

Anaesthesiology trainers' knowledge, attitudes and practices of feedback in a South African anaesthesiology department

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Background: Feedback is essential for effective postgraduate medical training. There are limited studies that focus on the feedback culture in anaesthesiology training. This study aims to explore the anaesthesiology trainer's challenges and perceptions of knowledge, attitudes and practices (KAP) of feedback to anaesthesiology trainees. The influence of gender and level of experience of the trainer on giving feedback are also explored.

Methods: A mixed methods study was conducted. The sample consisted of all anaesthetists involved in training in the Department of Anaesthesiology at the University of KwaZulu-Natal. Data was collected using an electronic survey consisting of both open-ended and closed-ended questions. Quantitative data was statistically analysed using R Statistical Computing software version 3.6.3. Differences between gender groups were assessed using the Wilcoxon rank-sum test. Correlation plots were used to determine a correlation between the level of experience and giving feedback. All statistical tests were conducted at a 5% significance level. Qualitative data was thematically analysed.

Results: Of 70 trainers, 56 completed the questionnaire. The majority of trainers rated their KAP perceptions of feedback highly, though half admitted to having difficulty giving negative feedback. Significantly more male trainers were confident about their feedback skills and set time aside for giving feedback as compared to female trainers ($p = 0.037$). No significant correlation was found between the level of experience and KAP perceptions. Five major themes related to the challenges were: time constraints and lack of frequency, lack of consistency, lack of follow-up, inadequate feedback tools, and a lack of feedback training.

Conclusion: Although trainers rated their KAP perceptions of feedback highly, this conflicted with some of the actual current feedback practices and challenges reported. Faculty development, continuous professional development, revised feedback tools and formal feedback policies were suggested to strengthen the feedback culture in anaesthesiology training.

Keywords: feedback, anaesthesiology training, medical education

Introduction

Effective supervision and learning in postgraduate medical education requires high quality feedback.¹⁻⁵ Feedback allows students to self-direct their learning in response to an assessment of their performance that fosters lifelong learning, promotes good ethical practice and improved patient outcomes. There is renewed interest in what defines quality feedback and the factors that hinder effective learning.⁶⁻⁸

Giving feedback can be challenging. Focusing on the 'good' and 'neutral' devalues the feedback process and leaves the students believing that their performance is acceptable. This may degrade into what Ende describes as 'vanishing feedback', where no real substance is exchanged.¹ The millennial generation learner poses many challenges, particularly regarding feedback, where they may have insufficient skills to accept negative feedback.^{6,9,10} Trainers' level of experience is of importance, with older, more experienced consultants often reporting more confidence in their feedback and trainees ranking feedback higher when received from a senior consultant.¹⁰ Other factors reported to inhibit feedback are: gender of the trainer, time pressures (especially in the public health service), student's inability to self-assess and fear of damaging relationships between trainer and trainee.^{7,8,10}

There is limited literature focusing on feedback practices in anaesthesiology.^{11,12} Gaps in training needs have been highlighted by Mitchell and Jones¹² who compared current training needs in anaesthesiology to a similar 1990's study by Rosenblatt and Schartel.¹³ They found that only 48% of trainers in anaesthesia felt they had adequate training and resources to give feedback and 'feedback trainer needs were still substantially unmet'.¹³ In two South African studies of six clinical and surgical disciplines (excluding anaesthetics), differences were reported between the trainees' and trainers' perceptions concerning feedback given.^{14,15} Trainees felt that the quality of feedback provided by the trainers was poor, it was not provided often enough, and it was not always based on direct observations.¹⁴ The trainers agreed that feedback was not provided often enough but differed in opinion on the quality and effectiveness of the feedback provided.¹⁵

To enhance feedback culture in the discipline of anaesthesiology, it is essential to evaluate the feedback perceptions of clinical trainers, as effective feedback allows learners to acquire new skills, knowledge and attitudes.^{6,16} Exploring the knowledge, attitudes and practices (KAP) of a particular population helps identify knowledge gaps, attitudes, factors that influence behaviours and the needs and challenges in a

particular department.¹⁷ Hence, this study aims to explore the anaesthesiology trainers' challenges and perceptions of KAP of the feedback culture and processes in a university training department. The influence of gender and level of experience of the trainer on giving feedback are also explored.

