

Assessment for Medical students' perception on feedback at department of surgery, School of Medicine and Dentistry in Korle-Bu Teaching Hospital

William Kudzi (✉ wkudzi@yahoo.com)

University of Ghana School of Medicine and Dentistry

Nii Adu Adu-Aryee

University of Ghana School of Medicine and Dentistry

Mohammed Albezel Sheriff

University of Ghana School of Medicine and Dentistry

Emmanuel Bannerman-Williams

University of Ghana School of Medicine and Dentistry

Joseph Ezale Cobbinah

University of Ghana

Edmund Tetteh Nartey

University of Ghana School of Medicine and Dentistry

Research article

Keywords: Feedback, Knowledge, Perception, Medical education, Curriculum development Self-assessment

Posted Date: September 4th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-55478/v1>

License:   This work is licensed under a Creative Commons Attribution 4.0 International License. [Read Full License](#)

Abstract

Background

Giving and receiving feedback are critical skills and should be part of the training of professionals in the medical field. Achieving the best from any medical training being offered requires consultants to adopt the best procedures and techniques. Feedback is given as part of assessment for learning or of learning, and it helps consultants to identify students' difficulties and provide the needed support that would help improve upon the training being provided. depending on the nature of medical training and how consultants wish to support their students. The study investigated whether feedback given to students during their clinical training at the Surgical Department in Korle-Bu Teaching Hospital has been beneficial to trainees.

Methods

This was a cross sectional study using a questionnaire to determine the perceptions and knowledge of students in clinical training programme on the effectiveness of feedback received during their clinical training and whether they helped to improve their learning. Descriptive statistics were used to interpret the responses of the students, with mean values being calculated.

Results

A total of 448 students participated in the study with 50.9% (n = 228) being female and 49.1% male. Majority of participants (97.0%, n = 424) recognized feedback as an evaluative process and 78% (n = 340) had received feedback from lecturers. More than half of participants said there was no clear mechanism that is followed to give feedback to students (64%, n = 286). Majority of participants (38.7%, n = 170) were divided in their opinions as to whether feedback they receive was adequate, beneficial and provided opportunity for learning and improvement

Conclusion

Oral feedback was occasionally given to trainees by their lecturers. Feedback given does not follow any guidelines so the trainees did not really appreciate the real benefits of feedback. From this study, feedback was observed to be very beneficial, but trainees do not really benefit from the feedback given by their lecturers, because the manner in which is given does not promote effective teaching and does not also promote learning and students acquisition of skills on the ward during clinical rotation of trainees.

Background

Giving feedback is a very important component of effective teaching and learning. Training of Medical Students in all medical specialties to achieve the optimal state of intellectual, clinical, technical and professional development involves the use of all methods that are effective as well as tools of assessment that would improve teaching and learning. In 2008, Van de Ridder et al. defined feedback in clinical education as "specific information about the comparison between a trainee's performance and a standard, given with intent to improve the trainee's performance" [1]. Quality feedback can only be achieved if gaps between actual and desired performance are reported to the trainee by a more experienced supervisor, together with a plan for improvement [2]. Feedback therefore becomes one of the tools that could be used to promote learning and to support students' learning through effective assessment [3].

Although feedback is used during assessment to promote learning, it becomes a very effective tool when the learner understands how they are currently performing with regards to an accepted standard, and how the feedback is enabling them to develop learning plans, to correct areas of deficiency and build on areas of strength [4]. Feedback is given to learners so that they could evaluate their performance, identify their strengths and weaknesses, make learners become responsible for their learning as well as giving them the opportunity to demand for accountability from their lecturers. Through feedback students receive effective lesson delivery.

Feedback addresses the deficiencies in meeting a preset standard of desired skills by identifying the area of poor performance and fashioning means to achieve that standard. It is used to promote the desired, high-quality performance in trainees through raising awareness of current skills in high-level performers [5]. For effective formative feedback, the process needs to be a formalized with the provider and recipient being allies and operate in a culture of mutual respect, with a corrective plan of action to address deficiencies through loops of dialogue and information and reflective practice [3, 6]. In this way, the trainee receives clarification of the process he or she followed compared with what was expected; on how to address the gap between actual and intended performance; and, most importantly, of the aftermath for health care.

Failure of feedback mechanisms can result in incompetent healthcare professionals [7]. This may be due to various reasons, including failure of students to recognize the different forms of giving feedback; when and where feedback is provided; how the feedback should be given; at what

stage feedback becomes necessary; incapacity of the teacher; operational demands of the clinical setting; lack of clearly defined teaching and learning objectives; and inadequate support mechanisms for students not meeting such objectives [2].

