences feedback practices. *Acad Med.* 2018;93:1348-58. Available from: https://doi.org/10.1097/ACM.0000000000002193

34. Blanch-Hartigan D. Medical students' self-assessment of performance: results from three meta-analyses. *Patient Educ Couns.* 2011;84(1):3-9. https://doi.org/10.1016/j.pec.2010.06.037.

35. Eva KW, Regehr G. "I'll never play professional football" and other fallacies of self-assessment. *J Contin Educ Health Prof.* 2008;28(1):14-19. Available from: https://doi.org/10.1002/chp

36. Boud D, Molloy E. Rethinking models of feedback for learning: the challenge of design. *Assess Eval High Educ.* 2013;38(6):698-712. https://doi.org/10.1080/02602938.2012.691462

37. Kemp S, Hu W, Bishop J, Forrest K, Hudson JN, Wilson I, et al. Medical student well-being - a consensus statement from Australia and New Zealand. *BMC Med Educ.* 2019;19(69):1-8. Available from: https://doi.org/10.1186/s12909-019-1505-2

38. Bing-You RG, Trowbridge RL. Why medical educators may be failing at feedback. *JAMA.* 2009;302(12):1330-1. Available from: https://doi.org/10.1001/jama.2009.1393

39. McConnell MM, Eva KW. The role of emotion in the learning and transfer of clinical skills and knowledge. *Acad Med.* 2012;87:1316-22. Available from: https://doi.org/10.1097/ACM.0b013e3182675af2

40. Prastiyani NHN, Felaza E, Findyartini A. Exploration of constructive feedback practices in dental education chairside teaching: a case study. *Eur J Dent Educ.* 2020;24(3):580-9. Available from: https://doi.org/10.1111/eje.12539

41. Lewis KD, Patel A, Lopreiato JO. A focus on feedback: improving learner engagement and faculty delivery of feedback in hospital medicine. *Pediatr Clin N Am.* 2019;66:867-80. Available from: https://doi.org/10.1016/j.pcl.2019.03.011

42. Oktaria D, Soemantri D. Undergraduate medical students' perceptions on feedback-seeking behaviour. *Malays J Med Sci.* 2018;25(1):75-83. Available from: https://doi.org/10.21315/mjms2018.25.1.9

43. Pinasthika A, Findyartini A. Final-year undergraduate medical students' feedback-seeking behaviour in primary and secondary healthcare centre placement. *Education in Medicine Journal.* 2022;14(1):53–66. Available from: https://doi.org/10.21315/eimj2022.14.1.5

44. Ajjawi R, Boud D. Researching feedback dialogue: an interactional analysis approach. *Assess Eval High Educ.* 2017;42(2):252-65. Available from: https://doi.org/10.1080/02602938.2015.1102863