Methods

Sample and setting

All 70 specialists who teach anaesthesiology trainees at the University of KwaZulu-Natal (UKZN) Department of Anaesthesiology and Critical Care were invited to participate in the study. Currently, anaesthesiology trainees rotate through various sub-disciplines of anaesthesiology, for example, paediatrics, cardiac and vascular, on a six-weekly basis. The current feedback system includes a form on which feedback is provided. This occurs once at the end of each six-week rotation. The feedback form is usually completed by the head of the clinical unit of the particular sub-discipline after consultation with other specialists in the unit. The specialist completing the feedback form may or may not have directly interacted with the trainee during their rotation. The trainee also provides feedback on a rotation assessment form regarding the rotation and training received whilst rotating through a particular sub-discipline.

Research instrument

This study adopted a mixed methods approach. The Feedback in Medical Education (FEEDME) tool is a validated instrument used to assess: (i) trainee feedback culture and (ii) the trainees' assessment of the feedback provider and process.¹⁸ This instrument was adapted for the quantitative component of this study. The questions were adjusted to the perspective of the trainer as opposed to the trainee. To contextualise the study, the questions were further revised and categorised to assess perceptions related to KAP of feedback in a South African setting (Appendix 1). A four-point Likert scale was adopted for the quantitative component (1 – strongly disagree, 2 – disagree, 3 – agree, 4 – strongly agree). Data related to years of experience and gender were also collected. The qualitative component of the questionnaire consisted of open-ended questions that explored the current feedback tool, feedback challenges, and suggestions to improve the feedback culture and current system (Appendix 1).

The survey instrument was reviewed for face and content validity within UKZN's Department of Anaesthesiology and Critical Care by three senior specialist trainers and examiners. The three specialists were then interviewed regarding the questionnaire content, item construct, question clarity, length of questionnaire and overall assessment of the tool. Based on minor modifications, 31 questions (six on knowledge, nine on attitude and eight on practice) were finalised (Appendix 1). The three specialists used to pilot and evaluate the questionnaire were excluded from study participation.

Data collection

The survey was conducted electronically via Survey Monkey (Survey Monkey®, SVMK, San Mateo, USA). Informed consent was obtained from all participants. All details requested in the questionnaire were non-identifiable for anonymity. Data collection ran over two weeks in June 2020. A courtesy reminder was sent to encourage non-responders to participate. A response rate of 60% was considered adequate.

Data analysis

Data analysis was conducted using R Statistical Computing software version 3.6.3. Descriptive statistics for categorical responses were presented in the form of counts and percentages. Likert scores were summarised as means and standard deviations (SD). Questions were scored for both composite scores of each Likert subgroup (knowledge, attitude and practice) as well as different individual Likert-type questions.

Differences between males and females were assessed using the Wilcoxon rank-sum test. The correlation between the overall scores for knowledge, attitude and practice was assessed using the Pearson correlation coefficient and visualised on a correlation plot. The association between gender and the KAP categorical Likert scales were assessed using either Fisher's test or the chi-squared test, depending on the sample size. Level of experience was described using medians and ranges, and correlation plots were used to determine correlation between level of experience and KAP. Cronbach's alpha reliability coefficient was calculated for the quantitative component of the questionnaire. All statistical tests were conducted at a 5% significance level. Open-ended questions were thematically analysed by KN and then discussed with KG and VSS until consensus was reached.