Medical training involves the transfer of skills from more experienced seniors to students in an experiential learning setting almost the same as serving an old-fashioned apprenticeship [8, 9]. During postgraduate specialization, the need for regular and effective feedback, from clinical supervisors/mentors to students becomes critical in the development of trainees in their chosen field. Provision of good feedback during postgraduate training offers opportunity to identify strengths which can be amplified, and areas that need improvement for corrective measures if necessary, put in place to overcome deficiencies [9, 10]. Students are usually expected to learn from consultants in academic teaching hospitals with their clinical expertise by observing service delivery to patients, rather than being taught. These consultants often deliver service by attending to patients and this takes precedence over more time-consuming explanations about details of, and reasons for processes they follow. Failure of consultants in providing this essential component of training to students may contribute to incompetent or poorly trained clinicians, resulting in poor healthcare provision.

As the student makes the transition from undergraduate through postgraduate to independent practitioner, this skill will prove a valuable resource in the context of an evolving set of competencies, as it helps in the positive approach to lifelong learning expected of a competent doctor. Components of feedback in their clinical training inculcates in practicing physicians the art of self-reflection, the need for continuous medical education and feedback, which lead to better healthcare delivery [11, 12].

Feedback to students on clinical training has often been evaluated, and has revealed students' dissatisfaction with the amount and type of feedback they receive in their clinical and postgraduate trainings. Students have perceived these to be inadequate, inappropriate or non-existent [13, 14]. Feedback therefore needs to carry appropriate information, be delivered promptly as possible, must provide advice on ways to improve performance, and ensure the student realizes there is improvement in learning [15].

The dissatisfaction could also be attributed to either inadequate knowledge about the importance of feedback or improper ways of giving feedback to students. Useful formats for feedback include oral, written, graphic, and video methods [16]. According to Carless et al, giving quality feedback to students is a crucial component in the assessment of students and helps to improve their performance [17].

However, there is currently no formal mode of giving feedback to Medical students during their rotation training in Clinical Departments in the University of Ghana Medical School. Although there may be individual consultants acting as trainers to give feedback to students, there is no available standard in the various wards for supporting students in this aspect of their training which is very significant to their competency. Since giving feedback to students is not standardized, students may also not be fully deriving the benefits from this mode of training during their clinical rotations in the various wards. The aim of this study is to determine whether trainers currently do give any form of feedback to Medical students during their clinical rotation (lectures and ward rounds), and assess how beneficial feedback is towards their clinical training at the Surgical Department in Korle-Bu Teaching Hospital.

Methods

This was cross-sectional study of students of University of Ghana Medical School on their clinical rotation in the Department of Surgery, Korle Bu Teaching Hospital (KBTH) between February, 2019 and November, 2019 academic year. These were Medical Students who were in their 1st, 2nd, 3rd clinical years who rotated through all the wards of Department of Surgery.

Study Site

KBTH is the leading referral hospital in Ghana, located in Accra. It has over 2000 beds for in-patients and several specialist departments, clinics, wards, pharmacies and reference laboratories. The facility provides clinical care, training and conducts research. The Department of Surgery is the largest department with 612 beds and over 860 staff strength. Sixty of these staff are lecturers who train these medical students. There are 10 subunits under the Department of surgery and these are general surgery, cardiothoracic centre, Reconstruction and Plastic surgery, Paediatric surgery, Neurosurgery, ophthalmology, Ear Nose and Throat (ENT), Orthopaedics, Urology and Dental surgery. The study protocol was approved by Ethical and Protocol Review Committee of the School of Medicine and Dentistry, University of Ghana with protocol Identification number CHS/EPRC/JAN/2019.

Study procedure

The study recruited Medical Students consecutively who came to the Department of Surgery Korle-Bu Teaching Hospital for their clinical rotation between February, 2019 and November, 2019. Medical Students were informed on objectives and goal of the study and written informed consent obtained from each student. Questionnaire used has been described by Jothi & Yusoff [18] with modification and administered by trained research assistants to the students in order to systematically obtain the following information: sex, age, Clinical year, knowledge on feedback, and benefit of feedback.

Data management and statistical Analysis

From the paper-based self-administered questionnaires, data were coded and entered initially into Microsoft Access and analyzed using Stata 14®. Descriptive variables were presented as mean and standard deviation if normally distributed, and median for those that did not follow normal distribution.

The questionnaire on students' perception on feedback was divided into three domains:

Domain 1: Nature of feedback from lectures/consultants (five items: q1-q5);

Domain 2: Feedback given to students and students' level of satisfaction (five items: q6-q10) and

Domain 3: Clinical rotation feedback and students' expectation from lecturers/consultants (eight items: q11-q18).