Results

Cronbach's alpha for the questionnaire was 0.815. Of the 70 consultants surveyed, 56 responded with a response rate of 80%. The majority of the consultants ($n = 53$) who provide training in the department were specialist anaesthetists. The median level of experience was nine years (range 2–40 years). The majority of respondents were female ($n = 30$), with the median level of experience among female respondents being eight years (range 2–25 years). The median level of experience among male respondents ($n = 26$) was 10 years (range 2–40 years). No statistically significant correlation was found between level of experience and participants' knowledge ($r = 0.04$), attitudes ($r = 0.04$) and practices ($r = 0.09$).

The study participants' KAP are illustrated in Figures 1 to 3. A strong positive correlation ($r = 0.64$) was found between knowledge and practice. There was a moderate positive correlation ($r = 0.31$) between practice and attitude. No statistically significant correlation was found between attitude and knowledge ($r = 0.26$).

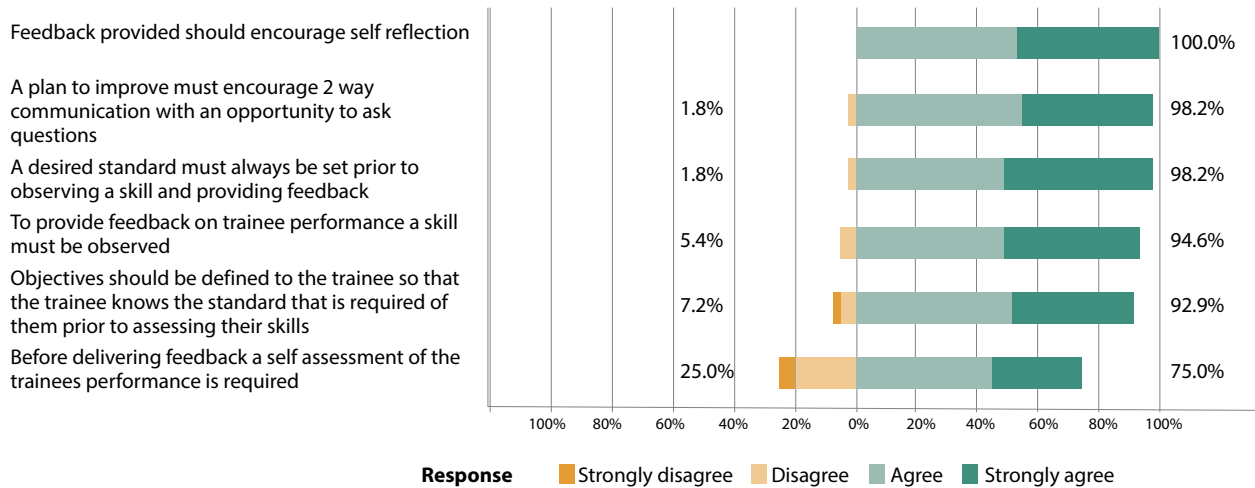


Figure 1: A divergent stacked bar graph showing consultants' knowledge about the feedback process

Knowledge about the feedback process

Consultants rated their feedback knowledge highly, with an overall mean of 3.35 (SD 0.61). The majority of the specialists agreed that observation of skills was needed to provide feedback on trainee's performance (94.64%) and that standards need to be set before observing such skills (98.22%). Further, the majority of the respondents agreed that standards and objectives need to be predefined so that the trainee understood the standard required prior to assessment. Although all consultants agreed that feedback should encourage self-reflection, a quarter of them disagreed that a self-assessment of the trainee's performance was required prior to delivering feedback. However, the majority agreed that a plan to improve must encourage two-way communication with an opportunity to ask questions. No statistically significant differences were found between gender and years of experience to knowledge of feedback.

Attitudes about the feedback process

Figure 2 reflects the attitudes of trainers to the feedback process. An overall positive attitude was found regarding feedback

provision, with a mean of 2.77 (SD 0.66). All consultants agreed that tone of voice affected how feedback is received. The majority felt that they had mutual respect between themselves and trainees. However, almost half of the respondents (48%) reported difficulty giving negative feedback, as they felt the trainee may react negatively. From the open-ended comments, they felt 'people react poorly to criticism' and 'honest feedback is fraught with risk of poor reaction from the trainee; hence it is easier not to engage'. Thus, they were 'afraid to voice exactly what they feel for fear of offending the trainee'. Most consultants (82.14%) reported that the year and level of experience of the trainee influenced how they gave feedback. However, only 16% of respondents were influenced by gender and 18% by race or the ethnicity of the trainee. No further comments were received regarding these issues.

The majority of trainers (80%) felt that service delivery pressures affected feedback delivery. Comments relating to the impact of service delivery were, 'the stress of service delivery negatively impacted registrar training', 'it affected timeous feedback' and 'often encountered challenges balancing service delivery and

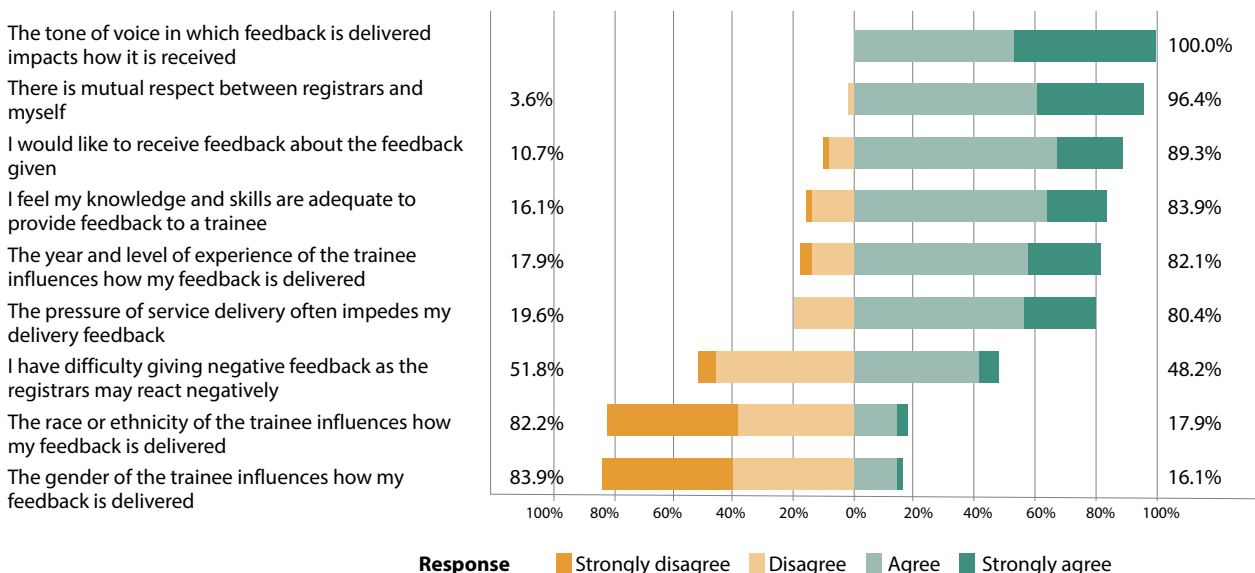


Figure 2: A divergent stacked bar graph showing consultants' attitudes about feedback