Basically, to measure the unit of variables, all the items were supported with 5-point Likert scales. The Likert rating scale was anchored as follows: Strongly agree = 5, agree = 4, neutral = 3, disagree = 2, and strongly disagree = 1; negatively worded items were reverse coded so that higher scores represent higher knowledge and attitudes. Rated attitude scores were treated as interval data suited for quantitative analysis. Rated Score Means (RSM) were computed for each of the individual questionnaire attitude items by summing individual scores for that questionnaire item domain and dividing by the total number of participants who responded to that questionnaire item in that domain. An average midpoint for all the questionnaire items in each domain was calculated as the sum of the rated score means calculated divided by the number of questionnaire items. To confirm whether the questionnaire items generated responses associated to other constructs that could not be directly measured, a confirmatory factor analysis was conducted, a data reduction tool which removes duplication from a set of correlated variables was applied. First, the Kaiser-Meyer-Olkin (KMO) measure to determine whether the sampling was adequate for factor analysis was done. KMO values >0.50 are termed adequate, whilst values of 0.7 and 0.8 are considered good. Values > 0.90 are rated as "superb" for factor analysis [19]. Bartlett's test of sphericity was also performed with a value <0.05 indicative that a factor analysis may be useful with the obtained variables. Factor analysis was performed using principal components extraction [20] and varimax rotation with Kaiser normalization. Listwise deletion was used for missing values in the factor analysis. Factors selected for rotation had eigenvalues >1. The relationship of each variable to the potential underlying construct is expressed by the factor loading, which can be interpreted in a similar way as standardized regression coefficient. Items with factor loadings ≥ 0.40 were considered important, and loadings of ≥ 0.50 were considered very significant [20]. Reliability analysis was performed to determine the internal consistency of the questionnaire using Cronbach's alpha.

Results

General

A total of 448 students answered the questionnaire with 50.9% (n = 228) being female and 49.1% (n = 220) male. Majority of the study participants were between 21 and 26 years (79.0%, n = 351) (Table 1). Third clinical year students constituted 52.7% (n = 236) of the study participants (Table 1). A vast majority of the study participants (97.0%, n = 424) recognised feedback as an evaluative process and 78% (n = 340) had received feedback from lecturers (Table 1). Majority of the study participants indicated that feedback received was in the oral form (98.2%, n = 334) and this was mostly received during ward rounds (66.7%, n = 299) (Table 1). There was no statistically significant association between the clinical year of study participants and feedback being an evaluative process (p = 0.050), whether they received feedback or not (p = 0.066), where feedback was received (p > 0.050) and the form in which feedback was received (p = 0.188).

Domain 1: Nature of feedback received

Whilst majority of the study participants were in agreement that feedback was given orally, there was no clear mechanism that was followed in giving feedback to students (64%, n = 286). Students also agreed that the nature of feedback they received was very inadequate (47.4%, n = 210) (Table 3). However, 24.6% (n=109) of the study participants were indifferent as to the adequacy of the feedback they received (Table 3). Study participants were divided in terms of "to agree" or to "disagree" in their response to "students are not aware they should be given feedback", "Some lecturers are not aware they should give feedback to students during or after clinical rotation" and "Students do not demand feedback from lecturers because they do not expect to be given feedback" all with RSM of 3.0 which was below domain 1 RSM of 3.2 (Table 3). The domain RSM score of 3.2 indicate a marginal majority of the study participants were in agreement with the questions asked in domain 1.

Domain 1: Satisfaction of feedback

With an RSM of 3.2, 50.9% (n = 222) indicated that the feedback they receive was helpful (Table 4). However, 41.9% (n = 184) were in disagreement that they were satisfied with the type of feedback they do received (Table 4). In terms of adequacy/benefits of the feedback received, although 30.7% (n = 135) of the study participants were neutral, majority of the students (38.7%, n = 170) were in disagreement that the feedback they receive was adequate, beneficial and provides opportunity for learning and improvement. (Table 4). A vast majority of the study participants (85.2%, n = 375) were in disagreement that feedback was not necessary (Table 4). A total of 230 study participants (52.7%) were in disagreement that there no opportunities for them to ask for feedback (Table 4).

Expectation of feedback

On the students' expectation on feedback they receive, the study participants were in agreement with the questions asked in this domain (RSM of 4.1 ± 1.1). Majority of the students were in agreement that feedback should be given by lecturers and not peers (62.3%, $n = 274$) (Table 5). In addition, a vast majority of the study participants (79.3%, $n = 251$) were in agreement that feedback should be constructive, supportive and immediately after each teaching session. Whilst 74.9% ($n = 329$) of the study participants indicated they expect feedback to be one-on-one as well as per class, a vast majority (83.9%, $n = 370$) also expect feedback to be in the form of appraisals stating student's strength, weakness and areas for improvement (Table 5). Most of the students also expect feedback to be interactive, beneficial, cordial and in a harmonious atmosphere (86.6%, $n=383$) as well as the provision of a convenient time for feedback after each lecture session (75.6%, $n = 335$) (Table 5). Most of the study participants (76.0%, $n = 335$) also advocated for a written/oral feedback to improve students' learning and performance and were also in agreement that students should be made to evaluate lecturers on feedback received after each clinical rotation (85.7%, $n = 376$) (Table 5).