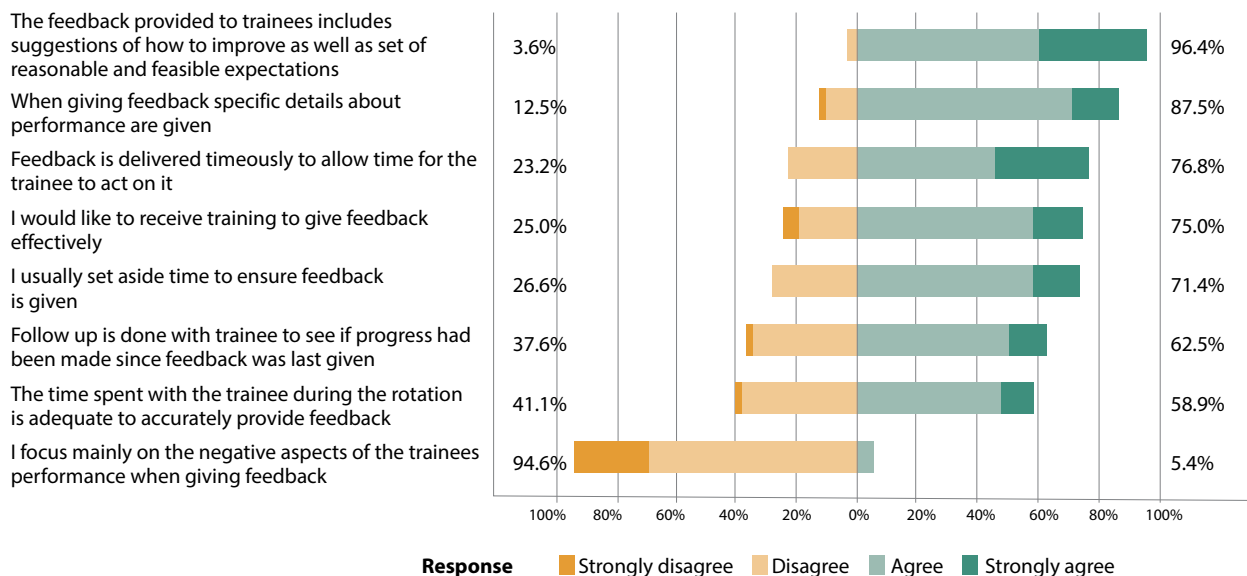


Figure 3: A divergent stacked bar graph showing consultants' current feedback practices

academic work! The consultants were asked about their current ability to provide feedback. Although most of them felt that they had the knowledge and skills to provide feedback, significantly fewer female trainers believed that they had adequate skills to give feedback ($p = 0.037$). Further, the majority of participants would like to receive training to give effective feedback and to receive feedback on the feedback they give.

Current practices of feedback

A large proportion of respondents actively set time aside to give feedback in their current practice (Figure 3). However, significantly more male trainers set time aside to give feedback as compared to female trainers ($p = 0.037$). Although 76.8% felt that they delivered feedback timeously allowing trainees to act on it, trainers were somewhat divided regarding whether the time with the trainee during the rotation was adequate to accurately provide feedback. When asked about the content of feedback that trainers currently provide, the majority gave specific details of performance (87.5% of respondents), included suggestions on how to improve their performance (96.4% of respondents), and did not focus mainly on negative aspects of trainees' performance (94.6%). However, just over one-third of respondents (37.5%) admitted to not following up with trainees to see if progress had been made.

Challenges and suggestions

Five major themes were identified related to the challenges of giving feedback and suggestions to improve feedback practices.

(i) Time constraints and frequency

Many consultants highlighted that the current practice of a single formalised feedback session at the end of a rotation was a challenge. Most respondents stated that feedback should be done 'during a rotation, not at the end'. Respondents reported that feedback was 'not done regularly', 'not frequent enough' and that 'feedback was delayed when immediate feedback would give maximal effect'. Also, respondents stated that adequate

'time and place was not allocated' for feedback and 'formal feedback should be assigned dedicated time'. Most respondents suggested formalising and increasing the 'frequency of feedback sessions', ranging from 'twice in a rotation' to 'ongoing and continuous'.

(ii) Lack of consistency

A challenge to anaesthesia and the rostering of trainees is the lack of consistency in working with a particular trainee. Respondents stated that they had not worked enough with a specific registrar to give constructive feedback. Comments included the following: 'only worked with a registrar once, not frequent enough interactions to give feedback', 'interactions between specialists and registrars is variable' and 'different consultants allocated to work with a trainee on a slate daily'. Specialists felt that feedback by a 'single consultant with little knowledge of the trainee was of little benefit'. There were multiple suggestions that feedback be collated by a group of trainers given the challenge that 'trainees work among a pool of consultants'; also suggesting that the 'entire consultant body should have discussions and give joint feedback to registrar'.