Factor analysis

Factor analysis of the 18 questionnaire items yielded five underlying dimensions of students' perception of nature of feedback, satisfaction of this feedback and expectations on feedback given by students. The correlation matrix was significant with a p -value < 0.001 . The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.819, and the Bartlett test of sphericity was statistically significant ($p < 0.001$), both confirming adequacy of the sample size and significant correlation to conduct factor analysis. The internal consistency of the 18 questionnaire item scale as measured by Cronbach's alpha was 0.757 (Cronbach's α were 0.877, 0.833, 0.716, 0.505 and 0.346 respectively for factors 1,2,3,4 and 5) (Table 6). Factor 1 dimension consisted of the items 11, 12, 13, 14, 15, 16, 17 and 18 (all of domain 3: students feedback expectation from lecturers) whilst factor 2 dimension consisted of the items 6, 7 and 8. Factor 3 dimension consisted of the items 1, 2 and 4 whilst factors 4 and 5 dimensions consisted of the items 3, 5 and 9, 10 respectively (Table 6). Using the criterion of an eigenvalue ≥ 1.0 , the five identified dimensions put together accounted for 66.12% of variability of the original 18 item variables (Table 2). Figure 1 shows the eigenvalues for the various factors All the questionnaire items categorized into the five dimension constructs had communalities greater than 0.572 (except item 11 with communality of 0.370) indicating high internal consistency (Tables 2, 3 and 4) which may indicate that the extracted factors represented the variables well [21].

Discussion

One of the vital ingredients that is used to promote effective teaching and learning is feedback [22]. Feedback is used as a tool to support students' learning, more especially during assessment – both assessment for learning and of learning. The manner in which teachers, lecturers and trainers use feedback help enhance students learning. While feedback gives trainers the opportunity to identify their weaknesses and strength as they interact with their trainees or students, it also gives the students or trainees the opportunity to interact with their trainers or teachers about the challenges they face with their learning and what teachers teach and how they teach it. Although the study never looked at how feedback is used, whether it is used as an assessment for learning or of learning, but it was aimed at ascertaining whether feedback given to medical students on clinical training in the surgery department in Korle-Bu Teaching Hospital is beneficial and effective.

The study noted that majority (97%) of the participants appreciate the important of feedback to their training. There are several ways through which feedback could be given to trainees. It could be given orally or in a written form to tell the trainees what they may need to do to improve their learning [16]. The study noted that the nature feedback that is given to the trainees in the surgical ward has mainly been oral feedback and it is usually given only when their consultants do wards rounds. Giving feedback improves performance by comparing actual performance with a previously desired level of competence to be achieved, leading to identifying gaps. Successful feedback allows Students to understand how they are currently performing with regards to an accepted standard, and enables them to develop learning plans to improve on areas of deficiency and build on areas of strength [9, 15].

The participants explained that there is no proper procedure being followed by the consultants and lecturers who are giving them training in their rotations. The lecturers give them oral feedback which does not follow any laid down guidelines. Although pre-determined standards and guidelines are key components of achieving quality of Feedback [15]. The participants were of the view that the oral feedback that is given to the trainees is not adequate and does not give them the opportunity to ask questions about any issues the lecturers might have noticed during their ward rounds, any trainees' shortcomings and any advice or suggestions that could benefit their learning during rotation. Being able to ask for feedback allows students the opportunity to clarify areas of deficiencies and the steps needed to rectify such deficiencies, which increase the possibility of improvement. It became evident that, the consultants and lecturers give the oral feedback casually while on their ward rounds, which does not give the trainees the opportunity to take notes of any issues the lecturers might have noticed or what the consultants may point out or explain to them. The study also noted that some of the lecturers are also not aware they have to give feedback to the students on rotation, whether during or after their clinical rotation. Consultants need to be made aware of the effect of feedback on students and endeavour to ensure that students are at ease in seeking such support. The consultant and student should be allies and operate in a culture of mutual respect, while feedback is co-constructed through loops of dialogue and information and reflective practice [3, 23].

Although the study noted that the participants preferred written feedback rather oral feedback because they maintained that they may forget what their trainers might tell then if the feedback is given orally. However, Urquhart et al [24] have argued that if 'feedback is most often monologic, i.e. constructed by the tutor away from the student and therefore preventing students from clarifying any points of ambiguity'. This pre-supposes that if feedback is written and given to students, it gives them the opportunity to reflect on what might have gone wrong, what must be corrected and how they should be corrected. This contribute towards improvement of their learning. Urquhart et al. [24] cited an instance in which a lecturer gave oral feedback to a student 'around the same time as being told about the death of his patient, and he is clearly very upset about this more than 6 months after the event. We actually have no idea about the content of his feedback, although the student says that he couldn't concentrate on what they were saying'. The emotional feelings may not be appropriate for feedback to given to students orally. This confirms the participants' dissatisfaction about feedback being given by their lecturers orally.