(iii) Inadequate feedback tools

Inadequacies in the current paper-based feedback tool were highlighted. It was rated as being 'too broad and generic' and 'not rotation specific', while it 'does not allow for two-way communication' and is 'completed as a mere formality'. With regards to the current feedback tool used in the department (a paper-based form at the end of each rotation), most respondents (73.21%) felt that it was an inadequate tool to give effective feedback. An electronic method was preferred by 80.36%, with 75% willing to use an app on a mobile device to provide feedback more frequently. Respondents suggested that 'pre-determined objectives and standards should be defined for both trainer and trainee' and 'a list of directly observed procedures' be given on the feedback tool before the start of a rotation to improve feedback systems.

(iv) Lack of feedback training

Trainers commented that there was 'lack of guidance on how to provide feedback constructively', and that 'poor feedback may be destructive'. Respondents stated that 'consultants are not trained to be leaders', 'consultants are not trained to give feedback and registrars are not trained to receive feedback', and that inadequate feedback would 'only benefit the high clinical achievers' but doesn't help the 'struggling registrar'. They also felt that 'time not allocated to equip themselves on how to adequately deliver feedback'. Suggestions to improve included 'regular leadership and feedback training' and 'teaching trainers when and how to give feedback'.

(v) Lack of follow-up

Difficulty following up with trainees was also identified as a barrier. By providing formal feedback only once at the end of a rotation, follow-up on trainees' improvement of their skills was difficult. Respondents stated that 'there was no opportunity to see if students had improved', feedback on 'exiting a rotation meant no time for remedial intervention', and felt that it was 'not fair to point out deficiencies at the end when you have worked with someone and had not intervened timeously'.

Discussion

This study found that the majority of trainers rated their KAP perceptions of feedback highly, yet half of them admitted to having difficulty giving negative feedback. No significant correlation was found related to level of experience; however, significantly more male trainers were confident about their feedback skills and set time aside for giving feedback compared to female trainers ($p = 0.037$). A strong correlation was found between knowledge and practice, indicating that for feedback practices to be effective, good knowledge of feedback is imperative.

Although current feedback practices were reported on positively, trainers highlighted several challenges that hindered the efficacy, frequency and timing of feedback. Inconsistent trainer–trainee alliances were also highlighted as a challenge in developing an appropriate feedback culture. These results support other findings that when feedback is considered to be ineffective, it may be attributed to feedback content and how the feedback was given rather than the lack of understanding of what feedback is.^{19,20}

Unlike current literature, our study found no statistically significant correlation between the experience of the trainer and the KAP of feedback. Previous studies found that 'older, more experienced consultants were more confident about providing feedback', and seniority of the consultant affected how feedback was received as senior consultants were held in higher esteem.¹⁰ However, similar to our findings, previous studies found that 'male consultants felt more comfortable giving constructive feedback as compared to females',²¹ and 'males felt that feedback sessions were always successful'.¹⁰ Our study found that male trainers felt more confident about their feedback skills and gave feedback more frequently than female counterparts. This highlights a need to create more enabling environments and to

address possible power influences based on gender. While there is a paucity of medical literature investigating gender influences on medical training, more females are entering the medical world, which will address the under-representation of women in academic medicine.²¹ Future studies are needed to interrogate the factors that influence trainer confidence in a clinical training environment, particularly related to the feedback culture.

Similar to previous studies, we found that almost half of the trainers admitted to having difficulty giving negative feedback, as they felt the trainee may react negatively.¹⁴ This is a major barrier to feedback, which leads to missed opportunities for the trainee to recognise underperformance and improve. Unchecked, a trainee may pass through a specialty over-confident without realising their shortcomings. For effective feedback, both positive and negative aspects of feedback should be given in a balanced manner.^{8,18,22,23} Cultural competence training is recommended to address these concerns and increase trainer skills, in addition to training focused on how to deliver negative feedback.