It became evident that oral feedbacks are occasionally given to trainees, a reasonable number (41%) of the participants pointed out that the feedback they receive is very unhelpful to them. The participants explained that the feedback they receive is very inadequate, not beneficial and does not give any opportunity to improve their learning. The feedback given does not give any areas that suggests areas trainees have to improve to enhance their learning during rotation. Although the study revealed that trainees do not benefit from the feedback being given to them, they disagreed that feedback is not necessary. A great majority of the participants (85.2%) pointed out that feedback is very important and that trainees must be given proper feedback when they are on rotation so that they could improve upon what they are learning or they could benefit from the training they are receiving. It became interesting to note that trainees do not ask for feedback even though 52.7% indicated that there is opportunity for them to ask for feedback.

The study revealed that on rotation it is not only lecturers that give feedback to trainees but rather some of the trainees' peers also give feedback. However, the participants expressed displeasure about this form of feedback that is given to students by their peers. The participants indicated that they expect only lecturers to be given them feedback and not their peers. According to Jothi & Yusoff [18] students feel more secured, satisfied and convinced to receive feedback from credible sources like lecturers and consultants, than from their peers. The participants indicated that feedback that is given to trainees should be constructive, supportive and must be done immediately after any teaching session. That means while lecturers were doing their ward rounds, they should give trainees the feedback they need and not after the rotation period. If feedback is given immediately after the teaching session or rotation, the information will be fresh on the minds of the students so that if there is the need to do any reflection of what transpired while on rotation, what has been studied and what needs to be improved. The feedback should be useful and identify the following; 1). Areas that the trainee did very well, 2). Areas that the trainee need to improve and 3). Must also suggest to trainees how they could improve upon what they are learning on the wards.

This study identified feedback providers, structure and mode of feedback as areas of concern. This is consistent with a previous study that reported challenges in feedback were related to poor quality and low quantity of feedback, timing problems, inconsistencies in general and lack of clear requirements and expectations [25].

Conclusion

The study investigated the nature of feedback that medical students who are on their clinical rotation receive from their lecturers and consultants who supervise their practice of the wards. Although feedback is occasionally given to trainees from the lecturers, it is mostly oral feedback. The manner in which feedback is given does not even follow any guidelines so the trainees do not really appreciate the real benefits of feedback. It would be concluded from the study that feedback is observed to be very beneficial, but trainees do not really benefit from the feedback given by their lecturers, because the manner in which is given does not promote effective teaching, learning and students acquisition of skills on the ward during clinical rotation of trainees.

Abbreviations

KBTH Korle Bu Teaching Hospital

ENT Ear Nose and Throat

CHS College of Health Sciences

EPRC Ethical and Protocol Review Committee

KMO Kaiser-Meyer-Olkin

RSM Rated Score Mean

Limitations

Analysis occurred in a single Medical school and obtained data was depending on the students' interpretation that varied depending on their level of understanding about feedback, thus might lead to inaccuracy of the obtained results. Generalizability of our results might be affected by sampling bias. Considering these limitations, results found in this study should be interpreted with caution and within context

Declarations

Ethical approval and consent to participate

Ethical and Protocol Review Committee of the College of Health Sciences, University of Ghana, approved the study under the Protocol Identification Number CHS/EPRC/JAN/2019. Written informed consent to participate in this study was obtained from all patients prior to inclusion in the study.

Consent for publication

All authors consented to the publication of this manuscript.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interest

None of the authors has a conflict of interest.

Funding

Study was funded by the authors

Authors' contributions

NAA and WK both shaped the conception and design of the study and contributed to proposal writing, manuscript writing and finalization. SMA and BWE performed the data collection and had oversight of the quality of data collected. CJE contributed to the conception and design and manuscript review. NET did analysis and contributed to the manuscript writing and review. All authors have read and approved the final manuscript.

Acknowledgement

The authors would like to express their appreciation to all 1st, 2nd, 3rd clinical years Medical students who participated in the study.