Good quality feedback should be timeous and frequent, based on defined standards and objectives.^{7,22,23} Consultants raised concerns regarding the lack of predefined objectives to both educators and learners, and the current paper-based evaluation tool which is a single feedback session often completed by a consultant who may be unfamiliar with the trainee. The tool was identified as too generic, not rotation specific, and perceived as a mere formality. Most respondents indicated a preference for a mobile or computer-based tool. There were also suggestions to develop multiple feedback sessions throughout the rotation. Mitchell and Jones describe an ongoing intervention in anaesthesia called 'Feedback Wednesday'.¹² It involves sending electronic reminders to both trainers and trainees every Wednesday to set dedicated time for face-to-face feedback conversations. Implementing such initiatives with frequent feedback sessions based on pre-determined objectives and a plan for improvement may promote and enhance the feedback culture within anaesthesiology.^{1,14,15,25}

Our study found that, whilst all consultants provide feedback, very few acknowledged the continuous ongoing nature of feedback and many were unsure if the time spent with the trainee was adequate. Trainers reported often working with a different trainee in theatre and that trainees were exposed to a pool of consultants rather than an individual. At least one-third of consultants admitted to not following up on a trainee post-feedback. This could be attributed to the high-pressured, under-resourced public health system. Most of the consultants in this study have to balance providing a specialised anaesthesia service to often high-risk patients with trying to create optimal learning environments for the trainee. A good teacher–student alliance, working together as a team to build dialogue and trust where feedback can be given and received, is critical for effective training.²³ Feedback should be a communication tool, allowing trainers and trainees to actively dialogue.²²⁻²⁴ To address concerns raised in this study we recommend a buddy system, where a particular trainer and trainee are paired together for at least a week in a rotation. In addition, creating a pooling system to

collate different consultants' feedback to a trainee could provide more timeous and constructive feedback.

We found that the high self-rating of the knowledge and feedback practices contrasted with the consultants' challenges regarding feedback, which may lead to trainees experiencing feedback poorly. Previous studies have shown that trainers often have an inflated view of their feedback, when in reality, the trainee has rated the feedback received as poor.^{14,15,23,26} Almost all trainers in this study requested training and were interested in receiving comments on their feedback quality and technique. Across disciplines, consultants become specialists in a particular field but are not taught how to share their expertise and train others effectively.^{11,12,15,24,26,27} Training courses and skills development on delivering effective feedback are at the forefront of producing good trainers. These findings support the importance of reflective practice and continuous professional development to strengthen the efficacy of clinical training.

Study limitations

This study was conducted at a single training centre. Feedback may be delivered in different ways at other anaesthesiology training centres across South Africa. However, this department's overall characteristics should be similar to others with regards to training of anaesthetic registrars. As with all survey-based research, data collected via Likert-type and Likert scale surveys has limitations. Data collected is self-reported by respondents, which is often subjective and difficult to verify independently. To ensure more appropriate qualitative assessments for KAP studies, a semi-structured interview technique, as opposed to electronic surveys, could be used. This study was conducted during the COVID-19 pandemic, and the need to limit physical contact and reduce numbers in theatre meant interview-style techniques were not feasible during the study period.

Conclusion

The clinical trainers in anaesthesiology rated their perceptions of KAP highly. This conflicted with some of the actual current feedback practices. Context-specific train-the-trainer workshops, revised feedback tools and formal feedback policies are needed to facilitate the development of an effective feedback culture in the South African postgraduate medical training setting. As this study investigated the trainers' perspectives, we recommend that future studies should focus on anaesthesiology trainees' KAP of feedback.

Ethical approval

This study was granted ethical approval by the Humanities and Social Sciences Ethics Committee, University of KwaZulu-Natal (HSSREC/00001040/2020).

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