References

1. van de Ridder JM, et al. What is feedback in clinical education? *Med Educ*. 2008;42(2):189–97.
2. Shrivastava SR, Ramasamy SP. J, Effective feedback: An indispensable tool for improvement in quality of medical education. *J Pedagogic Dev*. 2014;4(1):12–20.
3. Bienstock JL, et al. To the point: medical education reviews—providing feedback. *Am J Obstet Gynecol*. 2007;196(6):508–13.
4. Nicol DJ. M.-D.D., Formative assessment and self-regulated learning: a model and seven principles of good feedback practice. *Stud High Educ*. 2006;31(2):199–218.
5. Thomas JD. A.R., Giving feedback. *J Palliat Med*. 2011;14(2):233–9.
6. Bing-You RG, Trowbridge RL. Why medical educators may be failing at feedback. *JAMA*. 2009;302(12):1330–1.
7. Iobst WF, et al. Competency-based medical education in postgraduate medical education. *Med Teach*. 2010;32(8):651–6.
8. Rodriguez-Paz JM, et al. Beyond "see one, do one, teach one": toward a different training paradigm. *Qual Saf Health Care*. 2009;18(1):63–8.
9. Henderson P, Ferguson-Smith AC, Johnson MH. Developing essential professional skills: a framework for teaching and learning about feedback. *BMC Med Educ*. 2005;5(1):11.
10. Fluit C, et al. Evaluation and feedback for effective clinical teaching in postgraduate medical education: validation of an assessment instrument incorporating the CanMEDS roles. *Med Teach*. 2012;34(11):893–901.
11. Veloski J, et al. Systematic review of the literature on assessment, feedback and physicians' clinical performance: BEME Guide No. 7. *Med Teach*. 2006;28(2):117–28.
12. Rogers DA, Schwind BM, Meier CJ, Wall A, Brenner JCH. MJ., *Engaging medical students in the feedback process*. *Am J Surg*, 2012(203): p. 21–25.
13. McKinley RK, Williams V, Stephenson C. Improving the content of feedback. *Clin Teach*. 2010;7(3):161–6.
14. Hattie J, Timperley H. The power of feedback. *Review of Educational Research*. 2007;77(1):81–112.

15. Ende J. Feedback in clinical medical education. *JAMA*. 1983;250(6):777–81.
16. Regan-Smith M, lobst HK. W, Direct observation of faculty with feedback: an effective means of improving patient-centered and learner-centered teaching skills. *Teach Learn Med*. 2007;19(3):278–86.
17. D C. Differing perceptions in the feedback process. *Stud High Educ*. 2006;31(2):219–33.
18. Jothi NSNY. M.S.B., Knowledge and Perception of Medical Students on Feedback. *Education in Medicine Journal*. 2015;7(3):44–55.
19. AP F, in *Discovering statistics using SPSS for windows: advanced techniques for the Beginner. Illustrated*. 2000, SAGE p. 496.
20. DW S. The application and misapplication of factor analysis in marketing research. *JMR*. 1981;18:51–62.
21. JC N. *Psychometric theory*. 2nd ed. 1978. 701.
22. D BPW. *Assessment and the Design of Educational Materials*. Journal of the International Society for Design and Development in Education, 2014. 2(7).
23. Askew S, L.C., *Gifts, ping-pong and loops - linking feedback and learning*. In: *Feedback for Learning*. London: Routledge/ Falmer;.. 1st Edition ed. 2000, London. 1–17.
24. Urquhart LM, Rees CE, Ker JS. Making sense of feedback experiences: a multi-school study of medical students' narratives. *Med Educ*. 2014;48(2):189–203.
25. P F. Student perceptions of quality feedback in teacher education. *Assessment Evaluation in Higher Education*. 2011;36(1):51–62.

Tables

Table 1. Socio-demographic characteristics and feedback availability for study population

Characteristics	Frequency, %
Gender	
Male	220 (49.1)
Female	228 (50.9)
Age (years)	
18-20	3 (0.7)
21-23	167 (37.6)
24-26	184 (41.4)
27-29	67 (15.1)
≥30	23 (5.2)
Clinical year	
First	64 (14.3)
Second	148 (33.0)
Third	236 (52.7)
Recognizes feedback as an evaluative process-q5	
Yes	424 (97.0)
No	11 (2.5)
Receive feedback from lecturers during ward rounds/lectures-q6	
Yes	340 (78.0)
No	96 (22.0)
Form of feedback received-q8	
Oral	334 (98.2)
Written	4 (1.2)
Other	2 (0.6)
Receiving feedback from lecturers during clinical rotation ¹ -q7	
On ward rounds	299 (66.7)
During clinics	181 (40.4)
During lectures	113 (25.2)

¹Percentages may add up to >100 as feedback received may be from more than one source per respondent

Table 2. Eigenvalues of the factors

Factor	Eigenvalue	Proportion (%)
Factor 1	4.727	26.27
Factor 2	3.089	17.16
Factor 3	1.949	10.83
Factor 4	1.113	6.19
Factor 5	1.021	5.57
Factor 6	0.899	4.99
Factor 7	0.825	4.58
Factor 8	0.695	3.81
Factor 9	0.602	3.34
Factor 10	0.525	2.92
Factor 11	0.442	2.46
Factor 12	0.410	2.28
Factor 13	0.358	1.99
Factor 14	0.331	1.84
Factor 15	0.278	1.66
Factor 16	0.272	1.51
Factor 17	0.263	1.46
Factor 18	0.191	1.06

Table 3. Nature of feedback (domain 1)

Domain 1:							Factor loadings estimate					Communality
Nature of feedback	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Rated score mean $\pm$ SD						
Question (q1-q5)	n, %	n, %	n, %	n, %	n, %		1	2	3	4	5	
There is no clear mechanism that is followed to give feedback to students	32 (7.2)	44 (9.9)	83 (18.7)	160 (36.0)	126 (28.3)	3.7 $\pm$ 1.2	0.133	-0.093	0.832	0.126	-0.038	0.736
The nature of feedback given is very inadequate	33 (7.5)	91 (20.5)	109 (24.6)	122 (27.5)	88 (19.9)	3.3 $\pm$ 1.2	0.095	-0.264	0.790	0.026	0.149	0.726
Students are not aware they should be given feedback or not	83 (18.7)	90 (20.3)	89 (20.1)	110 (24.8)	72 (16.2)	3.0 $\pm$ 1.4	-0.069	-0.009	0.305	0.728	0.138	0.646
Some lecturers are not aware they should give feedback to students during or after clinical rotation	66 (15.0)	80 (18.2)	124 (28.3)	108 (24.6)	61 (13.9)	3.0 $\pm$ 1.3	0.068	0.162	0.651	0.372	0.065	0.597
Students do not demand feedback from lecturers because they do not expect to be given feedback	86 (19.5)	85 (19.2)	80 (18.1)	123 (27.8)	68 (15.4)	3.0 $\pm$ 1.4	0.038	-0.191	0.060	0.792	0.051	0.672

SD=Standard deviation; Domain 1 Rated score mean = 3.2 $\pm$ 1.3

Table 4. Satisfaction of feedback (domain 2)

Domain 2:												
Satisfaction of feedback	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Rated score mean $\pm$ SD	Factor loadings estimates					Communality
Question (q6-q10)	n, %	n, %	n, %	n, %	n, %		1	2	3	4	5	
Students receive feedback that is helpful	50 (11.5)	57 (13.1)	107 (24.5)	180 (41.3)	42 (9.6)	3.2 $\pm$ 1.2	0.063	0.822	0.032	-0.075	-0.131	0.703
Students feel satisfied with the type of feedback they receive from lecturers	61 (13.9)	123 (28.0)	150 (34.2)	90 (20.5)	15 (3.4)	2.7 $\pm$ 1.0	-0.016	0.884	-0.102	-0.036	0.065	0.798
Feedback given to students is very adequate, beneficial and provides opportunity for learning and improvement	57 (13.0)	113 (25.7)	135 (30.7)	111 (25.2)	24 (5.5)	2.8 $\pm$ 1.1	0.025	0.854	-0.155	-0.050	0.002	0.756
Considering the nature of training feedback given, feedback is not necessary	304 (69.1)	71 (16.1)	21 (4.8)	24 (5.5)	20 (4.6)	1.6 $\pm$ 1.1	-0.192	0.116	-0.084	0.228	0.760	0.686
There is no opportunity for students to ask for feedback from their lecturers	100 (22.9)	130 (29.8)	93 (21.3)	76 (17.4)	38 (8.7)	2.6 $\pm$ 1.3	0.029	-0.202	0.390	-0.070	0.678	0.658

SD=Standard deviation; Domain 2 Rated score mean = 2.6 $\pm$ 1.3

Table 5. Expectation of Feedback (domain 3)

Domain 3:												
Expectation of Feedback	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Rated score mean $\pm$ SD	Factor loadings estimates					Communality
Question (q11-q18)	n, %	n, %	n, %	n, %	n, %		1	2	3	4	5	
Feedback should be given by lecturers not peers	34 (7.7)	64 (14.6)	68 (15.5)	123 (28.0)	151 (34.3)	3.7 $\pm$ 1.3	0.410	-0.079	0.110	0.190	0.384	0.370
The feedback must be constructive and supportive immediately after every lesson	11 (2.5)	37 (8.4)	44 (9.9)	173 (39.1)	178 (40.2)	4.1 $\pm$ 1.0	0.790	0.171	-0.054	0.130	-0.097	0.683
Feedback should be done One-on-One as well as for a whole class	17 (3.9)	37 (8.4)	56 (12.8)	130 (29.6)	199 (45.3)	4.0 $\pm$ 1.1	0.742	0.131	0.016	-0.034	-0.061	0.572
Feedback should be given in the form of appraisal stating student's strengths and weaknesses and areas for improvement	12 (2.7)	22 (5.0)	37 (8.4)	134 (30.4)	236 (53.5)	4.3 $\pm$ 1.0	0.844	0.043	0.062	-0.031	-0.091	0.728
Feedback session should be interactive, beneficial cordial, friendly in a harmonious atmosphere	16 (3.6)	12 (2.7)	31 (7.0)	104 (23.5)	279 (63.1)	4.4 $\pm$ 1.0	0.838	0.002	0.115	0.024	-0.062	0.720
There should be convenient time allocation for feedback session after lectures	16 (3.6)	32 (7.2)	60 (13.5)	141 (31.8)	194 (43.8)	4.0 $\pm$ 1.1	0.812	-0.067	0.039	-0.033	-0.015	0.665
There should be written/oral feedback to improve students' learning and performance	17 (3.9)	17 (3.9)	72 (16.3)	153 (34.7)	182 (41.3)	4.1 $\pm$ 1.0	0.702	-0.162	0.095	-0.110	0.190	0.576
Students' should evaluate lecturers on feedback they receive on and after rotation	16 (3.6)	7 (1.6)	40 (9.1)	153 (34.9)	223 (50.8)	4.3 $\pm$ 1.0	0.737	-0.061	0.237	-0.019	0.071	0.609

SD=Standard deviation; Domain 3 Rated score mean = 4.1 $\pm$ 1.

Table 6. Explained variance

Factor	Proportion (%)	Cronbach's coefficient α	Items
1	26.27	0.877	q11-q18 (8 items)
2	17.16	0.833	q6-q8 (3 items)
3	10.83	0.716	q1, q2, q4 (3 items)
4	6.19	0.506	q3, q5 (2 items)
5	5.57	0.376	q9, q10 (2 items)
Explained variance	66.12		

Figures

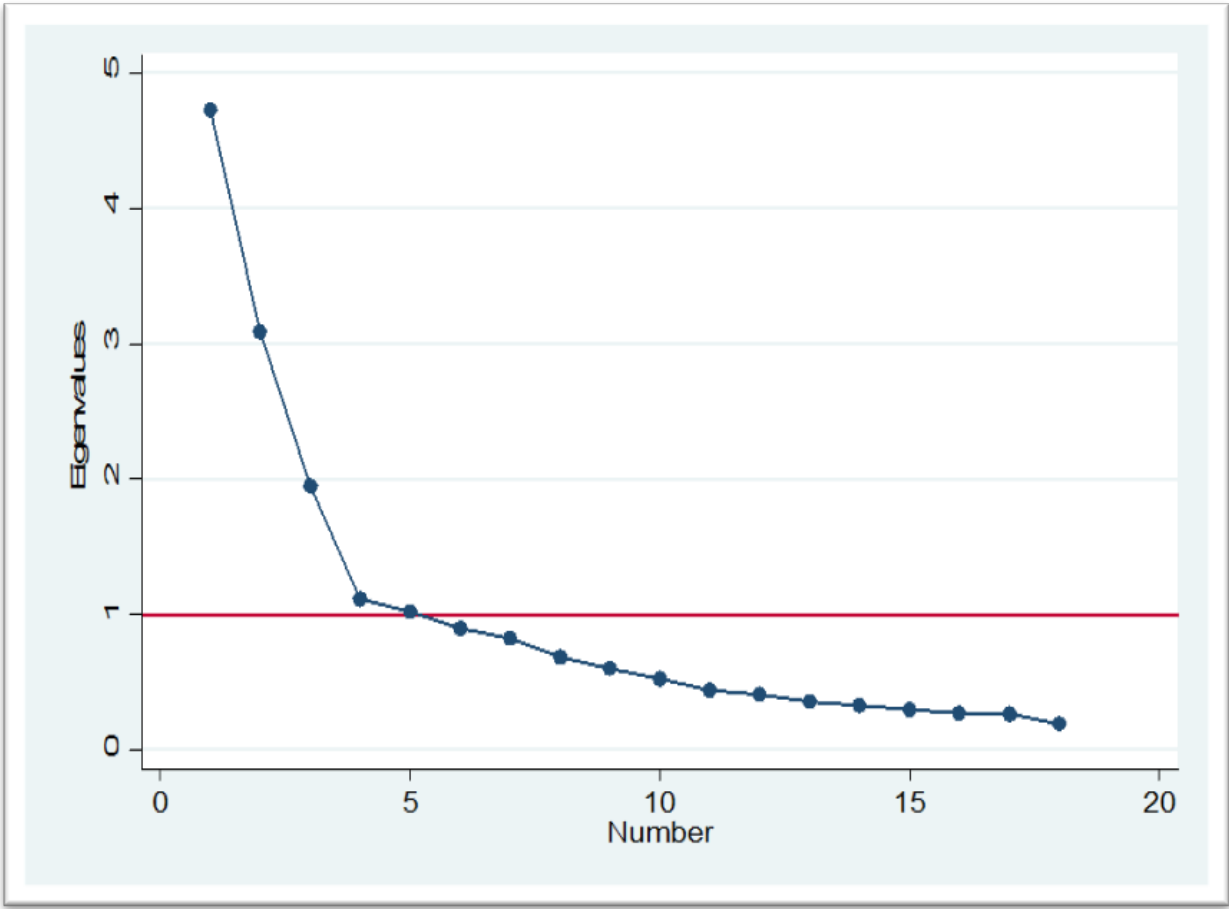


Figure 1

Screen plot of eigenvalues after principal component analysis (pca)

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [QuestionnaireforFeedback.docx](#)